

OVERSEAS NATIONAL INFORMATION INFRASTRUCTURE POLICIES

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EXECUTIVE SUMMARY

1. This paper aims to give an overview of the development of National Information Infrastructure (NII) policies in overseas territories and examine the implications of having a NII policy for Hong Kong.
2. Many territories have drawn up a blueprint and have their own objectives for developing a NII. However, Hong Kong has not come up with a plan on NII.
3. The private sector takes the lead in the development and deployment of the information infrastructure in many overseas territories while the government plays the role of providing a competitive environment, providing appropriate legislative and regulatory frameworks, funding research and acting as a model user.
4. The development of NII policies in a territory entails the establishment of a focal point within the government to coordinate efforts from public and private agencies. The focal point is often assisted by an advisory body with representatives from the industry and interest groups.
5. Physical information infrastructure such as network-to-network connections, telephone lines and cable networks forms the backbone of a NII. Hong Kong does not lag behind other territories in its physical information infrastructure.
6. Territories with NII policies are willing to invest in education and research to develop information technology human resources. However, Hong Kong has not targeted funds for research in NII.

7. Various territories including Hong Kong are reviewing the copyright, data security and content control legislation to find the right balance among interests of various parties over the electronic networks.
8. Various territories are liberalizing regulatory frameworks on different communications systems to facilitate the development of NII. Hong Kong is also liberalizing its telecommunications system although there is no specific plan for NII. Some governments also plan to have a converged regulatory framework in anticipation of the convergence of various media on NII.
9. Many territories have selected one single government body to coordinate the dissemination of government information on the Internet. Their homepages are also linked to other quasi-government bodies or parliaments so that the public can have one stop access to government or government related information. In pursuing the above two aspects, Hong Kong has performed quite well when compared with the other Asian territories. However, in terms of volume and types of information available on the Internet, Hong Kong is not as good as the more advanced territories such as the US.
10. Hong Kong needs a coordinated effort to build on its physical information infrastructure to maintain its competitiveness in terms of communications in the world.

OVERSEAS NATIONAL INFORMATION INFRASTRUCTURE POLICIES

PART 1 - INTRODUCTION

1. Background

1.1 In December 1996, the Legislative Council Panel on Information Policy discussed the development of Information Superhighway and Internet in Hong Kong. The Panel requested the Research and Library Services Division (RLS) to conduct a research into the National Information Infrastructure (NII) policies in overseas territories.

2. Scope of Study

2.1 This paper attempts to give an overview of the development of NII of different territories and examine the implications of having a NII policy in Hong Kong.

2.2 Part 2 of this paper gives a general background of NII and the objectives behind the NII policies.

2.3 Part 3 looks into the role played by the government and various bodies associated with the development of NII policies.

2.4 Part 4 gives a more detailed account of the NII policies of different territories.

2.5 Part 5 summarizes the overseas experience in NII and gives a brief analysis of developing a NII policy in Hong Kong .

3. Methodology

3.1 The study involves a combination of information collection, analysis and interview.

3.2 Requests for information on overseas NII policies were sent to ministries, agencies, NII-related bodies of Canada, the European Union, Finland, France, Germany, Japan, Korea, Malaysia, Netherlands, Philippines, Singapore, Taiwan, Thailand, the United Kingdom (UK) and the United States (US).

3.3 To date, there is limited response from the UK, Finland and Japan which have posted publications to us. However, no response to our specific enquiries has been received. One reason might be the Christmas and New Year Holidays during the research period. As a result, information on overseas NII policies was mainly collected over the Internet.

3.4 Requests for information on development of NII in Hong Kong was sent to local interests groups and the Hong Kong government. A meeting was also held with local interests groups to collect information and opinions. Reference has been made to the submissions by various parties to the Legislative Council Panel on Information Policy.

PART 2 - NII POLICIES

4. NII

4.1 National Information Infrastructure (NII) has an expansive meaning¹:

- It encompasses more than a nation-wide telecommunications facility to carry, exchange, store or process message, voice, data, still and video images.
- It includes telephones, fax machines, copper wire / coaxial / and fiber optic cable, satellites, microwave transmission, computers, printers, televisions and a range of new equipment and technologies.
- It will integrate and interconnect these components in a technologically neutral manner so that no one industry will be favoured over any other.
- The basic building block of the NII is the telephone service and the high-speed telecommunication backbone linking the whole country.
- It permits two-way communication.

Sometimes, the terms NII, Information Superhighway, Information Highway and Information Society are used interchangeably.

¹ National Information Technology Committee and the National Electronics and Computer Technology Centre, *IT2000: Thailand National IT Policy*.

5. Development Towards an Information Society

Table 1 - Development Towards an Information Society

| | Development |
|-----------|---|
| G7 | <ul style="list-style-type: none"> - held the G7 Ministerial Conference on Information Society in 1995 (see Appendix 1 for details) - adopted eight principles and six means for establishing a global Information Society - agreed 11 joint projects |
| Canada | <ul style="list-style-type: none"> - published in 1996 an action plan entitled “Building the Information Society: Moving Canada into the 21st Century” in response to the final report of the Information Highway Advisory Council - highlighted four main tasks for the government to prepare for Canada’s transition to a knowledge-based society |
| Japan | <ul style="list-style-type: none"> - the “Medium Range Plan For Advancing Info-communications Infrastructure By The Year 2000” in 1996 outlined various reforms to prepare the environment for the advanced info-communications society |
| Korea | <ul style="list-style-type: none"> - established a program to build the “Korean Information Infrastructure” in 1994 - planned to invest 45.2 trillion Won by the year 2015 to construct the network |
| Singapore | <ul style="list-style-type: none"> - released the “Information Technology (IT) 2000” in 1992 |
| Thailand | <ul style="list-style-type: none"> - set out “Thai IT (Information Technology)” policies which contained a five-year plan for expanding and modernizing remote communications and would be implemented in the 21st century |
| UK | <ul style="list-style-type: none"> - released the “Information Society: Agenda for Action in the UK” in 1996 which outlined a 40-point agenda for action in the UK |
| US | <ul style="list-style-type: none"> - released the “GII: Agenda for Cooperation” in 1995 which listed specific joint actions for the US government, government of other nations and industrial groups |

