Sustainable Information Society Policies in Asia: Standing firm despite financial turmoil

Erik Bohlin, *IPTS*, with Izumi Aizu, *ANR*, T.H. Chowdary, *Center for Telecom Management & Studies*, Li Xiaodong, *Development Research Center of the State Council*, Hajime Oniki, *Osaka-Gakuin University*

Issue: So far the financial crisis in Asia seems to have had less of an impact on investments in information and communication technologies (ICTs) than in other sectors in key countries in the region. Expectations among Asian countries for long-term growth based on the Information Society remain strong though. Two countries that aim to become centres of growth in the 21st century – China and India – are looked at in more detail.

Relevance: The building of an Information Society rests on deeper foundations than short-term financial challenges, since it promises to be a core organizing and growth principle for future development. Crucially, ICTs provide some opportunities to deal with the increasing environmental challenges. The way this is addressed by economies likely to carry weight in the next century – such as China and India – can provide useful insights to European policy makers.

The Asian Financial Crisis

In the second half of the 1980s, most of the East Asian countries were enjoying continuous expansion of trade, production, and investment. One of the reasons for this expansion was the domestic boom in the stock and property markets in Japan. The bubble suddenly burst in the early 1990s, and Japan sank into a deep recession. This is believed to have triggered recessions in East Asian countries, through reduction of imports and the tightening of financial conditions. In the immediate aftermath of the initial financial downward trend, starting with the devaluation of Thailand's currency in July 1997, data shows that the industrial sectors which have taken the hardest blows are real-estate development, construction, bank and financial services, followed by manufacturing for consumer goods such as automobiles and electrical appliances, retail, and heavy machinery industries.

What is taking place in the East Asian region is a matter of much debate, and this will probably continue to be the case. Explanations emphasize institutional, political, cultural and economic factors. As regards economic factors, there was massive over-investment during the boom in the second half of the 1980s, which brought about an

The events leading to the Asian financial crisis have been the subject of much debate

Information Society
and Sustainability

Japan's long-term
future depends on its
ability to resolve its
structural problems

The figures show
that the crisis has had
some effect in
the short term on
the ICT sector in Asia

overvaluation of investment funds with high interest rates and overvaluation of currency, i.e. a high exchange rate against the US dollar. This overvaluation helped bring about the recent crisis and the concomitant exchange rate (over) correction.

The key country in any future wave of financial distress and recovery is Japan. Presently, Japan faces two short-term problems and one long term problem. One of the short-term problems is insufficient aggregate demand and deep recession. The other short-term problem is the shaky banking system and the amount of bad debt. In the medium term, however, the problems of bad debt and demand will be "solved" gradually as a consequence of the expansionary policy that the government is promoting, although inflation and an increase in public debt will occur instead. The long-run problem that Japan faces is far more difficult to solve. The Japanese system suited the needs of the economy during the recovery and "catching-up" period in the 1960s and 1970s, and it generated strong manufacturing sectors. In order for Japan to continue growing in the future it needs to develop comparative advantage in sectors other than manufacturing. Information and communications technologies (ICT) are obvious candidates, but it does not appear that Japan has developed comparative advantage in these sectors, nor is it predicted that it will develop it in the near future. The fate of the Japanese economy in the long run depends on whether Japan's long-term structural problems can be solved.

Impact on ICT investments:
The short term

In the initial phase of the crisis, investments in information and communications technology (ICT) were not so much affected in Asia. The Malaysian

government expected its information technology (IT) industry to achieve 14.4% growth in 1998 in its budget plan published in October 1997. The Computer Industry Association of Malaysia (PIKOM) also projected 20% growth earlier in 1997, but modified that figure to around 10% in December 1997. This still looked too optimistic to observers, and thus in January IDC (International Data Corporation, a consulting firm) changed its forecast for Malaysian IT market growth in 1998 from its previous figure of 16.5% to 5.7%.

