

**TELECOMMUNICATIONS & INFOTECHNOLOGY
FORUM**

HONG KONG'S INFORMATION TECHNOLOGY FUTURE

July 7, 1998

Furama Hotel Hong Kong

SUMMARY PAPER

PROGRAMME

PROGRAMME

- 2.00pm: **Hong Kong's IT Future and the role of Government**
Speakers (15 minutes followed by discussion):
Kwong Ki Chi, Secretary of the Information Technology and
Broadcasting Bureau
Annie Tang, Deputy Director-General of Industry Department
Anthony Au, Coalition of Service Industries and President of HK
Information Technology Federation
Discussant: David Dodwell, Jardine Fleming, co-author "The Hong
Advantage"
- 3.15pm Coffee break
- 3.45pm **Hong Kong's IT Future, Investment and Innovation**
Speakers (15 minutes followed by discussion):
Sin Chung-kai, IT Functional Constituency, Legco
Dave Werner, Hongkong Land
Alejandro Videla, Nomura
William Rojas, Nomura Research
Samson Tam, Hong Kong Electronic Industries Association
- 5.00pm Cocktails

LIST OF PARTICIPANTS

Alcatel China
Aleph Communications
Allen & Overy
Andersen Consulting
Aon Risk Services (HK)
Asia Society Hong Kong
Asian Information Resources
Australian Trade Commission
AxiaCapital
Bird & Bird
British Consulate
BT (HK)
Chinese University of Hong Kong
City Telecom
Coalition of Service Industries
Consul General of Peru
Consulate General of Canada
Consultancy Associates
Consumer Council

Datacraft
Dolphin (Tech-Xec)
Electronic Commerce China
Electronic Document Services
Experience Publications
French Trade Commission
Group Sense International
Hewlett Packard Asia Pacific
HK One
HK Polytechnic Centre
HKITF
Hong Kong Coalition of Service Industries
Hong Kong Economic Journal
Hong Kong Electronic Industries Association
Hong Kong Monetary Authority
Hong Kong Policy Research Institute
Hong Kong Productivity Council
Hong Kong Standard
Hong Kong Star Internet
Hong Kong Trade Development Council
Hong Kong University of Science & Technology
Hongkong Land
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Jardine Fleming
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Nomura International
Nomura Research
Northern Telecom
Oracle System HK
Parsons Galloway Foundation Pty Ltd
Paul, Weiss, Rifkind, Wharton & Garrison
Reuters
S.W.I.F.T. (Far East)
Salomon Smith Barney
SITA
Star TV
Stratus Computer HK
Sun Microsystems

Teleglobe Canada Inc
Time/system (HK)
TMI Telemedia International HK
TransData
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Proceedings of TIF 7th July 1998

Discussion Points

Consumer confidence and trading standards: the point was made in discussion that it was absolutely essential that Hong Kong's approach to trading standards be international. There is a common view among consumer organizations, government and business itself that the electronic commerce from business to the consumer will only grow when there is consumer confidence. But confidence often arises because there is in many cases a continuation of an existing relationship, such as when a customer makes a grocery purchase from a local supermarket over the Internet. (Example: there's a tailor in Kowloon who sells clothes over the Internet. Because people are used to coming to him in Kowloon they dealt with him by fax and now they deal with him by Internet.) Talk of giving Hong Kong business access to markets globally through the Internet assumes that customers overseas have confidence in Hong Kong's e-commerce trading standards, but that confidence has to be built up. But that will only work if it is international. Because if we build a good structure in Hong Kong and businesses put across the bottom of their web site "we comply to Hong Kong best standards", it won't actually mean anything to most of the world because they won't know what Hong Kong best standards are. So for the thing to work, we in Hong Kong need to be making our contribution to what "best standards" are. Then we have to engage the rest of the world in a discussion so that we all move together. That is the thing that will give us the access we want. It is a tremendous opportunity for small and medium sized enterprises. One of the problems for small enterprises is getting their reputations. The big companies can spend millions on advertising and get their reputation that way. The small enterprise, joining with others in a code of practice gets the reputation that way. During discussion examples of standards setting were raised, including the need to establish certification authorities. Legislation was necessary to provide legal recognition to issues like digital signatures. All these topics would be addressed in the government's forthcoming package to promote and facilitate the development of electronic commerce in Hong Kong. Hong Kong's participation in bodies like OECD or APEC was part of the government's recognition that the approach needed to be internationalist.

