

Building Institutional Capacity in Asia

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Alleviating the Digital Divide:

Policy Recommendations

Malaysia, Thailand, The Philippines, Vietnam

Executive Summary 2002

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Executive Summary

The Digital Divide and Building Institutional Capacity in Asia

The digital divide separates those who are connected from those who are not. On one side wealthy countries, progressive firms, and affluent individuals enjoy easy access to the Internet. They benefit from the instant availability of information, convenient contact with individuals and organizations, and efficient delivery of services. On the other side less fortunate countries, slow-moving firms, and the poor and disadvantaged across the world are switched off. Without entrée to the electronic world they are cut off from sources of information, unable to connect with those who might offer them assistance, and deprived of services.

Use of the Internet continues to increase exponentially. The World Wide Web was created in 1990, and the first web browser in 1993. In late 2000 one estimate placed 332 million people online, and another forecast a billion users by 2004. But, of all these computers connected to the Internet, only 5 per cent were in the developing world. In addition, as governments move to open their internal structures through Internet applications, the economic divide threatens to become a political divide. Access to ICT solutions corresponds to access to the political process. Because of cost, there is very little opportunity to influence the public policy process by underprivileged groups with less financial resources.

The disparity reflects average levels of income, high in the developed world and low in the developing world, and also the distribution of income, relatively equal in the developed world and relatively unequal in the developing world. In wealthy countries most people have access; in poor countries only a few affluent people do. The digital divide also reflects the availability of physical infrastructure. One of the key measures of telecommunications access is “teledensity,” the number of main telephone lines per 100 people. As Table 1 shows, in the developed world on average there were over 50 phone lines per 100 people. In regions of the developing world teledensity ranged from just over 20 lines per 100 people, down to less than one. Further, in wealthy countries all regions have the same high teledensity, but in poor countries only the capital cities and other major urban areas have adequate phone service while rural areas often have no service at all.

Table 1**Telephone, Mobile Phone and Internet Penetration in Recent Years, Developing Regions Compared with OECD Averages**

	1997	1998	1999
Telephone Mainlines per 100 persons			
Asia Pacific	5.2	6.0	7.1
Eastern Europe	19.7	21.2	22.7
Latin America & Caribbean	10.9	12.1	13.9
Middle East & North Africa	9.0	9.9	10.9
Sub-Saharan Africa	3.0	3.3	3.5
Excluding South Africa	0.67	0.73	0.8
OECD Countries	54.1	55.1	56.1
Mobile Phones per 100 persons			
Asia Pacific	1.2	2.0	3.1
Eastern Europe	1.3	2.7	4.5
Latin America & Caribbean	2.5	4.1	6.6
Middle East & North Africa	2.0	2.8	4.0
Sub-Saharan Africa	1.0	1.5	1.9
Excluding South Africa	0.07	0.16	0.3
OECD Countries	19.5	26.8	33.2
Internet Hosts per 1,000 persons			
Asia Pacific	0.6	1.0	1.1
Eastern Europe	0.9	1.4	2.4
Latin America & Caribbean	0.5	1.0	1.5
Middle East & North Africa	0.6	1.1	2.1
Sub-Saharan Africa	0.7	0.8	0.9
Excluding South Africa	0.013	0.036	0.041
OECD Countries	34.3	49.6	64.1

From Chapter 4, Table 4.1.

Sources: The figures come from a number of sources. Analysis, *The Network Revolution and the Developing World*, InfoDev, World Bank, August 2000; Pyramid Research, 2000.

In addition, as Table 2 shows, per capita investment in telecommunications was higher in the developed world, and rising. In developing countries it was much lower, and fell in the aftermath of the 1997 crisis. At these rates of investment the developing countries will *never* overtake the developed countries, and their citizens will *never* enjoy equal access to the Internet and the new services that governments hope to provide. The provision of physical telephone lines remains crucially important, particularly for higher

level services that require large amounts of bandwidth such as video conferencing and security applications. Telephone services can be delivered by satellite, but these systems remain limited and expensive. The Internet can be accessed by mobile phones enabled with WAP (wireless application protocol), but these systems remain limited by their slow speed of data transmission.

Table 2

Per Capita Investment in Telecommunications, 1997 and 1999, in United States Dollars

	1997	1999
United States	82.4	94.2
Japan	262.0	245.0
China	10.2	15.1
Singapore	202.0	120.0
Thailand	9.3	5.9
Malaysia	101.0	32.4
Vietnam	4.6	4.1
Philippines	23.7	12.7

From Chapter 4, Table 4.3.

Source: Our calculations, based on data from the Appendix Tables following Chapter 4.

Governments and international agencies have moved to address these issues. James Wolfensohn, president of the World Bank, has said that “unless we respond to the digital revolution, we will be perpetuating a digital divide, which will be tremendously difficult to confront” if the response is delayed. The Millennium Report of the Secretary General of the United Nations announced the establishment of a United Nations Information Technology Service (UNITeS). In July 2000 the Group of Eight meeting in Okinawa endorsed the Okinawa Charter on the Global Information Society, and accepted a proposal from Japan to establish a Digital Opportunity Taskforce (DOT Force). The Association of South East Asian Nations has established an e-ASEAN Taskforce. Major aid donors including the United States, the European Union, and Japan have pledged to assist with infrastructure and skills in developing countries. These initiatives intersect with the efforts of the governments of developing countries themselves.

Alleviating the Digital Divide in South East Asia builds on the agenda developed in Building Institutional Capacity in Asia: Report 2000 and the following report, Public Sector Challenges and Government Reforms in South East Asia (2001). This phase of the BICA project looks at a specific area of policy, but one with wide and important ramifications – the digital divide and the capacity of governments to respond to its challenges.

The report examines the evolving Asian ICT environment in a comparative framework. It undertakes an audit of the ICT initiatives in **Thailand, Malaysia, Vietnam, and the**

Philippines. These are countries that span a wide range of experience and offer diverse challenges to governance. The problems they face are similar. Nevertheless, because their conceptualization of both the opportunities and the challenges of ICT differ, their responses vary as well. Each has a distinctive history and correspondingly unique inherited traditions. The structures of governance differ, and so too do the agendas of the influential groups whose interests interact to determine policy. Therefore what each country hopes to achieve from the implementation of ICT solutions varies.

In addition, **China and Singapore** have been selected as benchmarks and possible models. Situated at opposite ends of the size spectrum, they offer useful perspectives on countries located more towards the middle. China is important in its own right because of its significance in the region, but also because it itself is still a developing country offering a wide range of experiences among regions and agencies. Singapore as well is not only an example of clearly focused policy and its implementation, but also plays a crucial direct role as a regional commercial hub.

The traditional literature search and review has been supplemented by accessing each government's websites to test for functionality and service. Primary data collection has been supplemented by interviews with senior policy leaders and executives from key government and research agencies. The approach has been divided into three phases:

- A *survey* of the ICT infrastructure and the ICT services provided by the government.
- Three *scenario-based additional surveys*, one relating to provision of services to foreign investors, one relating to provision of services to individual citizens, and the third relating to the application of ICT solutions in education.
- A more *synthetic survey* based on these surveys and scenarios but including background material from interviews and other sources, addressed to more general and evaluative questions.

Problems of Confronting the Digital Divide

Governments in the region are talking about re-inventing their economies. New ways are being explored to leverage the use of technology to fast track, if not leap to the next stage of development – advanced industrialized status. Policy statements issued by national government outline ambitious programs for the development and deployment of ICT solutions to overcome a range of problems. The statements and the programs vary considerably from country to country. However, most reflect international discussion of the potential of ICT. The policies share a number of features in terms of their vision, strategy, implementation schemes, and the services they hope to deliver:

- To position the country as a major knowledge based, high value added economy.
- To transform the economy through “technopreneurship” and “e-governance” by taking advantage of the Internet.

- To create new institutional structures that will improve the delivery of government services.
- To enable access to government agencies to bring greater efficiency and transparency to outcomes.