Source: References 1, 3, 21, 24, 27, 28, 31, 49

5.1 As of to date, Information Society has not yet been achieved and there is still considerable debate on the technologies underlying the Information Society. The development towards the Information Society of different territories depends on their socio-economic development and their level of information communication technology development, as illustrated in Table 1. Nonetheless, many territories recognize the benefits brought by the Information Society and have started planning and working towards the creation of a NII in their own territories.

6. Objectives Behind the NII Policies

Table 2 - Objectives of NII Policies of Different Territories

| | Canada | Finland | Japan | Korea | Singapore | US |
|--|--------|---------|-------|-------|-----------|----|
| Blueprint for an Information Society | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Objectives of NII | | | | | | |
| boost domestic economy by creating jobs and promoting private investment | ✓ | | ✓ | | ✓ | ✓ |
| gain and maintain a competitive edge within the world economy | | ✓ | | ✓ | ✓ | ✓ |
| ensure universal access to information at reasonable cost | ✓ | ✓ | | | ✓ | ✓ |
| reinforce country sovereignty and cultural identity | ✓ | ✓ | | | | |
| Promote R & D | | | ✓ | ✓ | ✓ | ✓ |

Source: References 1, 3,6, 19, 27, 46, 49

6.1 Different territories have their unique aims which they want to achieve through the NII policies. Such objectives are usually related to the level of economic development in respective territory. For example, Singapore aims to become the “Information Hub” for Asia.

Korea wants to promote informatization. Japan wants to diffuse telework and spread electronic kiosks. The US wants to compete and win in the global economy. A summary of the objectives of six territories is in Table 2.

6.2 Hong Kong has not come up with a plan on NII and has not announced any stated objectives it wants to achieve through NII. Individual government body may have their own objectives. For example, the Office of Telecommunications Authority (OFTA), the statutory body to oversee the regulation of telecommunications sector, states that one of its policy objectives is for Hong Kong to serve as preeminent communications hub for the region now and into the next century.

PART 3 - ROLE OF GOVERNMENT

7. Role of Government in the Development of NII

Table 3 - Role of the Government

| Territory | Role of government | Major source of initiative in building the Information Infrastructure | | Remarks |
|-----------|--|---|------------|---|
| | | Private sector | Government | |
| Canada | <ul style="list-style-type: none"> - create a competitive environment for the telecommunications and information industry - act as a model user | ✓ | | Information Highway Advisory Council: the private sector should build and operate the Information Highway |
| HK | <ul style="list-style-type: none"> - provide a favourable environment to facilitate the development of Information Superhighway | ✓ | | Economic Services Branch: the private sector should be left to provide Information Infrastructure with minimum government intervention |
| Japan | <ul style="list-style-type: none"> - set the direction for development and provide support | ✓ | | Ministry of Posts and Telecommunications: development of an info-communications infrastructure should take place by private-sector initiative |
| Korea | <ul style="list-style-type: none"> - promote building of Information Superhighway - foster the information and communication industry | ✓ | | Ministry of Information and Communication: regulatory policies will be abolished to encourage private firms to actively participate in the deployment of Information Infrastructure |
| Singapore | <ul style="list-style-type: none"> - transform Singapore into an Intelligent Island where the use of information technology is pervasive in every aspect of its society | | ✓ | the government will spend \$82 million on the core infrastructure for the development of a multi-media broadband network to be called Singapore ONE |
| UK | <ul style="list-style-type: none"> - research into and promote awareness of the potential opportunities of the Information Infrastructure | ✓ | | Agenda for Action in the UK: the basic infrastructure for the Information Highways of the future is expanding rapidly with major investments being made by telecommunications operators |
| US | <ul style="list-style-type: none"> - complement and enhance the efforts of the private sector | ✓ | | US Agenda for Action: Private sector firms are already developing and deploying the Information Infrastructure |

Source: References 1,3, 5,6, 24, 27, 46 and Economic Services Branch, Government of Hong Kong

7.1 In many territories, the private sector takes the lead in the development and deployment of the information infrastructure since it funds, builds and operates the information infrastructure such as the telecommunications and broadcasting networks. In these territories, the main role of the government is to complement the effort of the private sector. This view is also shared by many local interests groups in Hong Kong. (Appendix 2 summarizes their views) Government actions usually include the followings:

- providing a competitive environment for the industry
- providing an appropriate legislative and regulatory framework for the industry
- providing funding for research and development of the industry
- acting as a model user