Science Park: The role and financing of the science park was raised. The initial consultancy services as well as the detailed design work will all be done with public money, and the science park corporation is in the process of being established. A provisional version of the park is being used by government because the final version had still to be worked out, but once it is set up and functioning the science park corporation will be in charge of its own financing. (See also the remarks of William Rojas and others 'Second-tier market' below).

Hong Kong's Information Infrastructure: the point was raised that right now there are proprietary development efforts in information technology in Hong Kong. This means when the bank develops electronic Internet banking, the airport develops an airport

system, everyone is developing its own proprietary information systems which do not run on a common platform and cannot exchange information over a common platform. There is a need for Hong Kong to have a common platform for future information exchange in Hong Kong. For the government Alan Siu (on behalf of Kwong Ki Chi) explained that it was the government's intention to help develop an electronic service delivery scheme using an open and common interface information infrastructure which will be used by the government and public organizations for the delivery of public services to the community initially. Government anticipates that at a later stage it will also be used by the private sector for conducting various sorts of electronic transactions. Another speaker stressed the need for a common open interface for the exchange of electronic data, and Alan Siu explained that the government had already invited an expression of interest from the private sector for carrying out this project. It expects to call for tender by the end of the year and hopes to award tender in the middle of next year and implement the first phase of electronic service delivery within the year 2000.

Financing IT Projects: a questioner wanted to know how the financing worked when, say, a company was looking for funding to set up a mobile SMS (short messaging service). In response, William Rojas explained that the first thing is the viability and then the regulatory issues. And then find out what type of investor the company wants: a strategic investor or a passive financial investor. A strategic investor would come in and say "I know all about telecoms because my company does x or y and therefore I want somebody on the board to watch what you are doing". A good example in Hong Kong of this is probably Hutchison Telecom with the CDMA network where Motorola was the supplier and they also invested, I believe, up to 30% into the network. Now I'm not privy to the details of their arrangement but one could imagine there was some sort of revenue or profit sharing or some rate of return on the investment. So there are a lot of ways to do this. If it's a large enough project and looks like it could expand, then one would suggest setting up a separate company or joint venture and if it's a really exciting idea you would look at going all the way to an IPO. So the truly exciting things are IPOable. Smaller projects would not be of course. Alejandro Videla added that there is a universe of ways to fund projects. For example, one way to proceed is to find an investor who has a level of confidence and understanding of the project and then have an exchangeable or convertible bond prior to the IPO of the project. If the project goes to IPO then the investors end up holding a portion of the enterprise, otherwise the parent company has to redeem the bond in five years.

Market liberalization for telecoms and cable TV: The discussion also threw up numerous ways in which the telecoms market in Hong Kong remained more restricted than it should be. David Werner offered some examples: 'an example is diverse buildings. We would like a single satellite on one building to send our signals. It seems crazy you have to put a new satellite dish on every building but that is the way the rules work here. Another interesting point is VSAT. I have 950 tenants. According to current regulations, anyone who wants VSAT has got to have his own dish. We would have to dramatically change the shape of the buildings to accommodate that! Then when you get to the

melding of the technologies: I have an SMATV system. There are many things I can do to mix up, I can digitize video, put it over an ATM network, I can put internet on the SMATV system but regulations prevent me from doing anything from SMATV except putting free-to-air TV on it. This is an underutilized resource. One international TV company told me they'd love to be able to sell their broadcasts to the tenants but it's a protected monopoly to cable. Only cable TV is allowed to put any encrypted signals over an SMATV system at this time. So the list is actually quite long and when you see all the things that you want to do, know that the people want the services and can see they can get them in the rest of the world and the only thing that stops them is local ordinance. So the year 2000 (the year the Framework Agreement with Hongkong Telecom comes into full effect) does not address a great many of these things and even the ones it does its still an awful long way away for a country that says it wants to maintain its competitive advantage. There is a real danger that Hong Kong will lose it, rather than maintaining it.