Achieving these goals is not an easy task. One of the apparent paradoxes of ICT development is that although it seems at first to be the agent of a homogenizing globalization, it nevertheless supports a wide variety of national solutions. Despite the similarities of announced plans, the goals, policies, and implementation vary widely across countries. In addition access to ICT provides the means for groups of various kinds to communicate, organize, and develop distinctive identities. It is therefore as much a force for diversity as for homogeneity. Although national governments may welcome opportunities to reinforce their preferred vision of the national identity, most are much less willing to allow dissident political groups to use ICT to organize and agitate, for instance.

Another of the apparent paradoxes of ICT development is a combination of simplicity and complexity. For example, the application of ICT solutions to birth registrations can vastly simplify one of government's problems, the need to keep track of the numbers of citizens. It also promises much more refined information about the national population, such as distributions by geographical location, sex, age, marital status, size of family, and spacing of children, all available in real time. But the collection of data in electronic form also introduces complexities of system design, scalability, reliability, and compatibility, and further complexities of data integrity, authentication, verification, access, and privacy. It is not immediately clear how any policy regime will respond to these challenges.

The problems posed by economic development are not new in historical terms, but the rapidity of change and the level of sophistication required of policy makers have both increased. Alan Greenspan, Chairman of the United States Federal Reserve, said in March 2001,

The faster adjustment process does raise some warning flags. Firms appear to act in a far closer alignment than in previous decades. The result is not only a faster adjustment but one that is potentially more synchronized, compressing changes into an even shorter time frame.

The capacities of governments in all countries are being strained by the need to come to grips with new technologies. The vision of a seamless connection, "100 per cent, 24 and 7" – that is, every government agency able to deliver its services "anytime, anywhere" with absolute certainty twenty-four hours a day, seven days a week, has not yet been realized even in the wealthy developed countries. Further, even as governments struggle to implement new systems, the systems themselves are changing. The life cycle of ICT products is commonly estimated to have declined to an average of twelve months. For government officials, this means that as they plan and implement strategies to seize the advantages or overcome the problems of ICT, they need to be aware in advance that most

of the new technologies on which they are basing their actions, may be superseded in a year or less.

A final apparent paradox of ICT is the difficulty of measuring the benefits it is thought to bring. At the macroeconomic level there are doubts about the extent to which the information technology revolution has contributed to productivity. In the private sector, it is difficult to measure the returns from spending on ICT. Much of the evidence for the efficiencies gained by private firms from ICT is anecdotal, and most of the famous cases have unique factors that contributed to their success, not applicable to business in general. Many managers of private firms do not understand ICT. Most private firms underestimate the cost of introducing ICT solutions. Almost all private firms underestimate the costs of maintaining and upgrading existing ICT systems. For instance, databases require continual tuning for optimal performance, and this is an expensive and time consuming process.

In the public sector, it is even more difficult to measure the benefits from ICT. In the public sector costs can be measured, but revenue and profits are not available as measures to judge success. Instead targets must be chosen arbitrarily. This might take “market-like” forms, but in developing countries especially it is not obvious that the application of these complex market like measures will be successful. There are problems gaining acceptance of the new technologies by government officials at all levels. Bureaucratic organizations change only with difficulty under the best of circumstances. Where the new technologies threaten existing interests, change will be resisted. There are also problems of public acceptance. Governments in all countries have difficulty convincing their citizens to use the Internet. There is no country in the world where electronic delivery of a service has replaced traditional modes of delivery – ICT and the Internet remain additional channels running parallel to existing systems. There have been some quite spectacular failures of ICT approaches, both in the private and in the public sectors. All of these factors mean that policy makers need to be both well informed and somewhat skeptical about the benefits from ICT initiatives, particularly in the short term.

Thailand

Background: Structures of Governance

Thailand occupies an intermediate place in the history of the late nineteenth and early twentieth centuries, as the one remaining independent country in Southeast Asia, and as a country whose indigenous form of government survived, but also as an Asian country which was subject to foreign pressures. The modernizing King Chulalongkorn reigned from the 1860s to 1910, but he left behind a system under which the royal clan monopolized office. Opposition to royal absolutism spread and intensified, and senior army officers led the coup on 24 June 1932. The King remained as head of state, but control of the new government alternated between Pridi Bhanamyong, a professor of law with allies among the civilian bureaucrats, and Phibun Songkhram, an army officer supported by ultra nationalist military leaders.

These elements remained in place after the war. Since 1932 Thailand has experienced thirteen revolutions, nine constitutions, and over thirty changes of administration. Periods of rule by decree have alternated with experiments in constitutional rule. Military leaders have dominated, but they have had to balance alliances among the royalist party, senior bureaucrats and business interests. Although the forms of government responsible to parliament have generally been retained, the actual operation of government has remained in the hands of the elite.

In February 2001 Thaksin Shinawatra became Prime Minister. He controlled the largest telecommunications company in the country, and his party, Thai Rak Thai (Thais Love Thais), was a personal vehicle created with his own vast fortune. Thai Rak Thai ran a clever, expensive public relations style campaign relying on mass advertising and a potentially contradictory set of policies. For the country areas there were proposed development funds and a moratorium on rural debt, while for the urban areas there were attacks on foreign influences and especially the IMF, but also a call for more effective economic management, transparency, and efficiency in government. Thai Rak Thai also supported a broad program for implementation of ICT solutions across Thai society.

These background considerations lead to an ambivalent judgment of Thailand's state capacity. The 1997 Constitution marks a milestone in the development of Thai political institutions, but elements of the constitution remain to be implemented. Money still dominates in Thai politics, and the state still has not established a new set of rules for acquiring and using political power.

In terms of policy capacity, the past record of Thai governments is not encouraging. Coalition cabinets are treated as a division of the spoils of office, and ministers look more to gaining access to resources than to the quality of the advice they receive and pass on to the head of the government. The ministries are hierarchical and exclusive. A Prime Minister can force an agenda, for instance in the ICT area, but typically this has come through the creation of a new department in the Office of the Prime Minister, which may compete with existing agencies.

In terms of administrative capacity, the Thai civil service suffers many of the shortcomings of a typical "career" civil service. There is widespread patronage at work in appointments, lack of performance incentives, and over-centralization. Senior officials are only a generation removed from a time when officials lived from their positions, and the tradition of giving gifts in return for favors remains pervasive. At the moment, proposed internal reforms in government face serious obstacles.

The Provision of Information and Communication Technology (ICT) Services

Thailand has a density and distribution of communications infrastructure typical of many developing countries. In 2000 on average there were 12.5 telephone numbers per 100 people. In Bangkok and the immediately surrounding provinces there were 54.0 numbers per 100 persons. The rest of the country's seventy-six provinces had only 6.1 numbers per 100 persons. Internet usage is rising rapidly but remains confined to a small fraction

of the population. The institutional and legal situation is fluid. Both the Communication Authority of Thailand (CAT) and the Telephone Organisation of Thailand (TOT) are state enterprises. Both are being privatized, but they will continue to hold virtually monopolies on delivery of services. Observers in Thailand believe this presents dangers, because they worry that privatized companies may not have sufficient incentive to provide services at low cost to ensure universal access.

Thailand has a good reputation as an e-commerce center, but there remain general issues relating to the reliability of Thai business partners, product delivery problems, and the generally high risk of doing business. The Thai financial system is weak, and the lack of bank support hampers both foreign investors and local partners. Thailand also wants to seek the opportunity to become the ICT center of the peninsular Southeast Asian region, including Indochina. However, many other countries also have plans to provide ICT services to foreign firms. Within the region, Thailand's plans cut across the similar intentions of Singapore, Malaysia, and the Philippines, for instance.

Creating an ICT-Enabling Environment: Institutional Structures and Policies

Prime Minister Thaksin came to power with a clear majority and a vision to build "e-Thailand." However, news reports suggested that progress on policy development was proceeding rather slowly, and that implementation had remained correspondingly distant as well. A first project was to deliver the Internet to all of the 7,000 local districts (*tambon*) in Thailand. "I want to see that every district has an Internet connection as well as a Web site," the Prime Minister has said, but as he also noted, at the end of May 2001 "around ten districts have access so far."