8. Government Structure Overseeing the NII Policies

Table 4 - Bodies Related to the Development of NII Policies

| Territory | Name of body | | Chairman | Member | Function |
|-----------|--|--------------------------------------|--|--|--|
| | Government body | Related body | | | |
| Canada | | Information Highway Advisory Council | non-official | Organizations and interested parties involved in the development and use of information technology | - advise the government on 15 issues ranging from competition to culture, from access to learning and research and development |
| Japan | Advanced Information and Telecoms Society Promotion Headquarters | | Prime Minister | Cabinet Ministers | - contribute to the creation of Information Infrastructure through the completion of a nation-wide optical-fiber network by the year 2010 |
| Korea | Ministry of Information and Communication | | not applicable | not applicable | - draw up and implement blueprint for an Information Society |
| Singapore | Singapore National Computer Board | | Director, Administration and Research Unit, National Trades Union Congress | Officials and representatives from major corporations | - act as the national IT authority dedicated to the development of the IT industry and manpower - formulate and implement the IT 2000 masterplan to transfer Singapore into an Intelligent Island |

| Territory | Name of body | | Chairman | Member | Function |
|-----------|------------------------|--|-------------------------------------|--|---|
| | Government body | Related body | | | |
| Taiwan | NII Steering Committee | | not available | not available | - formulate and coordinate plans for the implementation of the NII since 1994 |
| UK | | Multi Media Industry Advisory Group (MMIAG) | Minister for Science and Technology | Representatives from the publishing, communications, IT, health and education sectors, academics, and senior officials | - high-level advice on technological and commercial changes shaping the development of multi-media |
| | | National Information Infrastructure Task Force (NIITF) | non-official | Representatives from companies in electronics, information technology, communications, content and publishing | - help society realize the benefits of digital technology |
| | | Ministerial Group on Information Technology (GEN 37) | Lord Privy Seal | Ministers | - identify and take forward significant cross-departmental initiatives to ensure that developments in information technology are exploited to the full in the national interest |
| | | Central Information Technology Unit (CITU) | Official | Cabinet | - devise a set of strategies and policies which will enable the government to exploit the opportunities provided by information and communications technology |

| Territory | Name of body | | Chairman | Member | Function |
|-----------|--|----------------------|-----------------------|--|--|
| | Government body | Related body | | | |
| US | Information Infrastructure Task Force (IITF) | | Secretary of Commerce | senior officials from federal agencies | <ul style="list-style-type: none"> - articulate and implement the administration's visions for the NII - help agencies build consensus on difficult policy issues - coordinate government efforts in NII applications |
| | | NII Advisory Council | non-official | representatives of private industry, interest groups and state and local governments | <ul style="list-style-type: none"> - advise the IITF on matters relating to the development of the NII - solicit public comment to ensure that it hears the views of all interested parties |

Source: References 1, 3, 5, 6, 24, 27, 31, 36, 40, 45, 46

Focal Point

8.1 The building of a NII demands a high level of coordination, collaboration and integration of efforts from public and private agencies. A focal point within the government structure is thus needed to coordinate the various effort in developing the NII and to fulfill the government's role in the development. The focal point can be a ministry, a government department, a government body or a task force formed by officials from relevant departments.

8.2 The UK government does not have a focal point to coordinate its various initiatives and bodies related to the development of NII. The House of Lords urged the government to set up a high profile national task force involving the private sector to help create the Information Society in the UK and to drive forward a nationwide initiative.”²

8.3 In the case of Hong Kong, there is no one government department or policy branch to take charge of the information infrastructure development and there is no coherent policy on such development. Different policy aspects related to the information infrastructure development are left to different branches or departments. For example, the Home Affairs Branch is responsible for government policy on the dissemination of information to the public, including the dissemination via the Internet. The Finance Branch has policy responsibility over the Information Technology Services Department’s development of the government’s IT infrastructure. The Economic Services Branch has policy responsibility on telecommunications matters.

Advisory Bodies

8.4 Advisory bodies are usually set up to provide input from the private sector concerning the development of NII. These bodies usually involve experts, industry representatives and interests groups etc. The Information Highway Advisory Council of Canada is outstanding in its impact on the government. After the Council published its final report in 1995, the Canadian federal government responded by pulling more than 30 departments together to draw up an action plan in the following year. About two-thirds of the Council’s recommendations were accepted and became part of the government’s action plan. In Hong Kong, apart from the Legislative Council Panel on Information Policy, there is no single body charged with the task of providing input from the private sector on the development of NII.

² Select Committee on Science and Technology, *Information Society: Agenda for Action in the UK*, House of Lords, July 1996

PART 4 - NII POLICIES IN DETAILS

9. NII Policy on Physical Information Infrastructure

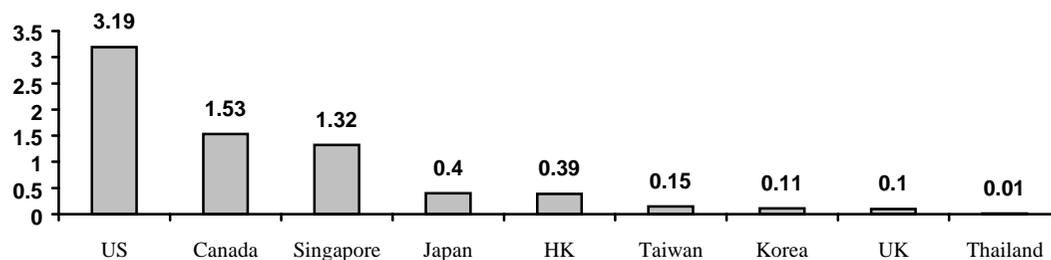
Current Development

9.1 As mentioned, the building block of NII is the telephone service and the high-speed telecommunication backbone linking the whole country. An advanced physical information infrastructure will facilitate the development of NII. While an advanced physical information infrastructure will not automatically lead to a NII, a good physical information infrastructure is of fundamental importance to the development of NII.

9.2 The basic elements of the physical information infrastructure are the network-to-network connection, telephone lines and cable network.

Network-to-Network Connection

Figure 1 - Number of Host Computer Connected to the Internet Per 100 Population (July 1996)



Source: Reference 32

9.3 One common indicator of the extent of network-to-network connection is the number of host computers connected to the Internet. A host, in simple terms, means a single machine on the Internet. Figure 1 gives the number of host computers connected to the Internet per 100 population in July 1996. The total number of host computers connected to the Internet was estimated at 12,880,699. The US has the largest number of Internet connection and was followed by Canada, Singapore, Japan, Hong Kong, Taiwan, Korea, UK and Thailand.