IT policy-making and co-ordination: there is a general concern among the telecoms and IT community that past policy-making has lacked an over-arching policy-making and coordinating mechanism. The IIAC set up by OFTA pointed out the need for such a mechanism, but the IIAC could not be high-level and OFTA's responsibilities are confined to regulatory issues. The HKITS and the ISP Association proposed to the Legco House panel the setting up of the equivalent of the US presidential taskforce on the information society. Various possible names were given to it but the concept being a high-powered body coming directly under the Chief Executive with very senior government representatives on it balanced by private sector representatives. Underneath that an executive director with a proper organization to make that thing work and properly finance it by the government. The Information Policy panel in fact wrote their own paper which was largely based on the original paper that wasn't adopted. It was passed to the then House Committee, roughly 13 months ago and one of the last actions of that House Committee was to pass that recommendation to the government. Sin Chung-kai thought the ITBB was a partial response to this recommendation, and he favoured the establishment within the ITBB of a high-level committee which would involve the telecoms and IT community directly, with a focus on policy rather than regulation.

Competition and financing in the local loop: arising from the previous point, a speaker argued that the practice of having separate licenses for separate services needs to be reconsidered in light of both converging technologies and the need to liberalize further, introducing more competition and innovation into local loop services. Obvious examples included the use of cable TV to carry telephony and Internet, and electricity cables to carry data. A speaker from the Hong Kong Telecom Users Group emphasized the importance of having users' views expressed to government during the current review period. Having the telecoms and broadcast reviews in parallel is good timing, but the important issue was how far these two reviews would produce a coordinated and coherent outcome. It was also pointed out that the first meeting of the IT panel of Legco will open up these discussions in late July.

One speaker asked what was overseas experience of innovation in the local loop. On the funding side it seems that there was a lot of interest in innovative financing for wireless local loop, but on fixed local loop its been the more standard types of financing arrangement. That may be one of the problems in Hong Kong, that local loop financing is very traditional, either from internal resources or through standard forms of external financing. A different way is to approach someone with a business case, involve them as a business partner.

Second-tier market: The difficulties of finding venture and other capital for IT companies in Hong Kong is a widely recognized problem. A feature of Silicon Valley's success is the use of NASDAQ for cheaper and easier listings and the use of stock options for staff. One view is that in Hong Kong it is actually not difficult to get a listing, so a second tier market may not help that much. It may not even happen. The problems lie elsewhere. The difficulties of protecting intellectual property. Weakness in the management of many Hong Kong companies. Capital is available, but it just goes elsewhere in light of these problems and risks. One suggestion was to encourage more China and Asian companies to list in Hong Kong.

William Rojas made the following point about the success of firms setting up in Taiwan's Hsinchu science park: : 'And one of the things I was very impressed with in Taiwan's case is if you look at pre-IPOS companies, they all have various interesting, private investors -- families, relatives, professors, businessmen -- and what I learned in the case of Taiwan is that there is tremendous interest across the whole community in technology. And as you know Taiwan has built a powerhouse in hardware and the government now wants to do the same thing with software.' A related point raised was that many Taiwanese companies ask should they IPO on NASDAQ or in Taiwan or Hong Kong, and rarely is Hong Kong the answer they want to hear. Hong Kong has an opportunity to do something about this.

A further point made was that the cultural issue is an important factor on the development of any specific secondary market. In this case Hong Kong's stock market is driven by speculation in property and financed-related industries. One of the reasons the telecommunications funding has succeeded and grown so rapidly is because investors became aware, things became transparent, it was deregulated and there was a level playing field for investors to enter and access funds. In that respect the electronics industry here in Hong Kong have to look inward and first see whether they are transparent enough and secondly whether they can improve their efficiencies in order to offer similar returns to electronic companies elsewhere. Currently, returns to Hong Kong electronics firms are low.

Some Conclusions

- Convergence of technologies does not guarantee synergy of business interests and examples where government have formulated policies which assume they do have failed, eg, the initial decision to forge a cable TV/telecoms second network in the early

1990s.