The actual results are less encouraging – see Table 1. As a whole, the Asia Pacific PC market (excluding Japan) recorded a 4.8% decline. In Japan, PC sales during 1998 showed a sign of recovery. In the first two quarters of 1998, the PC sales level continued to decline; but in the third quarter, from July to September, it recorded a 9% rise over the same period last year. It was spurred by the introduction of the new Windows 98 operating system, as well as newly introduced slim and small-sized notebook computers.

Local Area Network (LAN) and network business seemed to do better than the overall IT and PC market in Asia. In spite of the economic downturn, orders to install corporate networks have remained stable in the first quarter of 1998 (Table 2).

However, Asia's LAN markets finally showed the impact of the economic troubles in the second quarter. According to the IDC survey, an overall 12.6% decline in revenue was recorded for LAN markets in Asia (excluding Japan) in the second quarter of 1998 as compared with the same quarter of the previous year. Compared to the first quarter, the second quarter saw a decline of 10.1% in revenue terms, too. With the exception of China, Australia and India, all other markets showed negative growth rates in the second quarter.

Table 1

Asia Pacific (Except Japan) PC Sales in Second Quarter 1998 (Thousands of Units)				
Country	**Q2-1997**	**Q1-1998**	**Q2-1998**	**Q2-1998 Q2-1997**	**Q2-1998 Q1-1998**
Austria	413	391	462	12.0%	18.3%
Hong Kong	96	99	90	-6.2%	-9.0%
India	118	200	164	38.5%	-17.9%
Indonesia	125	21	12	-90.2%	-42.1%
Korea	460	281	275	-40.3%	-2.4%
Malaysia	112	64	78	-30.1%	21.5%
New Zealand	60	54	62	3.3%	15.3%
Philippines	55	39	37	-33.0%	-4.1%
China	776	806	994	28.0%	23.2%
Singapore	102	82	82	-19.2%	-0.5%
Taiwan	158	152	163	3.0%	7.4%
Thailand	93	42	39	-57.9%	-7.0%
Rest of Asia/Pacific	107	73	90	-15.8%	22.6%
Grand Total	**2676**	**2305**	**2548**	**-4.8%**	**10.5%**

Source: International Data Corporation

Significantly, despite the current recession in parts of Asia the IT industries, and particularly the Internet market, are still growing in the region

Table 2

The Indian government has set itself the goal of becoming an IT superpower by 2008

Asia Pacific LAN Market in 1998 (US $ million)		
Country	**Q1-1998**	**Q1-1998 Q1-1997**
China	151.52	68%
Australia	133.20	21%
Korea	65.67	-43%
Taiwan	50.98	17%
Hong Kong	41.30	10%
Singapore	38.16	-8%
India	23.67	28%
Malaysia	21.16	-22%
New Zealand	11.63	12%
Philippines	9.31	-14%
Thailand	8.16	-52%
Indonesia	6.80	-45%
Total	**561.55**	**5%**

Source: International Data Corporation

The Information Society has been given a key role in both China and India as a part of their strategy to play a more important role in the 21st century

China has also used information technology to improve the environment

India also realizes that IT is a relatively environmentally-friendly industry and that it can gain leadership in this area because India possesses the third largest pool of science and technology personnel in the world

The Internet and Intranet market seems the least affected sector within the IT industry. Access Media International (AMI) reported that the number of Internet users in Asia will continue to grow, reaching 22 million in 1998, 34 million in 1999, and 44 million in 2000, doubling in 2 years. IDC also expects Internet users to grow by an annual rate of 63% from 1995 to 2001. Generally, Internet technology deployments are prioritized in most developing markets in Asia Pacific.