Telephone Lines

Table 5 - Number of Telephone Circuits in the Asia-Pacific Region

| Territory | No. of telephone circuits per 100 population |
|------------------|---|
| HK | 54* |
| Australia | 49.6 |
| Japan | 48 |
| Singapore | 47.2 |
| New Zealand | 47 |

Remark: * 98.7% of households with telephones

Source: Reference 6 and the Economic Services Branch, Hong Kong government

9.4 Table 5 shows the number of telephone circuits per 100 population of different territories in the Asia-Pacific region. It is noted that Hong Kong has the highest number of telephone circuits and is followed by Australia, Japan, Singapore, and New Zealand. However, other territories of the region showed two-digit average annual growth in the number of circuits per 100 population between 1984 and 1994: China, 25.7%; Thailand, 18.4%; Korea, 12.2%. The average world-wide growth rate was 5.2%³.

Cable Networks

Table 6 - Homes Passed by Cable (1994)

| Territory | % of homes passed by cables |
|------------------|------------------------------------|
| US | 99.3% |
| HK | 70% * |
| Germany | 64.7% |
| Singapore | 35.5% |
| Japan | 30% |
| UK | 17.8% |

Remark: * refer to 1996 data

Source: Reference 16 and the Economic Services Branch, Hong Kong government

³ Ministry of Posts and Telecommunications, Communications in Japan: White Paper 1996.

9.5 Broadband cable networks have been regarded as the most effective infrastructure for the NII. Table 6 shows that the US has the highest number of homes passed by cable followed by Hong Kong. However, it should be noted that information for Hong Kong is current while those for other countries were in 1994.

9.6 It is noted from the above tables that although the Hong Kong government has not taken the lead to develop the physical information infrastructure, the private sector firms are already developing and deploying that infrastructure. In terms of network-to-network connection, telephone lines and cable connection, Hong Kong does not lag behind other territories.

Plans for the Development of Physical Information Infrastructure

9.7 The plans for physical information infrastructure of a particular territory depend very much on the existing level of development and the territory's policy goal. For example, in the US where the physical information infrastructure is already very advanced, the government does not need to have any major initiatives in this respect. Singapore wants to be the information hub for Asia so it plans to build a nationwide multi-media broadband network called Singapore ONE to link up the whole island. In territories where the physical information infrastructure is less developed, the governments will allocate more resources for the infrastructure. For instance, Korea plans to set up a three-step National Backbone Computer Network from 1997-2001 and extend the National Information Superhighway Network into 80 cities. Taiwan has planned to expand the telecommunications backbone network for the NII (HiNet) within six years since 1994.

9.8 Hong Kong does not have an overall plan for the construction of the physical information infrastructure. The provision of service is very much driven by market demand. According to the Economic Services Branch, local fixed telecommunications network operators have been making the necessary preparations to upgrade their networks, namely, through the installations of optical fibers to pave the way for the introduction of interactive multi-media services and broadband services.

10. NII Policy on Education and Research

Table 7 - Objectives of NII Policy on Education

| Territories | Expands IT education to all levels of education and to all people | Design special IT training for teachers | Launch new projects or initiatives for advanced IT in education | Others |
|-------------|---|---|---|---|
| Finland | ✓ | ✓ | | - urgent provision of access to information network services for the entire school system |
| Singapore | | | ✓ | - provide \$6 million fund to subsidize the training of 500 IT professionals in the Critical IT Resource Programme |
| Taiwan | ✓ | | | - promote NII literacy through networking and Internet training |
| Thailand | ✓ | | ✓ | - establish a National Interactive Multimedia Institute to oversee the development of educational courseware and application software; - increase the pool of IT manpower at all levels |
| UK | ✓ | ✓ | ✓ | - issue consultative documents for superhighways for education; - set out priorities for the development of education superhighways and outlined action for government, industry and the education service |

Source: References 19, 20, 28, 39

10.1 Governments included in Table 7 recognize that IT will play a major part in the daily lives of their citizens. They have to prepare their citizens for the contribution to the growth of NII and understanding and enjoying the services that the NII make available. For example, the aims of UK education policy⁴ are to ensure a supply of professionals to develop or exploit information resources; to develop a more general information literacy and ability to manipulate information resources among the population as a whole.

⁴ Select Committee on Science and Technology, *Information Society: Agenda for Action in the UK*, House of Lords, July 1996

10.2 The Hong Kong government also recognizes the importance of providing high quality manpower training through tertiary institutions and the Vocational Training Council. To achieve this aim, the government is planning to formulate a strategy for promoting the more extensive use of information technology in consultation with the business sector and tertiary institutions. The government also plans to enhance the knowledge and skill of secondary students in information technology by assisting all public sector secondary schools to access the Internet from 1996-1997 school year.

Table 8 - Financial Support for Research and Development (R & D)

| Territory | Financial support for R & D |
|------------------|--|
| Canada | ✓ (spends some C\$3.2 billion on R & D by government laboratories; an additional C\$50 million into the Business Development Bank of Canada to increase its financing for strategic growth sectors, such as new technology; the Scientific Research and Experimental Development tax credit provides more than \$1 billion in indirect assistance to the private sector to conduct R & D; \$250 million in investment support to encourage technological innovation at the near-market end of the R & D cycle by 1998-99.) |
| Finland | ✓ |
| Japan | ✓ |
| Korea | ✓ (invest 900 billion Korean Won in 1995 to secure high technologies necessary to further develop computer, mobile communications, and satellite communications sectors) |
| Singapore | ✓ (the government funds 11 research institutes and centers that provide the technological resources and support to industry) |
| Taiwan | ✓ |
| US | ✓ (US\$1.96 billion for the project on High Performance Computing and Communications Program, grants to fund projects to connect institutions to existing networks, enhance communications networks and permit users to interconnect among different networks) |

Source: References 1, 3, 19, 20, 27, 31, 39, 45, 46

10.3 Most governments recognize that R & D will benefit the technological of the Information Society and are willing to give support to promote R & D (summarized in Table 8). Apart from allocating research funds, the Japanese government expands the scope of R & D so that the scope would cover unprofitable projects which may be significant to the further advancement of NII. Canada proposes to give additional tax credit for firms which lack financial resources such as the small and medium sized firms in the industry. The US will give specific support through research partnerships and other mechanisms to accelerate technologies where market mechanisms do not adequately reflect the nation's return on investment.