- The point above proves the need for greater specialist knowledge within government. Telecoms has benefitted from this, but other areas of government lag behind. Tradelink is an example where government involvement and leadership was, until quite recently, largely missing. Part of the reason was a misplaced fear of being accused of being too interventionist, and part of the reason was lack of government expertise and resources devoted to this area of IT. Only when government became more proactive and provided leadership did the EDI project show signs of really moving ahead. Broadcast policy has been another obvious victim. The formation of the ITBB is widely welcomed on these grounds, but other areas, such as education, environment, housing fall outside this reorganization. How will they acquire the knowledge and expertise to embrace the information society?
- Government policies designed to protect the investment of local companies (even extremely wealthy ones!) could be justified on the initial grounds that a space for start-up was necessary, but the time is rapidly approaching when competitive entry should be used as both stick and carrot. Competition (a) drives prices down, (b) increases investment, and (c) increases innovation. This has worked well in several areas of the telecoms market. But far too many restrictions persist in both the telecoms and broadcast markets. Some of these are instanced in the section: market liberalization for telecoms and cable TV.)
- Competition rarely comes without problems. Consumer protection, standards issues, cherry-picking are just some of these. These issues have frequently received little serious attention in Hong Kong. The globalization of communications, and therefore of opportunities for e-commerce, make the need for a more rigorous approach a requirement of future success.
- The debate of a 'Singapore' or 'Taiwan' model vs. a 'Hong Kong' model is a completely irrelevant way to approach future policy. The strengths and weakness, opportunities and threats of each economy should be seen as different sets of circumstances mediating common global influences. Hong Kong needs to seek lessons to be adopted and adapted from its opposite, the interventionist model - for example, a pro-active government role in promoting a community-focused infrastructure, consumer protection and international standards of trading practices - and at the same time facilitating and promoting what it already does best, which mostly revolves around entrepreneurial capitalism.
- Most of these changes require shifts in mind-sets, can-do attitudes within government, transparent and innovative thinking by people who can acquire specialist knowledge. To achieve these attitude shifts the government needs to appoint 'champions' to energize the process. The same is true in the private sector, but the costs of public sector failure are more widely felt. The airport fiasco is the worst case example. The lessons need to be learnt, made transparent and acted upon with vigour.
- Anthony Au made the point very strongly, that Hong Kong has every opportunity to succeed in the new information age, but it will require self-conscious effort at all levels to promote talent, and innovative thinking and that is a process many may find too radical in practice.

- The reality is that many areas of IT in Hong Kong are dominated by low levels of innovation, lack of R&D, low rates of return on capital and sluggish markets. This makes life difficult for innovative companies to attract financing from banks, venture capitalists and fund managers who are only too aware of the risks and see better opportunities elsewhere. One interesting suggestion is to attract more Asian companies to list and IPO in Hong Kong. This may be easier to achieve than the science park's aim to attract foreign companies to locate here.

KWONG-KI CHI
INFORMATION TECHNOLOGY AND BROADCASTING BUREAU
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

(Full text of speech follows. Speech read by Mr Alan Siu)

It gives me great pleasure to have the opportunity to address the Telecommunications and InfoTechnology Forum. I recalled that I was first invited in February to address this Forum at its first quarterly meeting in April and to give the inaugural keynote speech. Regrettably, as I was then still wearing the hat of the Secretary for the Treasury and was fully committed to steering all the budget-related legislation through the legislature, I was not able to accept the invitation at that time. In mid-April the Information Technology & Broadcasting Bureau was formally established and I officially took up the post of Secretary for Information Technology and Broadcasting in May. I was then invited again to address this Forum, at its second quarterly meeting to be held today. This time I accepted the invitation without any hesitation at all. The organiser's persistence seemed to have made addressing this Forum a top priority for the policy secretary with responsibility for IT and telecommunications – very much like the competitive pressure in the international business arena has made the promotion of IT usage a top priority for Hong Kong.

The topic of today's forum discussion is "Hong Kong's IT future". I would rather put it as "IT is the Future of Hong Kong". There are indeed few areas of modern life today that are not touched by IT in one form or the other. If Hong Kong is to maintain its status as a leading international financial and business centre and to remain competitive in the global market, it has to keep itself in the forefront of IT development, and make the best use of advances in information and communications technology to improve the quality and efficiency of the services that it can offer.

IT is of course a very big field. Today, I would like to focus on one important aspect of IT development – the Internet and its use in electronic business. Internet is basically a global matrix of interconnected computer networks that can communicate with each other. It has developed in an exponential fashion in the past few years. Under 40 million people around the world were connected to the Internet in 1996. By the end of 1997, more than 100 million people were using the Internet. Traffic on the Internet has been doubling every 100 days. In the case of Hong Kong, there are now over 400,000 Internet accounts. This is a third more than the figure of 300,000 accounts about a year ago.

With the extensive reach of the Internet comes expanded opportunity for doing business across the globe, some times in ways not possible in the past. The global value of purchases over the Internet by consumers and businesses, including both physical and electronic delivery, is predicted to grow from US\$10 billion in 1997 to US\$220 billion by 2001. The market potential is thus enormous.