Fundamentals of the Asian Information Society

The future development of the Information Society is critical for both Japan and the rest of Asia. Fortunately, despite the current recession among many East Asian countries, the IT industries, and particularly the Internet market have not been heavily impacted. This is because IT's current state of development appears to place it at the middle of an "S-shaped" diffusion curve, indicating inherent potential for very rapid

Table 3

Asian Information Society Initiatives				
Country	**Launching Time**	**NII Initiatives/ Time Frame**	**Steering Agency**	**Investment (billion US$)**
Singapore	April 1992	*IT 2000*-fibre to building/full-service cable network by 2005	National Computer Board	2.65
Taiwan, R.O.C.	August 1994	*NII 2005*-Broadband Infrastructure	NII Steering Committee	10
South Korea	1994	Korean Information Infrastructure (KII)- Broadband infrastructure installed by 2010	Ministry of Information and Communications	57.9
Japan	May 1994	National broadband Infrastructure by 2010	Telecommunications Council of the Ministry of Posts and Telecommunications (MPT)	330-550
Thailand	1995, IT year	*IT 2000*-Broadband access by 2002	National IT Committee	18
Malaysia	February 1991	Malaysian Information Superhighway-Fibre to the home by 2020	Ministry of Technology	30
China	1992, 1995	*China NII*-Broadband net delivering over a million telephone channels by 2020	MPT, Ministry of of Electronic Industries, etc.	200

Source: Wang, 1999

growth. The Internet may have just entered this growth stage. On a more fundamental level, since the early 1990s the Information Society has been targeted as central for future growth, exemplified by the wide range of initiatives – see Table 3. The early initiatives have been reformulated over time away from a single focus on installing fibre optic links to households, towards more general efforts to promote a viable information infrastructure. Liberalization and increased competition are increasingly seen as a critical vehicle to realize policy goals.

What, then, are some conditions for a viable Asian Information Society in the 21st century?[1] Primary challenges range from lack of qualified human resources to choice of proper technological architecture against the background of an extremely rapid pace of technology innovations showcased in Internet, to political control of telecommunications carriers and contents of the services, and significantly, viable corporate strategies. As Wang (1999) has shown, investments in science and technology capabilities have been a fundamental factor in achieving growth with ICT investments in Taiwan. Higher education is certainly emphasized in the advanced Asian economies, and there are arguably other institutional considerations of critical importance as well. Social capital and institutional arrangements are increasingly emphasized as central variables for growth, rather than technology per se.

The Case of China and India

In the context of the Asian financial crisis and the problems being faced by the Japanese economy highlighted at the beginning of the article, China and India are two particularly interested cases. They were not affected as badly by the crisis as much of the rest of the region, and both hope to play a leading role in the 21st century. In particular, Information Society policies are central to both countries, and remain firm. The environmental challenges faced by these countries underscore the need to develop the Information Society.

In China, promotion of the Information Society has become a fundamental aspect of the modernization plans. The first long-term programme was issued in China's 9th 5-year plan and passed by the fourth section of the 8th People's Standard Congress in 1996. The programme was summarized as:

"The application of modern electronic information technology will result in significant progress in the field of national economy and society; the diffusion of information technology will promote advances in production, working and living conditions; the national information infrastructure (NII) will be primarily be supported by wide-band ISDN technology; and the national economic informatization level will be remarkably enhanced[2]".

To realize these goals, China has taken measures to promote ICT application in recent years, focusing on developing the information industry and strengthening traditional industries by using information technology, broadband networks, etc. Recently, the previous Ministry of Electronics Industries, the Ministry of Posts and Telecommunications with parts of the Ministry of Broadcasting, Film and Television, have merged into a new ministry, Ministry of Information Industries (MII) in order to reap the benefits of the converging ICT field. China is starting to allow competition in telecommunications, and it has engaged into a massive program of investments in the information infrastructure.

Moreover, since there are increasing concerns in China about environmental pollution (China has some of the worst polluted cities in the

About the authors

Erik Bohlin (Ph.D) is currently Visiting Scholar at the IPTS, and previously he has been a Visiting Scholar at Osaka University (1994), Osaka, Keio University (1997), Tokyo, and East-West Center (1997), Honolulu. He has also worked at the School of Technology Management and Economics at Chalmers University of Technology, Gothenburg. He has published in a number of areas relating to the Information Society but also in the general field of investment decision-making. He is a member of the Scientific Advisory Boards of *Communications and Strategies*, *Info and Telecommunications Policy*, and he holds the Publications Chair of the International Telecommunications Society (ITS).