10.4 While the Hong Kong government has given support to R & D, the support is not targeted on R & D for the development of NII. It depends on the initiatives by the academics to obtain fund for research that helps develop NII for Hong Kong.

11. NII Policy on Legislative and Regulatory Framework

11.1 Policy in this area represents a balance of various interests such as that between freedom of speech and the need to control the transmission of offensive, harmful or illegal materials and that between freedom of access to information and copyright. If the government fails to strike a balance acceptable to all parties, policies in these areas could become a kind of interference to the private sector. A good legislative framework could facilitate the development and encourage usage of NII.

Intellectual Property Protection**Table 9 - Development in Intellectual Property Protection Policies**

| | Policy objective of intellectual property law | | Development |
|--------|---|------------------------------|---|
| | Balance of interest between copyright holders and users | Others | |
| Canada | ✓ | | <ul style="list-style-type: none"> - take steps to increase public's understanding of intellectual property concerns in the context of the Information Highway - tabled amendments to the Copyright Act in 1996 to address the rights of copyright owners and exceptions for users - the Council recommended the industry and creator and user communities to create administrative systems to streamline the clearance of rights for use of works in a digital medium |
| HK | ✓ | | <ul style="list-style-type: none"> - review legislation to accommodate technological advances, particularly in the fields of broadcasting, cable diffusion, computer software and information technology |
| Japan | ✓ | Ensure international harmony | <ul style="list-style-type: none"> - multi-media copyright issues under review |
| UK | ✓ | | <ul style="list-style-type: none"> - "watermarking" technologies, enabling the identification of non-authorized recordings, considered by the government as a possible way forward to deal with copyright issues on the Information Highway - encourage an on-line code of conduct |
| US | ✓ | | <ul style="list-style-type: none"> - investigate how to strengthen domestic copyright laws and international intellectual property treaties to prevent piracy and to protect the integrity of intellectual property |

Source: References 3, 5, 6, 24, 26, 46, 50

11.2 Advances in digital technology and the rapid development of communication technologies, including networking, have dramatically increased the ease with which content can be reproduced, manipulated, adapted, or transmitted. These activities, however, without the right holders' authorization, can cause financial and other damage to the right holders and discourage future investment in the creation of new content. Various governments have to strike the balance between the copyright holders' interest and the users' right to access information and privacy. In most markets, governments have acknowledged that major reform of copyright law is needed but the nature of that reform is still undetermined. The latest position in this aspect is summarized in Table 9.

11.3 A related issue in intellectual property protection is the government policy on copyright of official information. It is a balance between public's right of universal and easy access to official information and the government's right to generate revenue for providing the information. The UK and Canada governments hold Crown copyright on materials they put on the electronic networks as they put them in other media. In contrast, the US government provides official information on the networks free of charge and free of copyright. There are debates in the UK and Canada on whether the Crown copyright should be abolished.

Data Security and Network Reliability**Table 10 - Development in Data Security Policies**

| Territory | Policy objective | | | | Development in security policies |
|-----------|------------------|---|-----------------------------|-----------------|---|
| | Protect privacy | Ensure information security and network reliability | Promote electronic commerce | Law enforcement | |
| Canada | ✓ | ✓ | ✓ | | <ul style="list-style-type: none"> - electronic commerce will be the preferred means for the government to conduct business by 1998 - the government will introduce government-wide security services and will work with the industry to develop and harmonize systems for security and for authenticating the identity of parties to an electronic transaction |
| HK | ✓ | ✓ | | ✓ | <ul style="list-style-type: none"> - Law Reform Commission released proposals on interception of communications - enacted legislation to protect personal data |
| Japan | | ✓ | ✓ | | <ul style="list-style-type: none"> - Cyber Business Association Japan, formed in July 1995, was assigned by the Ministry of Post and Telecommunications the responsibility for testing the encryption and verification technology used in such transactions - review rules for information distribution to ensure information confidentiality and freedom of expression |
| Korea | ✓ | ✓ | | | <ul style="list-style-type: none"> - the MIC will implement policies necessary to ensure individual privacy and minimize the impact of sabotage or accident - the role of the National Security Telecommunication Committee will be strengthened in order to enact law and regulations against potential information invasion |
| UK | | ✓ | ✓ | ✓ | <ul style="list-style-type: none"> - proposed legislation to licence Trusted Third Parties providing encryption services for business. The legislation aims to provide secure communications for industry and commerce whilst safeguarding law enforcement requirements through warranted interception. |
| US | ✓ | ✓ | | ✓ | <ul style="list-style-type: none"> - investigate what policies are necessary to ensure individual privacy while recognizing the legitimate societal needs for information, including those of law enforcement - Encryption Ambassador appointed as focal point of encryption policy - ban export of high security encryption software |

Source: References 1, 3, 5, 6, 9, 24, 30, 34, 46

11.4 Policies in protecting data security is complicated by the fact that some territories would like to achieve conflicting objectives such as the need to secure communication and privacy against the need to enforce the law against criminals.