The government agency that implements ICT policy in Thailand is the National Electronics and Computer Technology Center (NECTEC). Thailand's ICT policies originate from the National Information Technology Committee (NITC) established in 1992. Previously the Prime Minister delegated the Deputy Prime Minister to chair NITC on his behalf. Since the new government came to power the Prime Minister himself chairs the committee. The pressure from the Prime Minister may also be reflected in the completion of major studies during 2001, Internet Policy, IT Manpower Planning, and a report outlining a framework for ICT Policy over the next ten years. The ten-year vision in turn is partly integrated into the broader framework of the IT 2010 plan. According to the IT 2010 program, in the next ten years Thailand aims to move from being "Dynamic Adopter" to "Potential Leader" on the basis of the United Nations' standard.

Thailand has announced a project for "e-Government" that plays a key role in the "e-Thailand" initiative, as well as in the IT 2010 plan. All government "back office" functions will in theory be completely automated with ICT solutions by 2004. With regard to "front office" services, every service provided by every government agency is supposed to be online by 2010.

The Cost of Development, Equity of Access, and the Digital Divide

The digital divide reflects inequalities in economic and population structure. The Bangkok region is relatively well provided with ICT infrastructure, but the remainder of the country is relatively badly provided. Residents of Bangkok, less than 10 per cent of the population, enjoy incomes nearly three times the national average. An education divide reflects and reinforces the income divide. Over 50 per cent of Internet users are university graduates, and many more of the younger users are currently secondary school or university students.

NECTEC regards the e-ASEAN Agreement adopted in late 1999 as the fundamental framework or initiative in developing strategies and measures for e-Thailand. In addition Article 78 in the 1997 constitution states:

The State must devolve power to enable localities to become self-sufficient, make their own decisions develop the local economy, local infrastructure and public services, as well as a communications infrastructure throughout the country. It must also develop the capacity of provincial administrations to become large-scale local authorities, responsive to the wishes of people in that province.

NECTEC derives their policy on alleviating the digital divide from Article 78. The National Information Infrastructure Law for Universal and Equitable Access is in the process of passing through parliament.

Providing communication infrastructure will involve a very large investment. The Prime Minister has repeatedly announced that ICT development is the priority of the government, but has not yet produced a concrete plan – and the crucial budget resources – to move towards the realization of the vision embedded in the various national plans. In addition, the Ninth National Economic and Social Development Plan (2002-2006) promulgated in October 2001 aims in a different direction from the thrust of IT 2010. Whereas IT 2010 aims for growth and increased wealth, the Ninth Plan explicitly emphasizes “sufficiency economy” as the “main philosophy” for “sustainable development and well-being of the Thai people.”

Meanwhile, the government promotes landmark projects to show its initiative to bridge the digital divide, such as “Internet Tambon.” As noted above, around ten out of 7,000 districts have access so far. It also is a sort of showcase link to another of the government’s projects, the “one tambon-one product” program, intended to create self-sufficient local economies by encouraging each district to specialize in a single local product for sale elsewhere. Government officials have advocated the Internet Tambon project as a marketing promotion for these local products by allowing them to be sold online. The one tambon-one product approach has been criticized for its lack of realism and failure to address the underlying causes of poverty, and the critics have extended their doubts to the Internet Tambon program as well.

Recommendations

The digital divide in Thailand reflects inherited problems of distribution and access to resources, especially the gap between Bangkok and the rest of the country. The expansion of the telephone network would make possible the more effective delivery of services to rural areas by both government agencies and private organizations. Therefore a specific recommendation would be:

- Funding for improved physical telephone infrastructure in rural districts.
- Support for the announced program of supply of ICT hardware to local government agencies could also be provided in parallel to the provision of infrastructure.

The organizational and institutional changes implied by the widespread introduction of ICT solutions will be resisted by agencies or individuals who believe the changes will reduce their power or threaten their positions. The structure of overlapping committees, the involvement of all agencies in the decision making process, and the wide gap between announced policy intentions and specific plans for implementation, all suggest that the government will have difficulty achieving its visionary goals. However, the automation of internal departmental procedures promises general gains in efficiency, with corresponding benefits to the country as a whole. Therefore a specific recommendation would be:

- Limited, focused provision of support for the adoption of ICT solutions by government agencies to improve their internal operations.

Finally, but most importantly, bridging the digital divide in Thailand requires support for education initiatives. This is especially true of the need to improve access to education outside of Bangkok. All of Thailand's ICT and development plans highlight education as the key to their success, and IT 2010 lists e-Education as a flagship goal. The proposed large increase in the number of workers with knowledge-intensive qualifications will require equally great efforts in teacher training and curriculum development, in addition to expansion and upgrading physical facilities. A number of programs have been announced or already begun by the government, and these could be examined as possible targets for support. They would include:

- The announced National Program for Digital Content Development.
- The new National Institute of Technology for Education.

National teacher training programs for ICT implementation. Teachers need to learn to use ICT as a tool in teaching, and in addition ICT needs to be taught as a subject in its own right. Such programs require curriculum development, particularly an emphasis on materials in Thai.

Programs to train computer instructors in giving technical advice to assist schools in implementing local programs.

Programs to provide improved educational facilities in rural districts. These programs would be linked to the general improvement in telephone infrastructure mentioned above.

As an aspect of the previous suggestion, programs to deliver content to teachers in rural areas via the Internet. This involves production of Thai language based learning materials with appropriate content.

Malaysia

Background: Structures of Governance

Malaysia is a plural society, with a Malay majority and substantial Chinese and Indian minorities. The United Malay National Organization (UMNO) was created to defend Malay interests. With independence in 1957, political control passed to the majority Malays, but economic power remained in the hands of the Chinese and Indian minorities. Malays remained mostly small farmers, mostly rural, and mostly poor. Chinese and Indians dominated commerce and the professions, as well as other sectors of the economy not directly controlled by British interests. Economic inequality increased in the decade following independence, and Malay resentment finally culminated in the race riots of 1969.

In the aftermath of the riots, the government announced the New Economic Policy to reduce economic inequality between the Malays and the other ethnic communities, particularly the Chinese. The government imposed quotas in education, employment, and access to capital to privilege Malays. Places in schools and universities were reserved for Malays. A new regional policy favored poor regions with majority Malay populations. The NEP officially ended in 1991, but the discrimination in favor of Malays remained. However, though there was some shifting of ownership to Malays, the gap in average income between Chinese and Malays remained. The professions also remained overwhelmingly non-Malay.

UMNO has remained the overwhelmingly dominant party since independence. In addition for two decades UMNO has been led by Mahathir Mohamad. As Prime Minister Mahathir has presided over an impressive economic record. There are similarities with other successful Asian economies, but Mahathir's ambitions go beyond conventional economic management. In his Vision 2020 Mahathir predicted that Malaysia would become a highly developed country early in the twenty-first century. ICT plays a central role in this vision. The government sees the application of ICT both as the means to achieve developed country status, and as the crowning symbol of success. The National IT Agenda (NITA) formulated this combination of means and goals as the roles of information, knowledge, and "technopreneurship" all working together to transform the Malaysian economy into a "knowledge economy" and Malaysian society into a "knowledge society" – "K-economy" and "K-society."

The institutional position of the Prime Minister, and Mahathir's personal power, have increased substantially over the two decades he has held office. State capacity in Malaysia therefore is substantial. The state has generally achieved its goals over the years, in working to benefit Malays, in first creating and then partly privatizing a state industrial sector, in fostering foreign investment, and in recovering from periodic economic crises, particularly the 1997 crisis. However, Chinese continue to dominate the economy, and the "electoral arithmetic" is potentially dangerous. Observers are concerned that the destabilizing force of Islamic fundamentalism could threaten UMNO's dominant position internally and Malaysia's reputation as an investment destination externally.