Izumi Aizu is now principal of the Asia Network Research (ANR), Kuala Lumpur. He has been active in promoting information networking: in 1986 he co-founded the Institute of Networking Design in Tokyo, between 1987-1992 he served as Secretary General of the Japanese Networking Forum, in 1990 he organized the first Hyper Network Conference and has contributed extensively to the Hyper Network Society in Japan. He is currently Secretary General of the Asia Pacific Internet Society. He has published extensively in Japanese and contributed to the WIRED magazine. He received David Rodale Award from Electronic Networking Association in 1988; Plaque of Appreciation from EMPAL (Electronic Mail Pal) of Korea in 1990; and Award of Excellence from Telecommunications Advancement Foundation in Japan, and Best Author in 1996 by Japan's Information Processing Society Journal.

43

Information Society and Sustainability

44

Information Society and Sustainability

About the authors

Hajime Oniki (Ph.D.) is a professor at Department of Economics, Osaka-Gakuin University, Osaka, Japan. He conducts his research mainly in economics of information and communication. He has served as editor of *International Economic Review;* he has been a member of the editorial board of *Information Economics and Policy, Economics of Innovation and New Technology,* and *Telecommunications Policy.* He also served as a committee member of the Japanese governments including Ministry of Posts and Telecommunications, Ministry of Foreign Affairs, and the Economic Planning Agency.

Li Xiaodong (Ph.D) is Associate Researcher of Development Research Center of the State Council which is the key think-tank of Peoples Republic of China. He is also a member of the Chinese Economist Society, Washington DC; an advisor of CIIED (Center for Information Infrastructure and Economic Development) of Chinese Academy of Social Science, Beijing; senior member of Chinese Technical Economics Association, Beijing; and recently research stay at the Center for Strategic and International Studies (CSIS), Washington. D.C. He has written a many papers and articles on China's information technology, industry and informatization. He continues to do research on the ICT field, especially on Chinese and international telecommunications, e-commerce and information industry development in the Development Research Center of the State Council.

world), polices have been formulated to promote information technology to improve the environment. For instance, it is reported that 50% of medium-sized cities have implemented computer control for running water, saving about 1.6 billion tons of water. Moreover, information technology is claimed to have increased the energy output efficiency by 4.7% per year between 1980-1995. Sustainability concerns has reinforced the drive for the Information Society.

Building the Information Society is central to India's vision of the future as well. This has been emphasized recently by the Federal (Union) government which has promoted the goal of making India an IT "super-power", by the year 2008. A National Task Force on Information Technology and Software Development (NTFIT & SD) has submitted a series of recommendations and action programmes all of which have been accepted by the Union Government and are being implemented right away. Among others, access to, and use of, Internet is seen to be essential for the Indian people and society, and the use of information and knowledge is seen as a strategic resource. To this end, all the nearly 100,000 high schools and 10,000 colleges in the country are to be equipped with PCs by the government on a large scale – 1 PC per 10 students in high schools and one PC for five students in colleges.

Moreover, and indicatively, in one of its states, Andhra Pradesh (population 75 million; area 310,000 sq km in south-central India), produced a document VISION 2020 sketching a vision of what the state and people would be in terms of human, economic and environmental development in the year 2020. The Andhra Pradesh State Government has decided to invest extensively as the largest spender in information and communications technologies (ICTs) and use them for efficient economic and effective

governance; for rapid extension and improvement of the quality of education; for delivering primary health awareness and care and to make available tele-medicine from the expertise concentrated in the cities to rural and remote areas; for banking, and commerce; and for public discourse to involve and empower people to govern.