Content Control

Table 11 - Proposed Content Control Framework for Electronic Networks

| | Classification of content | Proposed framework | Reasons |
|--------|--|--|--|
| Canada | Offensive and illegal ⁵ | - self-regulatory for offensive - legislative for illegal | - the most effective approach to stemming the flow of offensive materials may be self-regulation - for illegal materials, the government considers it has the right to intervene and is reviewing law enforcement powers |
| HK | Indecent and obscene | - self-regulatory | - the development of on-line businesses would not be impeded by unnecessary administrative and legal burdens |
| UK | Offensive and illegal | - self-regulatory for offensive - legislative for illegal | - an imposed regulatory regime is not likely to solve all the problems, it could also hamper the emergence of new and innovative companies and services - dealing with illegal material is a matter for the courts and the law enforcement agencies |
| US | Indecent, obscene and patently offensive | - legislative | - to protect children from offensive and indecent online materials |

Source: References 3, 5, 24, 46 and record of meeting of joint meeting of LegCo Panel on Recreation and Culture and LegCo Panel on Information Policy on 22 July 1996

⁵ Examples of illegal materials cited are hate propaganda, obscenity, child pornography, harassment, defamation and libel.

11.5 Pornographic and hate materials are readily available on electronic bulletin boards and other services available on the Information Highway. A balance must be struck between ensuring freedom of expression and imposing controls to deter harm, particularly to children. However, the difficulties are that no government exercises complete control over global networks. There are many legitimate content and service providers, so it is important to ensure that measures to prevent prohibited communication do not impinge unduly on permissible communication and freedom of expression. The US Communications Decency Act of 1996 was ruled unconstitutional by the court in June 1996 since the term “indecent” was so vague that it would catch legitimate communications and interfere with the freedom of speech.

11.6 In enforcing content control, government has tended to place the onus on the service providers or the consumers. In December 1995, one service provider blocked access to 200 sexually explicit sites on its Internet database in response to a ruling by a German court. The move was criticized as interfering freedom of speech. The German cabinet approved the draft of the “Information and Communications Services Law” in December 1996. The draft law states that service providers are responsible for third party content which they make available for use if they have knowledge of such content and it is possible and reasonable for them to block its use. The government expects the draft law to be passed by the parliament in mid-1997.

Regulatory Mechanism for the Information Infrastructure**Table 12 - Regulatory Framework for Communications Systems on the Information Infrastructure**

| Territory | Policy objective | | Development |
|-----------|----------------------|-------------|--|
| | Fair and competitive | Convergence | |
| Canada | ✓ | ✓ | <ul style="list-style-type: none"> - liberalizing telecommunications market - plan to have a comprehensive policy on convergence of the telecommunications and broadcasting industries to allow them to offer competing services in local markets |
| HK | ✓ | | <ul style="list-style-type: none"> - liberalizing telecommunications market |
| Japan | ✓ | ✓ | <ul style="list-style-type: none"> - released a set of measures in 1996 to promote deregulation - projects underway to define convergence between telecommunications and broadcasting |
| Korea | ✓ | | <ul style="list-style-type: none"> - plan and implement measures to introduce competition into every service area including the currently monopoly long-distance telephone service market and the PCS market - take active measures toward privatizing government invested corporations such as Korea Telecom and Korea Telephone Book Company |
| Singapore | ✓ | ✓ | <ul style="list-style-type: none"> - liberalizing telecommunications market |
| UK | ✓ | ✓ | <ul style="list-style-type: none"> - created a regulatory regime which permitted progressive liberalization with the Telecom Act 1984 - CATV operators allowed to step into telecom business |
| US | | | <ul style="list-style-type: none"> - The Telecommunications Act of 1996 enacted to deregulate and enhance competition in the telecommunications market |

Source: References 1, 3, 5, 6, 24, 27, 31, 33, 46

11.7 To provide a fair and competitive environment for the development of various systems on the NII is a major role for the government. In this respect, most governments cited in Table 12 would usually liberalize and de-regulate their telecommunications and broadcasting systems to encourage competition. They are also aware of the trend that the distinction among various media would soon disappear and thus would aim to have a single regulatory framework to accommodate the change. In accommodating convergence, the regulatory framework needs to be technology neutral and must ensure interoperability.

12. NII Policy on Electronic Dissemination of Government Information

Table 13 - Aims of Electronic Government Information Dissemination

| Territory | Aims of electronic government information dissemination |
|-----------|--|
| Canada | - provide single-window access for multiple services |
| HK | - the whole of government to be brought on to the Internet by the end of 1997 - all government branches and departments are encouraged to make use of the Government Information Centre on the Internet to make known their policies and plans; to provide information as required under the Code on Access to Information; to consult the public and receive views on the new policy initiatives, to detail legislative proposals and to provide up-to-date information on government services |
| UK | - all government publications providing information of widespread interest to citizens to be available free of charge in electronic form - all government Green Papers to be available for consultation electronically |
| US | - all federal agencies, state and local governments should expand the information available to the public and ensure that government information is available to the public easily and equitably |

Source: References 4, 23, 47, 48

12.1 Government is the largest information collector, provider and disseminator. The technology and method that the government employed to disseminate its information will have a large impact on the information related industry. If the government chooses a more advanced technology to disseminate its information, it can act as a catalyst to promote technological innovation and new applications. If otherwise, it might hinder the development of information communication technology.

12.2 An efficient dissemination of government information will encourage the private sector and the public to exploit government information resources and enhance business activities. Electronic dissemination of government information and services can bring about a qualitative improvement in the responsiveness and accessibility of the government.