There are many advantages that the use of Internet can bring to businesses. Let me cite a few examples.

First, more efficient and effective customer services. By putting product descriptions, technical support and order status online, customers could look for such information through the Internet

at their own time and pace. It would therefore reduce operating costs by freeing up a company's customer service staff to focus on the management of more complicated cases. This will help to improve customer relationship.

Second, reducing sales and marketing costs. In a traditional business environment, an individual sales person can support as many customer accounts as he can physically visit or contact. Therefore, as the number of accounts increases, so does the size of the sales force. By contrast, an Internet business can add new customers with little or no additional cost. As its sales functions are housed in a computer server rather than in physical store locations or sales people, its reach is bounded only by the capacity of the server to respond to enquiries and orders. Moreover, electronic catalogues can present far more information and options than their paper counterparts. Direct marketing online can also shorten repurchase cycles and increase the ability to make additional sales.

Thirdly, new sales opportunities. The Internet operates around the clock and around the world. As a result, businesses on the Internet can reach new markets that could not be approached through conventional business operations. This is particularly true for small and medium size enterprises that cannot afford the costs of physical presence overseas.

Fourth, reduction in inventory. This is made possible by shortening the supply chain. With the linking of purchasing information directly between customers and suppliers via the Internet, the unproductive inventory held at the wholesale and retail level could be reduced. Also, more efficient and effective communication between the suppliers and other related parties in the production cycle reduces the throughput time.

And I could go on and on; but I would stop here and turn my attention to the benefits to the consumers.

To name a few, the consumers can access a large number of suppliers all over the world and hence have a much wider choice. They can have easier access to a lot more information on the goods and services they want to purchase. They can save money by shopping around with their browser and seek the best prices available. They can save time and effort as suppliers customise their sales pitch to suit individual Internet purchasers. And of course, they would benefit from the reduction in costs and hence prices of the vendors who take advantage of the Internet to shorten their supply chain.

The use of the Internet is changing in a fundamental way how we do business. In the process, there will be disintermediation as the traditional middleman is cut out from the supply chain. However, there will also be reintermediation as new ways of adding value emerge which make use of the versatility of the Internet to push tailored information and service to the customer.

Obvious examples of the disintermediation and reintermediation that I talk about can be found in the travel business, in retail banking and financial services, and in the sale of intellectual properties.

In Hong Kong, we are witnessing the emergence of some innovative use of the Internet. For example, one ISP is providing on-line supermarket shopping and on-line banking. And the Trade Development Council is operating a cyber bookshop. But this is not enough. There is tremendous potential in Hong Kong for the further development of electronic commerce. The

reason is simple – we have an excellent communications backbone on which business applications could be built.

To encourage the development of such business applications of the Internet, it is important that we provide the right environment. And here, we see an important role for the Government. Specifically, we believe that the Government should take the lead in using the Internet for the delivery of public services on-line, or Electronic Service Delivery in our parlance. In the process of the development and implementation of this mode of service delivery, we aim to identify and remove any impediments that might hamper on-line service delivery. For example, we will have to deal with the questions of security, authentication and payments; we will have to consider the legal backing for electronic transactions; and so on. Resolution of such issues will ensure that we will have an environment which is conducive to the growth of electronic business.

Also in developing our Electronic Service Delivery system, we will aim to use an open common interface so that it may be used by the private sector for transacting electronic commerce at a later stage. Of course, we will leave it to the market to decide if businesses want to make use of this common infrastructure, or other systems developed in the private sector. Our aim is simply to create an environment and to provide a ready access means to pump-prime the development of electronic commerce in Hong Kong.

Last week, we issued an open invitation to all concerned to seek expressions of interest from the private sector to build and operate an Electronic Service Delivery system for the Government. I do hope that we will receive a good response from the IT sector. And, of course, those of you in the audience today who may be interested can download the invitation from our bureau's web site at your convenience. The address is **Error! Bookmark not defined.**

ANNIE TANG
DEPUTY DIRECTOR-GENERAL OF INDUSTRY
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

(full text of speech follows)

It gives me great pleasure to have the opportunity to participate in the TIF today. The Industry Department has a vision and it is to be partner with the businesses in Hong Kong in delivering competitive goods and services to the world market. One of the businesses is the IT sector. This is a sector whose future knows no bounds. I would like to take this opportunity to briefly highlight how the Industry Department strives to support Hong Kong's IT future.