Policy capacity parallels state capacity. Much of the advice given to the Prime Minister emerges from his own office or from closely connected organizations and institutes. The dangers are parallel as well, in the high exposure to political risk and the dangers to the budget of the expensive bailouts following the 1997 crisis.

Administrative capacity at the upper levels appears high, but this conceals serious problems. Public service reform is close to international best practice, but it has not touched the mass of serving officials. The bureaucracy is one of the most important sources of employment for Malays, and it is also a key element in the patronage used by UMNO to maintain its influence. For these reasons, the formal notions of security of tenure and "untouchability" become a justification for avoiding genuine reform. The bureaucracy at its lower levels is not efficient or effective. Officials suffer from a "reward and punish" culture, in which obedience and conformity result from fear of retribution.

The Provision of Information and Communication Technology (ICT) Services

The majority of the population still lacks affordable access to basic information resources. The number of main telephone lines per 100 people has more than doubled in a decade, from less than 10 in the early 1990s, to over 20 in 2000. ICT usage, measured in terms of installed personal computers, rose from 29.5 per 1,000 people in 1995, to 95.7 in 2000. Rural areas have increased their teledensity even more rapidly than urban areas. However, there remains a wide gap between urban and rural areas, and a substantial disparity between the states also exists. Internet access is also concentrated in urban areas and in the states with higher teledensities. Indeed, outside of the states of Pulau Pinang, Selangor, and the capital district of Kuala Lumpur itself, the level of provision of services is very low.

Until the 1990s the national telecommunications industry remained under the control of the state-owned Telekom Malaysia. The monopoly ended in 1994 with the licensing of several competitors. The decision to allow competition was essentially a political choice. Both privatized government firms and new companies authorized to enter the market are closely connected to the ruling political party, and their behavior is therefore influenced by politics as much as by market forces. Telekom Malaysia remains the dominant provider of fixed-line services (over 95 per cent) because of the government's decision to

defer the introduction of “equal access” in this segment of the market from July 1996 to January 1999.

Creating an ICT-Enabling Environment: Institutional Structures and Policies

The Malaysian government has created several agencies to spur ICT development and Internet growth. The Communications and Multimedia Commission (CMC) was established in November 1998 and is charged with promoting and regulating the converging industries of broadcasting, telecommunications, and online services. The Ministry of Energy, Communications, and Multimedia (MECM) has been reorganized. With privatization the role of the Ministry changed from that of a service provider to that of a policy maker and supervisory body to the energy, telecommunication and postal sectors.

The National Information Technology Council (NITC) was established in 1993. The Prime Minister himself chairs the Council, and logistical support comes primarily from the Prime Minister’s Department. The National Information Technology Agenda (NITA) was formulated by the NITC in December 1996. In addition the National IT Framework (NITF) is presented as a “strategic and synergic combination” of “People, Infostructure, and Applications.” In 1998 the NITC launched the Strategic Thrusts Agenda. As a means of implementation of its strategy to migrate Malaysians into the E-World, the NITC has identified five “thrust areas.” The Strategic Thrusts Implementation Committee (STIC) was established under the Deputy Chairman of the NITC in March 1999. Its implementation is envisaged to encompass virtually the entire apparatus of government and to transform virtually every aspect of Malaysian society.

As yet the vision has not become reality. There is little evidence of specific plans for implementation of Vision 2020, the NITA, the NITF, the NITC Strategic Agenda, or the Strategic Thrusts Agenda. There are as yet no system-wide initiatives intended to apply to all government agencies. Symptomatically, the websites of national agencies are in English, meaning that those who do not read English are denied access even if they have an Internet connection.

The NITC became a forum for Prime Minister Mahathir to advance his project for the Multimedia Super Corridor (MSC), “Malaysia’s answer to Silicon Valley.” Launched in 1996, the MSC long stretches from Kuala Lumpur south to the new international airport and two new cities, Putrajaya and Cyberjaya. Cyberjaya, the new “e-commerce center,” was officially declared open on 8 July 1999, and now has about 8,000 residents and nearly 150 MSC-status companies. Between these new cities and Kuala Lumpur, a high speed, high capacity fiber optic Internet backbone has been laid. Within that corridor the government aims to provide all the technology and points of access that any individual, educational institution, or business enterprise would need to have full broadband access to the Web. The new Multimedia University is located inside Cyberjaya, for instance.

With the force of the Prime Minister’s personal enthusiasm and the backing of the Prime Minister’s Department, the MSC project demonstrates both the advantages and the

disadvantages of the creation special high level units to implement policy in a new area of national concern. Agencies and committees can be established and directed to pursue particular ends. However, their agendas are set by the Prime Minister, are not transparent, and do not necessarily correspond to the interests of the majority of the population.

The Cost of Development, Equity of Access, and the Digital Divide

At present approximately 60 per cent of urban households and 83 per cent of rural households may face financial constraints in the purchase of personal computers. Despite rising average income, the proportion of lower-income households increased from 32.3 per cent in 1995 to 37 per cent in 1999. This reflects the continuing relative poverty of rural areas. Income levels also differ among states. Sectoral and regional differentials, however, are not the politically explosive issues. For Malaysia, the crucial fact is that the income levels of the main ethnic groups differ. After a generation of discriminatory preferential treatment, Malay families still earn on average less than 60 per cent of the income of an average Chinese family.

Parallel to but somewhat separate from the realms of national government policy and national agencies, the relationship between public and private sectors in terms of narrowing the digital divide in Malaysia has been very close. One interesting initiative is the PCFAIR Fund. The Association of the Computer and Multimedia Industry of Malaysia (PIKOM) has established a special fund for the purpose of purchasing and donating PCs and other peripherals to underprivileged communities in Malaysia. The fund receives contributions from the profit derived from computer promotions or “PC Fairs” organized throughout the year by PIKOM, and evaluates applications from organizations that are eligible for assistance under the PCFAIR Fund based on need and the potential to utilize ICT solutions in their daily activities, such as orphanages, welfare homes, rehabilitation centers, community services-based NGOs, and community centers.

In line with the NTIC Strategic Agenda, a program called “Educate the educators for the 21st century” was implemented by the Ministry of Education to “mass-produce ICT fluent educators.” The Ministry believes that a comprehensive review of the present education system is vital for making the education institutions in Malaysia into centers of educational excellence in the region. The Ministry has announced plans to put interactive ICT at the core of both the teaching-learning and the management processes of the education system. “Smart Schools” are being set up where learning will be “dynamic, lively and brimming with interaction” through the use of multimedia technology and worldwide networking.

The program of ICT implementation in education is furthest advanced at the university level. Most of the universities around the country have been connected to a digital optic fiber backbone. In addition several universities have incorporated distance-learning programs for professional and technical degrees. At lower levels, however, only 53.8 per cent of secondary schools have PC facilities and 34 per cent have access to the Internet. At the primary school level, only 30.5 per cent of the schools have PC facilities, and 10.2

per cent have access to the Internet. The schools without access are in rural areas, a situation that reflects the gap in the provision of telephone services.

Recommendations

The Malaysian government believes drastic measures should be taken to avoid a further widening of the digital divide. Observers outside government agree. Policy recommendations on narrowing the digital divide in Malaysia would include the following:

- Affordable access to ICT is the key to narrowing digital divide.
- The willingness to use ICT is affected by the information and services available – the problem of relevant content. Incentives should be offered to individuals or public and private sectors to create content that targets especially the underrepresented and underprivileged groups in Malaysia.
- Community support can play a major role in stimulating usage of the ICT. The younger generation has been prompted to use ICT, partially because of peer pressure. Future policy should direct at linking individual, community, and social needs in creating a user-friendly environment for ICT.
- Online and offline forums need to be actively promoted in order to bring in larger and more diverse sections of communities to discuss issues of common interest, particularly the issue of how to creatively tackle the digital divide.
- Educational institutions at all levels must play a role in opening the advantages of ICT to many people. Government will need to invest large amounts to retraining educators to adjust to the challenges of ICT.