12.3 The RLS compared the information available on the official government homepages on the Internet in eight territories. Appendix 3 depicts the results. Indicators used to assess the performance of electronic dissemination of government information are as follows:

- presence of official government homepage
- maintenance by a single government agency
- linkage to other information sources
- volumes and types of information available on the homepage

12.4 The findings show that not all the governments selected have their own official homepage on the Internet. In Korea and Taiwan, only a few government ministries or departments have their separate homepages on the Internet. Territories such as Canada, Hong Kong, Japan, Singapore, the US and the UK have an official homepage for the whole government.

12.5 Some territories such as Taiwan rely on the individual effort of each ministry or department to disseminate information on the Internet and there is no single government agency to coordinate the dissemination of government information as a whole. The absence of this agency might increase the difficulty or costs to be paid by the public when they search information of different government departments. Territories like Hong Kong, Japan, the UK and the US have one government department to coordinate information dissemination on the Internet.

12.6 Some homepages such as those of Canada, Hong Kong, Japan, Singapore, the US and the UK have links to other databases to facilitate the public to look for government related information. Some even provide a search engine to locate documents. Examples are the homepages of Hong Kong, the US and the UK. The homepages of Korea and Taiwan have no links to other government related sources.

12.7 Different governments have different degrees of openness on their information dissemination. Canada, the US and the UK allow the public to download full text publications, government forms, legislation etc. freely while some (such as Taiwan, Korea) restrict the retrieval of text to a limited kind of information such as press release and fact sheets of government structure and operation etc.

12.8 When compared with the other Asian governments, the Hong Kong government has performed quite well. It has one single department responsible for dissemination of information over the Internet. It has provided one stop access to many policy branches, departments and government related organizations. However, when compared with the US, the UK and Canada, some homepages of the Hong Kong government departments contain limited information. Documents explaining change of major government policies, consultation papers and legislation are only available on a few government departments homepages.

PART 5 - ANALYSIS

13. Summary of Overseas Experiences of NII

Role of Government

Table 14 - Role of Government

| | |
|---|---|
| | Leading Role ←-----→ Complementary Role |
| major source of funding: government | Singapore |
| major source of funding: private sector | Japan Korea Canada UK US HK |

13.1 Table 14 shows a spectrum of government role ranging from a leading role to a complementary role. Except Singapore, the main role of the governments of the other six territories (namely, Japan, Korea, Canada, the US, the UK and Hong Kong) is to complement the effort of the private sector. While they take the complementary role, they differ themselves in the degree of support they would provide to the private sector.

13.2 Whichever role the government take, they would usually draw up a blueprint for NII. Examples are Canada, Japan, Korea, and the US. A blue print is an implementation plan laying down details of policy actions and the timeframe for their implementation. A blueprint gives direction to both the private and public sector and would facilitate them in developing the NII. As of to date, Hong Kong does not have a blueprint for NII.

13.3 In fulfilling the policy objectives of NII, overseas governments tend to designate a focal point to coordinate the various efforts from private and public agencies. The focal point can be a task force, a ministry, a government department or a government body. Korea appointed a ministry, Japan and Singapore appointed a government body and the US formed an inter-governmental task force as the focal point. The UK government is criticized for not having a focal point. Hong Kong also lacks a focal point for NII related matters. Different policy aspects of NII are left to different policy branches and departments. There is no government body or advisory body to coordinate the efforts.

NII Policy on Physical Information Infrastructure

13.4 As mentioned in 13.1, while a government may play a complementary role, it may provide a certain degree of support and assistance to the private sector in building the NII. For example, the Japanese government implements its plan to cover the whole country with broadband cable by 2010 by offering a new financing arrangement and interest free loans to the private sector. However, when the physical information infrastructure is well developed, government assistance may not be necessary such as in the case of the US. Hong Kong has a good physical information infrastructure provided by the private sector. The government tends to let the private sector to continue providing the infrastructure with minimum government intervention.

NII Policy on Education and Research

13.5 Overseas governments are conscious of the importance of education and research in preparing their citizens with the necessary skills and knowledge to further the growth of NII and to understand and enjoy the services that the NII make available. Finland, Taiwan, and the UK all expand the information technology education to all levels of schools and to all citizens. Hong Kong, in this aspect, only extends the use of Internet to the public secondary schools from the 1996-97 school year. Finland and the UK also provide support for training teachers in the information technology. Hong Kong lacks the support for training teachers in the information technology.

13.6 As of to date, there is no Information Superhighway. Its achievement depends very much on the investment in research and development concerning NII. Many governments have provided financial support specifically for the development of NII. For example, in the US, US\$1.96 billion are provided for research projects related to the Information Superhighway. In Korea, \$900 billion Won was invested to secure high technologies necessary for the development of communications network. Hong Kong has provided financial support for the R&D but this funding is not targeted on NII. A focal point is also needed to coordinate the efforts of private institutions and academics to conduct R&D to avoid wastage and overlap of efforts. For example, in Canada, R&D on the Information Superhighway is spearheaded by government laboratories. In Hong Kong, there is no focal point.

NII Policy on Electronic Dissemination of Government Information

13.7 One of the complementary roles for the government is to act as a model user of NII as the government is the largest information collector, provider and disseminator. Appendix 2 shows that Hong Kong performs quite well in terms of dissemination of government information over the Internet when compared to other Asian territories. When compared with the more advanced territories such as the US, some of the homepages of the Hong Kong departments contain limited information. Not all information of public interest can be found on the Hong Kong government homepage.

NII Policy on Legislative Framework

Intellectual Property Protection and Data Security

13.8 To provide a legislative framework which would protect the interests and rights of various parties is important to the development of NII and is a major role for the government. Overseas governments have started to have an overall review on copyright legislation and data security legislation to determine and define the legal and illegal activities over the electronic networks and the possible means to enforce the law. The Hong Kong government adopts a more pragmatic and problem-solving approach in reviewing related legislation. The review is in response to individual issue on a piecemeal basis and is not NII-related.