India also realizes that IT is a relatively environmentally-friendly industry and that it can gain leadership in this area because the country possesses the third largest pool of science and technology personnel in the world. (India is educating over 50,000 information technology professionals a year.) For example, in order to decongest the cities, a new planning principle based upon the use of IT has been pursued in the state of Andhra Pradesh involving the construction of beltways linked by fibre optics. Software companies are being encouraged to locate along the new beltway in the hope of generating local employment and boosting the rural economy, although the (positive and negative) US experience with this kind of development needs to be kept in mind in this context.

Conclusions

The building of an Information Society (IS) is the one of the most critical aspects in the creation of well-being in the next century. Finding a path toward an Information Society that builds on the particular characteristics and competitiveness of a particular region will be germane to its future progress.

Short-term financial turmoil will not change these fundamentals. If the financial distress persist in the Asian region, the rate of investments in ICT will be impacted – as they already have to some extent –but the direction

of investment activity will not. Rather, policies need to be even more focussed on what will contribute to future growth.

The ambitious policies being implemented in India and China in order to attain global importance through the information society will make them interesting cases to watch over the coming years. Moreover, there is a growing recognition in these countries that the Information Society can mitigate the environmental challenges, promote social cohesion, and infuse growth in their economies. Achieving a sustainable information society has been recognized by both China and India as a prime strategic goal for the next century.

45

Information Society and Sustainability

Keywords

financial crisis, Information Society, Asia, short-termism, sustainability

Notes

1- An extensive treatment of the future of the Information Society in East Asia is given in Bohlin et al (1999).

2- As quoted in "The 9th 5-year plan and long-range objective outline in 2010 of China's national and economic development", passed by the 4th section of the 8th People's Standard Congress in 1996.

References

- Bohlin, E., Aizu, I., Oniki, H., (1999), Special Issue on Convergence and Development in East Asia, Telecommunications Policy, Vol. 23, 1999.
- Wang, E, (1999), *The Impact of ICT on Taiwan's Economic Development*, in Special Issue on Convergence and Development in East Asia, Telecommunications Policy, Vol. 23, 1999.

Contacts

Erik Bohlin, Visting Scientist, IPTS, Seville, and Assistant Professor, School of Technology Management & Economics, Chalmers University of Technology, Gothenburg

Tel.: +34 954 488 444, +46 317 721 205, Fax: +34 954 488 326, +46 317 721 237

E-mail: **Erik.Bohlin@jrc.es, erbo@indorg.chalmers.se**

Izumi Aizu, Principal, Asia Network Research (ANR), Kuala Lumpur

Tel.: +60 37 808 738, Fax: +60 37 810 590, E-mail: **izumi@anr.org**

T H Chowdary, Director, Center for Telecom Management & Studies, Hyderabad

Tel.: +91(40) 784 6137/784 9966, Fax: +91 (40) 784 0058/781 4520, E-mail: **thc@satyam.com**

Li Xiaodong, Research Associate, Development Research Center of the State Council, Beijing

Tel.: +86 106 523 1226, Fax: +86 106 523 6060, E-mail: **xli@drc.gov.cn**

Hajime Oniki, Professor, Osaka-Gakuin University, Osaka

Tel.: +81 668 764 512, Fax: +81 668 764 512, E-mail: **oniki@iser.osaka-u.ac.jp**

About the authors

T.H. Chowdary is founder and director of the Center for Telecom Management & Studies, Hyderabad. He is Information Technology Adviser of the Govt of Andhra Pradesh has drafted its Information Technology VISION – 2020. He is also advising the Federal Govt of India, recently as a Member of the National Task Force on Information Technology and Software Development. He was Deputy Director General in the Department of Telecoms of the Govt of India. He was the first Chairman and Managing Director of VSNL, India's Overseas Telecom Corporation. He visited over forty countries as participant in ITU's and other international organisation's conferences as speaker, discussant, chairman and delegate. He was Governor INTELSAT, Washington and INMARSAT, London. He was UNO/ITUs Senior Expert in Guyana (1985) and Team Leader in Yemen (1990-1991), wrote the Green Paper for restructuring TELKOM, South Africa (1995).