It is interesting that the policies advocated by those outside of government circles for dealing with the digital divide in Malaysia make little or no reference to the government's ambition to make Malaysia a genuinely competitive developed country and a major player in the international ICT scene. Rather, the focus is on creating development at the local level through the provision, implementation, and more active use of ICT solutions by community groups. The specific areas for support appear to lie in these more basic aspects of development:

- Localities are disadvantaged by the absence or poor quality of electricity and telephone connections. These need to be completed and upgraded before ICT solutions can be made effective.
- Improvement of education is a repeated theme. The Smart School program appears to have been overly ambitious in its scope, but might provide the lever for both improving educational outcomes and assisting local communities. Schools in rural areas might be transformed to information-hubs that not only provide

access to information and practical experience, but also the facilities for community groups to use ICT.

- Related to improvement of ICT in individual schools is the need for improved teacher training, an area where the Ministry of Education is already active.

Vietnam

Background: Structures of Governance

Vietnam's government continues to reflect the heritage of the generation wars against France, the United States, Cambodia, and China. An important reason for the slowness of development was Vietnam's increasing international isolation. The United States imposed embargoes on trade with Vietnam after their defeat in 1975. China was hostile after the Cambodian war and the invasion of 1979. Vietnam relied on the Soviet bloc, but in 1989 the collapse of the Soviet Union cut off aid and trade with East Europe. Reformers insisted on the need to open the economy further.

There were internal problems as well. Vietnam's Five-Year Plan of 1976-80 failed because of a dogmatic attempt to force the capitalist South into conformity with the socialist North. A generation gap similar to the Chinese communist party led to a split between the ageing leaders who led the struggle against the French and Americans, and a younger more "technocratic" group committed to more or less radical market reform, and the struggle between these groups has continued. Better results were achieved during the Third Five-Year Plan of 1981-84, in part because of the pragmatic introduction of incentives to reward performance. Conservatives regained the upper hand in the mid-1980s, but the economy slowed and unemployment rose.

The reform group regained their momentum at the Sixth Party Congress in 1986, with promises of new policies for agriculture, decentralization of planning, more emphasis on light industry, and exports based on private initiative and free markets. This emphasis on market reforms became the defining characteristic of the general "doi moi" (renovation) policy. Debate at the Seventh Party Congress in 1991 led to privatization of a limited number of state enterprises and an end to subsidies for the rest. In 1994, the U.S. lifted the remaining elements of its trade embargo with Vietnam, a precursor to establishing normal political relations a year later.

The state and the ruling Communist Party have set themselves a difficult task. They need somehow to resolve the practice of operating in a world of markets while maintaining the fundamental principles of the communist ideology. The state is operating with a set of contradictory principles in its management of the economy. It is also facing difficult obstacles in maintaining consent and legitimacy in implementing the resulting inconsistent policies. It insists on maintaining its exclusive leadership role and on prescribing behavior. It therefore refuses to countenance significant political liberalization, and has great difficulty in recognizing the legitimacy of any independent activity even in the narrowly economic sphere.

Policy capacity weaknesses parallel the weaknesses in state capacity. The Party and the state insist on maintaining the appearance of unity and of “firm leadership” and therefore suppress public debate and disagreement. The result is to proceed very cautiously and to avoid anything resembling a “showdown” if at all possible.

This in turn feeds into weaknesses in administrative capacity. The inconsistencies in principles, and the weakness of policy analysis, are reinforced by overlapping and competing jurisdictions of ministries and agencies. At the lower levels, the principles of a regular civil service have only recently been introduced, and rules, standards, and criteria are not uniform. Regional and local governments often depend on the income from state owned enterprises and therefore are wary of reforms that will reduce that income. There is substantial corruption, some of it resulting from inadequate pay scales. Corruption is often effectively combated at the local level, but success depends on local conditions, and does not affect the system as a whole.

The Provision of Information and Communication Technology (ICT) Services

Since the launch of the economic reform process, Viet Nam has improved and expanded its telecommunication infrastructure. Today, all major and regional urban centers have efficient telephone networks with extensive penetration. However, in terms of telephone lines, mobile phones, personal computer ownership and Internet penetration, Vietnam ranked last among Southeast Asian nations. Even in the largest city there were still only 13.7 main telephone lines per 100 people, and the figure for the rest of the country was 2.17 per 100 people.

The government sector dominates the telecommunications industry in Vietnam. Under regulatory guidance from the Department General of Posts and Telecommunications, the Vietnam Posts and Telecommunications (VNPT) is the predominant telecommunications provider, and also includes a large conglomeration of state owned enterprises that offer a range of other products and services. The five Internet Service Providers licensed to operate beginning in 1997 are all Government agencies and subject to VNPT’s control. A government decree issued in 2001 liberalizes ISP service delivery and allows private ownership for the first time.

Currently, Internet service suffers from poor quality and slow services, which presents a significant constraint to the growth of the private sector. In addition, VNPT’s subsidiary VDC is the only Internet Access Provider in Vietnam. As such it is responsible for the government’s censorship program. Under the new Decree 55 it remains explicitly illegal to “take advantage of the Internet to do hostile actions against the Socialist Republic of Vietnam or cause security unrest, violate morality and good customs and other laws and regulations.” In addition to potentially subversive political messages, the government is particularly concerned about pornography. VDC operates a firewall, using a system which operates by blocking a number of commonly used ports. In addition to sites blacklisted by the authorities, it severely restricts access to several TCP/IP protocols. Many Internet based applications widely used in the private sector such as Lotus Notes and Real Player cannot be used in Vietnam because of the structure of the firewall.

Creating an ICT-Enabling Environment: Institutional Structures and Policies

In 2000 a regional strategy was formulated through the E-ASEAN Framework Agreement on ICT Products and Services. Policy Directive Number 58 issued by the Politburo pushes ICT toward the forefront of the country's industrialization drive for the period 2000-2005. Building on this policy directive, a steering committee was established under the Ministry of Science, Technology and the Environment, and new targets were announced to bring the ICT sector up to regional standards over the next ten years. The implementation of the government's ICT sector goals sets out specific targets for 2005:

- To upgrade telecommunications and Internet infrastructure through VNPT and expand Internet coverage to 1.5 percent of the population;
- To train 50,000 ICT professionals at university level;
- Provide Internet access for all universities, 70 percent of middle schools, 60 percent of hospitals, 70 percent of enterprises, and 50 percent of villages;
- To develop the software industry for domestic and overseas markets with expected annual revenue of US\$ 500 million, of which 60 is intended for export; and,
- To promote the domestic hardware industry, including the assembly and production of high quality ICT equipment for domestic and overseas markets, with expected annual revenue of US\$ 300 million. The government's desire to leverage ICT includes a commitment to computerize government administration and management. However, current use of the Internet by government ministries appears to be quite limited. Apart from the vague prescription to have 50 percent of state government officials capable of using personal computers and the Internet by 2005, there are as yet no true system-wide initiatives.

The Ministry of Trade is in the process of developing a Master Plan for E-Commerce that envisages bringing the majority of Vietnamese businesses on line by 2005. This Master Plan also addresses the need to develop a legal infrastructure to support E-commerce over the next few years. The Quang Trung Software City, outside of Ho Chi Minh City, was inaugurated in March 2000 and is considered to be the chief software development center for Vietnam. Several other software parks have been or are being established in Ho Chi Minh City, Da Nang, and outside of Hanoi.

The Cost of Development, Equity of Access, and the Digital Divide

In Vietnam, while the government's commitment to socialist ideals means that Vietnam places great emphasis on social equity and has achieved high literacy levels, recent poverty assessments yield evidence of growing inequality between urban and rural areas, between various regions, and between different segments of the population. VNPT has

extended telephone lines to 89 per cent of all communes and plans to connect 5,000 communes nation-wide with Internet service at post offices and village cultural centers, but coverage remains very limited in most districts.