Content Control

13.9 Since there is no border or control on the Information Superhighway, undesirable materials such as pornography is easily available to children, causing harmful effect on them. Various governments are reviewing or amending their law to strike the balance between freedom of expression and content control to deter harm. In drawing up the policy on content control, a government needs to consider various issues including the followings:

- definition of illegal materials
- liability of owners, operators and users
- the distinction between forms of electronic communications regarded as private and those designated for the purpose of disseminating information to a broader public and the legal and enforcement implications of different forms of electronic communications

13.10 In enforcing content control, some governments may put the burden on service providers such as asking them to block access to selected sites. In Hong Kong, the government reacted to the issue of content control over the Internet by asking the industry to adopt a self-regulatory approach to avoid impeding the development of on-line businesses by unnecessary administrative and legal burdens.

NII Policy on Regulatory Framework

13.11 One crucial element of building a NII is to ensure a fair and competitive environment. To encourage competition, most governments try to de-regulate and liberalize the telecommunications and broadcasting markets. The Hong Kong government has been liberalizing the telecommunications market since 1995. Since the NII includes all forms of communications media such as telephone, television, computers etc., the distinction among various media would soon disappear. Many governments are now trying to converge and combine different NII-related regulatory frameworks into one single regulatory framework. At present, various media in Hong Kong are regulated by different ordinance. The continuation of this divergence may hinder the future development of NII.

14. Concluding Remarks

14.1 A NII policy provides direction for the private and public sectors in developing NII. It also ensures more coordinated development of various media of the NII. If Hong Kong wants to maintain its competitiveness in communications, it may need to consider to have a NII policy. This policy has to take into account of the development in the region and this may also be named Regional Information Infrastructure (RII) policy.

14.2 The development of NII policies in a territory entails the establishment of a focal point to coordinate efforts from private and public agencies. Such efforts include the construction of the physical information infrastructure, investment in education and research and the amendments of legislative and regulatory framework, etc. It is for consideration whether the focal point should be a government body or an independent body with private sector representatives. It is also for consideration what would be the appropriate power and responsibilities of the focal point.

Appendix 1 - G7 Ministerial Conference

The “Eight Core Principles” adopted are as follows:

1. Promoting dynamic competition
2. Encouraging private investment
3. Defining an adaptable regulatory framework
4. Providing open access to networks
5. Ensuring universal provision of and access to services
6. Promoting equality of opportunity to the citizen
7. Promoting diversity of content; including cultural and linguistic diversity
8. Recognizing the necessity of world-wide cooperation with particular attention to less developed countries

The “Six Means” adopted are as follows:

1. Promoting interconnectivity and interoperability
2. Developing global markets for networks, services and applications
3. Ensuring privacy and data security
4. Protecting intellectual property rights
5. Cooperating in R & D and in the development of new applications
6. Monitoring the social and societal implications of the Information Society

The “Eleven International Joint Projects” are as follows:

1. Global Inventory
2. Global Interoperability for Broadband Networks
3. cross-cultural Training and Education
4. Electronic Libraries
5. Electronic Museums and Galleries
6. Environment and Natural Resources Management
7. Global Emergency Management
8. Global Healthcare Applications
9. Government On-line
10. Global marketplace for Small and Medium Sized Enterprises
11. Maritime Information Systems

Source: G7 Ministerial Conference, *Chair's Conclusion* , February 1995, Brussels

Appendix 2 - Views of Interest Groups in Hong Kong

Local interest groups consider the government should play the following roles:

- provide a vision
- act as a coordinator and facilitator
- act as a model user
- foster an environment that will facilitate private investment
- ensure a fair and equitable legal system
- supply adequate human resources
- coordinating and establishing standards
- encouraging research and development
- promote social ethics with regard to NII related activities

Appendix 3 - Information Available on the Official Government Homepage

| | Official Government Homepage | Full Text Documents | Links to Other Government Homepage |
|-----------|--|---|--|
| Canada | ✓ (bilingual) | ✓ (reports, press release, legislation) | <ul style="list-style-type: none"> - 13 province and territories - 15 ministries and departments - inter-governmental library - allow comments and feedback - - 120 federal organizations |
| HK | ✓ (bilingual and maintained by GIS) | ✓ (reports, press release, application forms) | <ul style="list-style-type: none"> - 6 policy branches out of a total of 15 - 44 departments out of a total of 63 - single point access to other government departments or government-related organizations. e.g. LegCo, RegGo and UrbCo, 18 related organizations out of a total of 30 |
| Japan | ✓ (bilingual but some documents in Japanese only) maintained by Communications Research Laboratory of Ministry of Posts and Communications | ✓ (reports) | <ul style="list-style-type: none"> - 12 ministries and 14 agencies - 25 quasi-government organizations |
| Korea | ✗ (1 ministry only, bilingual but some documents in Korean only) | ✓ (reports) | No |
| Singapore | ✓ | ✓ (extracts of reports, press release) | <ul style="list-style-type: none"> - 15 ministries - one single access to other departments and 38 statutory boards; government on-line services directory |

| | Official Government Homepage | Full Text Documents | Links to Other Government Homepage |
|--------|---|---|---|
| Taiwan | ✖ (5 ministries, each ministry maintain its own Web site) | ✓ (reports) | no linkage to other ministry |
| US | ✓ maintained by White House and Library of Congress | ✓ (reports, press release, legislation) | - 50 states - single access to FedWorld, federal services, forms and publications, over 50 agencies; access to on-line ordering services, federal jobs opportunities, other government information systems and some 20 information centers and databases |
| UK | ✓ maintained by CCTA Government Information Services | ✓ (reports, press release,) | - a single point of access to other government departments, government information system, policies and reports |

Source: References 4, 23, 29, 30, 37, 40, 47, 48

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