But before I do that, I should first explain that the Industry Department itself has limited in-house IT expertise. Typical of government functioning, we instead rely heavily on people who know best the needs of this sector, its pulses and directions, in short, people who are day to day in this field, to advise us.

There are a dozen plus people who give their service free of charge in our Information Technology Committee. They are people like Mr Anthony Au from the software industry, and

people from the user end, universities and the Hong Kong Productivity Council. The Committee advises on the needs of the IT sector and what the government should do to address these needs. I will run through a few examples.

We see a rapid growth in demand for the use of the internet. To meet this need we spent some \$12 million to upgrade the HK Internet Exchange located at the Chinese University of Hong Kong. This will enhance the existing internet infrastructure and with the building of an interactive multimedia exchange, will serve as a common platform to deliver multimedia contents on the internet.

We see a need to assist software firms to access the latest market and technology information. To address this need, we spent some \$20 million to establish a Software Industry Information Centre in the HK Productivity Council. The Centre actively distributes news and latest developments in the field, and holds overseas market intelligence reports in its library for leisure reading.

To help with software development processes, we funded the setting up of the Software Processing Improvement Programmes in the Hong Kong Productivity Council to promote the importance of quality assurance of software development to local software industry.

To help with the development of the telecoms industry, we spent some \$84 million to set up the Telecom Technology Centre to transfer telecom technologies and product design solutions to manufacturers of telecom products.

We spent another \$12 million to set up the Integrated Communication Laboratory and the Chinese University to develop software based technologies for telecom products.

To further assist manufacturers to meet the requirements laid down by overseas buyers, we spent \$26 million to establish an Electromagnetic Compatibility Centre in the Hong Kong Productivity Council to help locally designed electronics and electrical products meet international electromagnetic compliance regulations.

Apart from these examples which cater specifically for the IT sector, the Industry Department provides other support facilities which are open to all industry sectors but the IT sector nonetheless features very prominently in their usage. I will again give you some examples.

Take startups and incubatees. We built the Industrial Technology Centre in 1994 the focus of which is in the areas of microelectronics, networking, multimedia and software. Apart from providing low cost office and research accommodation, the Centre also organizes technology transfer activities, seminars, exhibitions as well as business matching meetings to help its incubatees market their products and technologies. In view of growing demand, the government is committed to build a phase II for the Technology Centre.

Take SMEs. We funded the SME Centre in the HK Productivity Council to help SMEs overcome a range of problems, one of which is IT application. The Centre has a Model Trading Desk to demonstrate the various technologies in electronic commerce, internet and intranet, office automation, management information systems, point-of-sales systems and mobile offices etc. There is also a software library that contains all the information on application software packages for businesses.

Take technology ventures. We run a venture capital programme known as the Applied Research Fund to support technology-related business projects. The total seed capital of the Fund is \$750 million. Twenty-four projects have been selected thus far, of which nine are related to telecom and IT.

Finally I have been asked to say a few words on the Science Park project and the newly established Commission on Innovation and Technology.

First on the Science Park. As you go along the Tolo Highway these days, you can see the ongoing reclamation work for the Science Park in Pak Shek Kok. The southern part of eight hectares is to form phase I of the Science Park project, and scheduled for opening in the latter part of the year 2001. When all three phases of the Science Park are completed, it is expected to yield a total of 22 hectares.

The focus of the Science Park is on R&D activities and not on manufacturing, unlike many of the science parks in our neighboring areas. The objective is to serve as a major facility to enhance the technological infrastructure and development of Hong Kong.

The precise directions and strategy of the Park is in the hands of the Science Park Corporation Ltd. The Board of the Provisional Corporation will have its first meeting later this month

The Commission on Innovation and Technology: This is indeed a piece of action that merits close watching. The Commission was set up this March under the leadership of Prof Tien Chang-lin from the University of California, Berkeley. The task of the Commission is to identify the measures necessary to realize the vision of making Hong Kong a centre of innovation and technology in Asia. The underlying policy objective is to promote product, process and system innovation as well as technology upgrading in our manufacturing and services industries, so as to increase their value-added, productivity and global competitiveness.

The Commission has had four meetings thus far to exchange views amongst the members who are either US-based, Mainland China-based or Hong Kong-based. To facilitate its considerations the Commission has also hosted two workshops in May and June respectively to have interactive discussions with participants in the field. Letters inviting written comments have also been sent in April and the response is encouraging.