One issue that presents a significant challenge relative to developing the ICT sector in Vietnam is the current education capabilities. Vietnam's education and training sector suffers from a crumbling infrastructure and teacher shortages, especially in rural areas. In addition to the need for a considerable growth in numbers, there is an urgent need to improve the quality of ICT education at the university and college levels. The fundamental question is the lack of adequate physical resources. Most universities and colleges do not provide access to the Internet, the area where there is the most rapid job growth. This is then reflected in the shortage of skilled workers. This also reflects back onto the educational system, which must compete with other government agencies as well as with the private sector for people with ICT skills.

Recommendations

Given the existing political structure, initiative remains with the government. The announced goals are ambitious and require substantial changes in existing structures, but the tendency towards authoritarian top-down management of the economy risks stifling local and individual initiative, and also poses the risk that agencies will simply announce the fulfillment of targets rather than working for genuine outcomes. In each case as noted the recommendations face quite substantial obstacles:

- More rapid liberalization of telecommunications is needed to support expanded economic growth. This will undercut the monopoly position of VNPT and possibly affect potential government revenues. It will therefore encounter opposition from powerful groups within the government.
- A more comprehensive plan is needed to deliver services to underserved rural areas. This will require very substantial investment in infrastructure, including provision of reliable electricity services as well as phone lines. In this case however, such plans may have support from existing interests, particularly VNPT, if they see the expansion as serving their interests.
- A legal and regulatory environment needs to be developed for e-commerce. This is taking place, but the new laws also require more effective enforcement. The issues of the effective enforcement of laws protecting intellectual property rights, and the even more fundamental requirement of a lessening of censorship, reflect the gap between the broad claims of the government to exercise control and its actual reach of effective power.
- Expanded business support services should be strengthened for small and medium enterprises. This might involve legislation favoring, say, local content in software solutions for government departments. This would involve relaxing the government's control over the private sector, and will encounter opposition from

conservative government leaders. It will run counter to the interests of the large state owned enterprises. It may also encounter opposition from the large foreign firms, who are pressing for a more “liberal” regime with no government interference, in the expectation that they will be the beneficiaries.

All of the above initiatives require changes in policy at the central level, and are therefore largely outside the reach of external bodies. Reform may continue, but the decisions will be made by the Vietnamese leadership, not by outsiders.

If we ask rather what areas might be points where external aid could provide genuinely useful assistance, the government’s announced initiatives in education appear the most promising point of departure. The government is committed to programs to improve ICT availability and usage, but its announced goals are ambitious. In order for the aims of ICT training, increased degrees of skill at all levels of education, and access to ICT solutions across the educational sector to be met, a policy pyramid might be envisaged, with efforts beginning at the top of the system and working down:

- The curriculum for ICT-related education at universities and technical schools should be upgraded. As with infrastructure, this is a question of resources, but it is a less daunting task because it can adopt course structures already in existence.
- Parallel with the curriculum innovations, the infrastructure of tertiary institutions should be upgraded as well.
- Training for secondary and primary school teachers should begin to include access to and training in the use of ICT solutions. The training could be combined with curriculum development for lower levels.
- Internet access should be made widely available and at low cost at formal educational institutions at the primary, secondary and tertiary levels. As with curriculum development, this will require a substantial commitment of resources. However, it is already included as a goal of the new IT Plan, and as such will be receiving funding.

Philippines

Background: Structures of Governance

In the Philippines Spain, like other colonial powers, ruled indirectly through native elites. In the late nineteenth century the Spanish government’s attempt to modernize its regime without sharing power with the native oligarchy led many to support the revolutionary nationalist movement. The nationalists had defeated the Spanish in 1898, but Spain sold the Philippines to the United States, and the rebellion against the new colonial power continued for another eight years. United States colonial authorities, in order to have some chance of maintaining themselves, allowed cooperative elements of the Filipino elite an increasingly larger role in government and allowed these prominent families to

enrich themselves at the expense of the peasants and to increase their traditional power within the local communities.

Since independence the same small circle of families has remained in control. Reformist leaders have come to power periodically. The hopeful beginning of the Magsaysay government in the 1950s gave way to corruption under his successors, then to the dictatorship of Marcos in the 1970s, and in turn to a new hopeful beginning under Cory Aquino. Aquino, however, inherited not only the massive public debt, decrepit infrastructure, stagnant exports, and urban unemployment, but also the existing power structure. In the early 1990s Fidel Ramos moved reform in the new direction of privatization and reliance on the market, but success was modest, and he was succeeded by Joseph Estrada, whose government collapsed under allegations of flagrant corruption.

In terms of state capacity, President Arroyo's position has strong points, but also suffers from potentially weak aspects. The Philippines is a "presidential" system, with both the good and the bad possibilities inherent in such a structure. The President enjoys a popular mandate by virtue of the electoral process, and also enjoys extensive formal executive powers. Arroyo also benefits from her personal popularity in the reaction against the suspicion of corruption under Estrada, and because she is the daughter of a previous President and connected to the oligarchy. This last aspect however could inhibit her range of action in areas that interfere with the interests of powerful and influential individuals and families. She faces budget constraints. Since the Marcos era a large fraction (currently as much as 40 per cent) of the government budget has gone to repay loans owed to international agencies. Like all Philippine leaders she must pay attention to the desires of the United States, but as in the case of the proposed deployment of United States troops against the Muslim rebels, she must also contend with the domestic opposition that excessive deference towards the United States will create.

In terms of policy capacity, particularly in the ICT field, the President can draw on the advice of high level committees outside the regular bureaucratic framework. These committees and agencies however are new and untested. The past history of the Philippines is not encouraging in this regard, as advice to the government has tended to reflect the interests of those giving it, that is the existing bureaucracy, the wealthy oligarchy, or outside influences such as international financial organizations or the United States.

In terms of administrative capacity, the regular bureaucracy remains by all accounts not much better today than it was when Marcos accused it of laziness and corruption. The delivery of services remains a general problem. Administration in the south has once again been disrupted by rebellion. Elsewhere, interviewees report that ordinary Filipinos simply cope as best they can with the slowness of government. Those with influence are perceived as having a much better chance of receiving services expeditiously. Remuneration of government officials is low, their promotion often depends on connections to influential patrons, and they are accused of not possessing up to date skill sets. Ambitious programs of ICT enablement may therefore encounter difficulties both within central departments and at the local level.

The Provision of Information and Communication Technology (ICT) Services

The Philippines ranks second or third from the bottom in Southeast Asia in terms of ICT facilities, depending on the measures chosen, only better than Indonesia and Vietnam. In December 1999 there were an average of 9.4 telephone lines per 100 persons. This was a substantial improvement on the low levels of 2 per 100 persons of the early 1990s, but the relatively high cost of connection meant that only approximately 43 per cent of the available lines were actually subscribed to. Although call centers provide basic services, and as noted below use of mobile phones has spread widely, at existing levels of income only about 22 per cent of families can comfortably afford the cost of a personal telephone connection, and about 15 per cent more are at the margin.

There are wide regional disparities in the provision of telephone lines. Even in Manila the number of lines per 100 persons is less than thirty, and the number of actual subscribers per 100 persons less than fifteen, and therefore over 80 per cent of households have no phone connection and therefore no access to the Internet. In the outer island regions, with over half of the total population of the country, telephone lines are in effect non-existent. Mobile phones networks that deliver services via satellite are spreading, but poverty limits access.

The lack of telephone services reflects the history of service provision. The private monopoly that previously controlled the industry behaved the way that elementary theory predicts – facing a downward-sloping demand curve, the company reduced output and raised its prices, thereby maximizing its revenues. One aspect of President Fidel Ramos’ policy of privatization, deregulation, and introduction of market forces was to force the opening of the telecommunications market.

The Ramos government licensed a dozen new companies in the industry. Observers noted two things, firstly that the number of new entrants was far too large for all to be viable, and secondly that all of the new companies were controlled by members of the same elite families that have dominated the Philippines since the nineteenth century. The aftermath of the 1997 crisis and the continuing problems in the telecommunications sector brought consolidation. A few companies are left to provide services, and in each area there is always one company that dominates the market share. As in Thailand and Vietnam observers are concerned that the continued monopoly position of the major providers will lead to continued high prices and limited access for the majority of the population.

Creating an ICT-Enabling Environment: Institutional Structures and Policies

The National Telecommunications Commission (NTC) promulgates guidelines, rules, and regulations relative to the establishment, operation, and maintenance of telecommunications services nationwide. The NTC’s official position is that with liberalization, regulation of the sector must move from the environment of a “command

and control” mode to a “coordination and cooperation” leadership mode in which all players share the responsibility for the success of the telecommunications sector.

New technologies for delivery of services are being planned, and in some cases implemented. Licenses have been issued for satellite-based systems. Mobile phone companies have great hopes for wireless application protocol content delivery systems (WAP) and Internet access via phone systems, and the short message services (SMS) has become a ubiquitous means of communication. However, as noted above in general satellite remain limited by cost and WAP systems remain limited by the slow speed of data transmission that is currently possible. The government has no definite plans to upgrade the existing cable systems and to extend the network of phone lines. Any initiative in this area would depend on the availability of funding or on the chance of attracting foreign investors.

There have been numerous announcements of new institutional and policy initiatives. In 1994, President Ramos issued an Executive Order (EO 190) adopting a National Information Technology Plan, or NITP2000. IT in fact became a constant theme in Ramos’ “Philippines 2000” vision and development strategy. The plan identified six major program components, which formed the rather heavy-handed acronym “TIGERS” (for Telecommunications, Industry, Government, Education, Research & Development, and Services), in reference to the Ramos’ desire to make the Philippines the next economic tiger of Asia. IT21: the National IT Action Agenda for the 21st Century, was approved in October 1997 and launched in February 1998. In 1999 the Department of Trade and Industry launched ISP.COM: The Internet Strategy for the Philippines. The Philippine Electronic Commerce Act of 2000 (ECA) now regulates important areas of ICT.

The Information Technology and Electronic Commerce Council (ITECC) has been given a mandate to transform the Philippines into a knowledge-based economy by harnessing the potentials of information and communications technology. ITECC was created by a merger of the National Information Technology Council and the Electronic Commerce Promotion Council. ITECC is chaired by the Secretary of the Department of Trade and Industry. There is a plan to create Regional Information Technology and Electronic Commerce Councils (RITECC), but they have been established in only three of fifteen regions thus far.

In April 2001 President Arroyo announced the creation of a cabinet cluster including the secretaries of the relevant departments, which was to become “the lead government body in ICT policy formulation and implementation.” In November 2001 a series of meetings held by the Working Panel on Telecommunications and Information Technology produced a comprehensive list of suggested policy initiatives, ranging from the creation of a new Department of Information and Communications Technology, to “establishment of virtual classroom where teachers interact with students using ICT.” More concretely, President Arroyo herself has been chairing ITECC’s regular meetings, and without persistent presidential backing it is unlikely that any of these suggestions will be implemented.

The government also has a plan for ICT in government departments, called the Government Information Systems Plan (GISP) or “Philippine Government Online.” The government is committed to carry out wide-ranging administrative reforms to enhance government efficiency and the effectiveness of government operations and the delivery of basic services to the public. The GISP is intended to make government agencies more efficient, more accountable, and more transparent.

ITECC is to play an important role in the GISP, which it sees as the framework and guide for all computerization efforts in government. However, at present government applications of ICT are limited. None of the services listed in the scenario on government services can be accessed over the web. There are no plans to improve the situation in the immediate future. The GISP speaks of providing information and services in homes and elsewhere before 2010, but it is not specific about plans or implementation. As the GISP document itself notes,

Part of the problem could be the compartmentalized nature of Philippine government offices. Information sharing among government agencies is not encouraged, and ICT planning and procurement are done in isolation, thus preventing the setting up of needed integrated application systems that cut across different agencies.

The Cost of Development, Equity of Access, and the Digital Divide

In public documents in the Philippines there is little consideration of the costs of development. The government portrays the Philippines as a nation of educated, diligent, but above all cheap workers, and the most common example of employment in the ICT industry is workers in call centers. There is no general policy statement on the possible social costs of ICT development. It appears the topic of the potential costs of ICT is not the government’s primary interest, at least not as revealed in the public documents and plans.

There is no statement by the government addressing the digital divide. President Estrada used the term “digital divide” as the title of a speech delivered to a group of potential investors on an promotion trip to the United States, but his appeal was to them as investors who could utilize the cheap Filipino workers and in so doing help prevent the Philippines from falling behind the rest of the world.

Implicitly government plans assume that private investment will improve living standards and thereby overcome the problems of inherited poverty. The government hopes for increased flows of foreign investment, and hopes that new investment will lead to growth and thereby solve the looming problems of the digital divide. The development of special IT zones has continued. The government sees these ICT parks as prime locations for companies involved in various businesses connected with ICT. This is in line with the country’s positioning as the so-called “e-Services hub of Asia.” As noted in the case of Thailand, however, many other countries are adopting this approach, and this will lead to competition.

Government reports repeatedly cite the need to upgrade teacher training, but there is apparently no national policy on ICT in education, and there appears to be nothing relating to ICT education on the website of the Department of Education, Culture and Sports. Despite the problems of service provision in the central and southern islands, there appear to be no distance education programs currently in operation over the net. No teacher training institute appears to have its own website.

The PCs for Public Schools Program demonstrates the problems. The specific goal of the program is to provide a package consisting of 20 computers and five networked printers to each of 1,000 high schools, which would bring coverage of the national secondary school system up to something approaching 50 per cent. However, the program is unfunded. The only resources provided are for the teacher training, which will come out of the department's existing in-service budget. The computers are to be donated by companies upgrading their systems, or purchased through cash donations. Schools that hope to be considered for the program must themselves obtain firm written commitments from local partners to provide funds and assistance for infrastructure and maintenance – including specifically an “uninterrupted power supply” and “a monthly appropriation for electricity, telephone, and internet connections.”

Recommendations

The major problem in the Philippines is the inadequate infrastructure inherited from the previous monopoly regime. Until electric power and telephone lines are more generally available the gap between those districts with access and those without will remain. The thrust of government policy is towards provision by private firms through the market. This will almost certainly prove inadequate. However, in an ironic parallel to the Vietnamese situation, a change in policy direction will have to arise from within the structures of governance. Change cannot be imposed from outside.

There are nevertheless some specific areas and some announced initiatives that could be promising areas for support. These include:

- Internal applications of ICT by government departments. As in the case of Thailand, limited, carefully targeted programs of support for improvement of the systems of selected government departments appears a feasible approach.
- Funding for the PCs for Public Schools program, for the hardware, but especially for the provision of ongoing support. As in the case of local governments in Thailand and of rural schools in Malaysia, in the Philippines there appears an opportunity to leverage the supply of ICT hardware to schools, to provide access to other members of local communities.
- Teacher training. There appears to be a substantial lack of ICT content in the teacher training curriculum. There also appears to be a gap in the use of ICT solutions to provide training to teachers. Support for the introduction of ICT-

enabled distance learning and in-service training programs would be an approach with potentially important spillover effects in the broader community.

Conclusions and General Recommendations

Information and communications technologies are not an irresistible force, but they are also not a quick fix. The variations of experience of the different countries, the differences in approach and institutional structures, and the divergent “styles” they display, demonstrate forcefully that there is no single globalized pattern to ICT development. At the same time, the case studies make plain that the implementation of ICT solutions is difficult and expensive.

The case study countries all have announced plans for government application of ICT solutions. These parallel developments at the two ends of our comparative spectrum in Singapore and China. However, the policy regime is in fact quite complex, with a number of different agencies exercising potentially overlapping and competitive functions. The new agencies do not possess the power to compel other departments to act, and they do not possess the budgetary powers that might persuade other departments to act.

Policy may be clearly articulated, but the institutional capacity required for its implementation is lacking. Further, the missions of the new agencies, and indeed the entire ICT agenda, in some cases conflict with the hidden agendas of powerful groups. The promise of transparency in government operations threatens a range of existing interests, ranging from the obvious cases of corruption at all levels, to the more subtle roles of ethnic discrimination or the use of government power to reinforce the position of elite families.

We investigated three scenarios:

- ***Services to potential investors.*** One aspect of the digital divide is the gap between rich and poor countries. Foreign direct investment is commonly seen as one of the important means to overcome this gap, and in recent years most developing countries have greatly liberalized their regulation of FDI. The four case study countries lie at various points between the extremes in terms of service provision to business, depending on which agencies have been the most enthusiastic in their introduction of ICT solutions. None is openly encouraging to small and medium sized firms in labor-intensive industries.
- ***Services to individual citizens.*** Another aspect of the digital divide is the gap between wealthy people and poor people, those individuals with access to ICT resources, and those without. Overcoming this gap requires the physical provision of these resources to a higher proportion of the population. The scenario here concentrated on the current provision of government services to individual citizens through ICT solutions. The situation in the four case study countries parallels the services for investors and businesses in each case. As in

China teledensities are low in rural areas and services therefore restricted. There are no system-wide initiatives, and generally very few services are readily available.

- ***Services to education.*** A widely noted aspect of inequality within countries, is the disparity of educational opportunities. The digital divide is threatening to widen the gap between groups with access to the latest ICT solutions in their schools, and those who are deprived of access. However, at the same time ICT solutions may also offer a means of providing more equal access to education. One of the great hopes that many governments have for ICT is the delivery of high quality educational curriculum throughout the country. We examined national policies for ICT in education, both from the standpoint of curriculum (teaching students to become familiar with ICT solutions) and from the standpoint of delivery (use by teachers of ICT solutions). The specific scenario inquired as to the introduction of some form of “e-education” or “computers for schools” as a priority area of development, and attempted to ascertain whether the responsible agencies have the institutional and management capacity to oversee the project successfully.

The case study countries also have all announced initiatives to introduce ICT solutions into education, although as in other areas their structures and degree of success reflect past history and existing structures of governance. None is providing resources to the primary and secondary schools that will allow them to access ICT solutions in the near future. This is especially the case in rural areas where electricity service and telephone networks are inadequate. Only in Singapore and among the case study countries possibly Malaysia does the government appear to be committing significant funding to ICT in education. In China and all four of the case study countries also confront the problem of inadequate infrastructure in rural areas. However we evaluate the possible benefits of on-line teaching modes, they will not be available to the majority of the population without access to computers.

The current conditions in all countries, as we have argued, must be seen across a number of axes. We need to consider existing infrastructure, and the current plans and levels of investment being devoted to its improvement. We need to consider the level of provision of services via the Internet, to foreign investors who may provide the funds to speed overall development, to individual citizens who are to enjoy more efficient government services, and to government agencies and especially to the educational sector. We need to consider a range of more evaluative questions, particularly the quality of the announced plans, and the adequacy of existing institutions to implement those plans. We need to consider the direct commitment of senior government leaders to “fast tracking” ICT development. Finally we need to judge the history of recent improvements in infrastructure and the delivery of services. In keeping with our comparative framework, the case study countries need to be judged both against the standards of wealthy developed countries, and against the performance of our base line countries, China and Singapore.

The following matrix tables offer a summary judgment in each of these areas. Countries have been scored on a scale of 1 to 5. A score of 5 indicates that the country has achieved a level that one would currently expect to find in the wealthy developed countries. A score of 3 indicates the country has achieved developing country status, with good prospects for improvement. A score of 1 indicates the country remains underdeveloped in this area, and currently shows only poor prospects for improvement.

Matrix 1

Levels and Investment in Physical ICT Infrastructure

	Existing infrastructure in capital region and major urban centers	Existing infrastructure in rural and isolated regions	Plans for development and current levels of investment
China	3	2	2
Singapore	5	Na	5
Thailand	3	1	2
Malaysia	4	2	4
Vietnam	2	1	1
Philippines	3	1	2

Scale: 5 represents the level of wealthy developed countries, 3 indicates developing country status, and 1 indicates that the country remains underdeveloped in this area, and currently shows only poor prospects for improvement.

Na: Not applicable.

Matrix 2

Levels of Services Provided by ICT Solutions

	Services to foreign investors	Services to individual citizens	Services to the educational sector
China	3	3	2
Singapore	5	4	3
Thailand	3	2	2
Malaysia	4	2	2
Vietnam	2	1	1
Philippines	3	1	1

Scale: 5 represents the level of wealthy developed countries, 3 indicates developing country status, and 1 indicates that the country remains underdeveloped in this area, and currently shows only poor prospects for improvement.

Note: the quality of services in all three categories varies greatly among regions, as shown in Matrix 1, with most services being virtually unobtainable in isolated rural regions in China and the case study countries.

Matrix 3

Evaluative Survey of Announced Plans, Institutional Capacity, and Recent Improvements

	<u>State Capacity</u> direct commitment of senior government leaders to “fast tracking” ICT development	<u>Policy Capacity</u> Quality of announced ICT plans – the plans’ internal coherence, links to existing agencies	<u>Institutional Capacity</u> The adequacy of existing institutions to implement the announced ICT plans	History of recent improvements in infrastructure and implementatio n of ICT solutions
China	2	2	2	3
Singapore	5	5	4	5
Thailand	3	3	2	2
Malaysia	5	5	2	3
Vietnam	2	1	1	2
Philippines	2	2	1	2

Scale: For state capacity, 5 represents a public commitment by senior leaders, supported by evidence that the leaders are willing to press forward the ICT agenda even over substantial opposition. The scaling for policy capacity, institutional capacity, and history of recent improvements follows the other Matrices. 5 represents the level of wealthy developed countries, 3 indicates developing country status, and 1 indicates that the country remains underdeveloped in this area, and currently shows only poor prospects for improvement.

The difficulties of successful ICT implementation are formidable, and the costs daunting. It is very likely that developing countries will be turning to potential donor countries for support. One principle appears to emerge from case studies and interviews, and that is that assistance must not be limited to donations of hardware. The context in which the hardware is to be used is crucial. The need to plan carefully for the “soft” organizational side of implementation implies careful ongoing monitoring of programs. This must involve not only formal and quantitative reporting, but also ongoing informal contacts with agencies and individuals responsible for implementation, and with target groups to ensure the programs are meeting their needs.

It may be that people are more important than machines. The pilot agencies, or agencies that could become pilot agencies in the ICT area, could be supported with resources and training. More general grants for ICT training are also an area of interest. Vietnam has a target of 50,000 ICT professionals to be trained at university level by 2005, but does not in fact have the resources to accomplish this goal. Strategically important groups could

be targeted, for instance teachers, employees of particular government agencies, or university IT departments.

The citizens of the future are possibly even more important. A repeated suggestion is the potential for leveraging ICT applications through the educational system, particularly through teacher training initiatives. In all the case study countries in fact, upgrading of the skills of teachers appears both a necessary and a feasible lever for development, and one where outside donors could play a significant role. As noted in the case studies there are two aspects involved, the exposure of teachers to ICT materials in their training on the one hand, and the provision of teacher training itself via the Internet. The most effective means of delivering such training may vary from country to country, but might be achieved for instance by concentrating on specialist ICT teachers rather than general training for all teachers or general revisions across the entire curriculum. In addition to its leverage effect, this appears an area where governments are already committed in principle, and where existing institutions and programs deserve support.

Implementation of these recommendations poses a significant challenge, given the problems suggested above. Simple solutions will not be adequate, and it will not be possible to find a single key that will unlock development in all countries. Because the historical and social conditions vary, the approach taken to overcome the digital divide will also have to vary from country to country. Recognition of the problems is spreading, and through a cooperative framework it may be possible to learn from comparisons and work towards a realization of the vision of the connected world.