There are five areas that the Commission is working on. For now, the Commission is particularly focussing on the first two:

- a) **Strengthening links between industry and local academia**
The academia has an important role to play in the industrial science and technology policy of many advanced economies. These economies attach a lot of importance to maintaining strong connections between research universities and industry. So we ask – what more can be done in the Hong Kong context? How can we stimulate greater interest among university researchers in commercially relevant research? What other measures are necessary to gear research towards technologies that are commercially relevant to Hong Kong's industries? Can we better promote university-business sector collaboration in R&D?
- b) **Technological collaboration between the Mainland and South China in particular.**

It is clear that the scientific and technological resources in the Mainland potentially are an important source of input for innovation and technological adaptation to Hong Kong industries. So we ask – what measures (policies and possible institutional setup) are needed to realise this potential? What more can be done in the area of technological collaboration to strengthen the synergy between Hong Kong and South China?

The remaining three areas of work for the Commission are:

- Fostering a culture of innovation;
- Providing a business environment conducive to innovation and technology diffusion;
- Enhancing exchange of ideas between industry and market/customers.

The Commission is now in the process of developing its recommendations which are due in the form of an interim report to the Chief Executive before October this year; the Commission will then wrap up all its work by about July next year.

Though nothing is decided yet regarding recommendations coming out from the Commission, I personally would doubt if the outcome had no impact on the future of IT, this important sector in Hong Kong. We would have to watch the developments here carefully.

ANTHONY AU
COALITION OF SERVICE INDUSTRIES

(full slide presentation follows)

SESSION II

John Ure opened the second session. This session is really the view of the private sector with regard to the type of investment climate and policy that will encourage IT and telecoms related activity in Hong Kong. It is also the view of Sin Chung Kia, the IT functional constituency Legco member and his vision of Digital 2005.

DAVID WERNER
Hongkong Land

I was quite excited the last session when John said he wanted to have a session on private sector investment in Hong Kong because that's right up our alley. As the General Manager of IT and Telecoms for Hongkong Land and an executive director of their telecoms subsidiary, this is an important issue for us and I wanted to explain to the audience what we are looking for. My friends from Nomura will talk about what the people with money are looking for when they want to put it into telecoms and IT investments.

I think everybody thinks of Hongkong Land as the people that own a bunch of big buildings in the middle of Central. People might be more surprised to know that we actually have a lot of buildings all over Asia, not just in Central but in the New Territories, Shek O, Stanley, Beijing, the Philippines, Thailand, Singapore, Vietnam. People might be more surprised to know that we

have a lot of infrastructure investments around the region and this is what I want to address specifically. We have a division of Hongkong Land that is dedicated to investing in infrastructure. Our focus area is Asia and our target sectors are commonly thought of as utility companies which are becoming increasingly privatised. This includes telecommunications. Where have we put our money? We have a power plant in China. We have four water treatment plants, a couple of toll roads. We have a significant stake in Container Terminal 8. One of the things that we are trying to find good investments in is in telecommunications. Barring that we have invested about US\$7million in our own buildings, creating a network of telecoms space and pathways with the express purpose of facilitating the infrastructure development of the new fixed telephone network operators. Over the next two years we are going to double that investment. We have already begun installing a series of antennae systems to all our properties so that your mobile phones, PCS phones etc can work anywhere. That's how I got talking to Nomura as they were instrumental in getting people interested in this. Now you know that the airport and the tunnels etc have a central antenna system. You might be more surprised that 18 months ago it was pretty hard to convince an rf company there was a business there. This turned out to be a very big business. We will invest even more money in satellite and other kinds of infrastructure again, in the Central portfolio, and anywhere else in the region where we can find it.

These are things that I see opportunities in. Wideband rf distribution. Not just cable tv systems but up in the 1-band 2 gigahertz range. All kinds of new services that don't exist yet. ATM distribution. As you know there is a blurring of voice and data which is pretty well done. There is also an equal blurring of infrastructure. You can carry internet on a UHF band of tv, you can have voice over IP therefore you can have a phone call over your television system eventually. All of this is going to change the way we develop infrastructure in new developments and retrofitting old developments to make them current. New technologies; point to multi-point wireless distribution is something that is becoming more cost-effective and in some cases even cheaper than putting in-ground fixed network systems for local loops. I've seen improvements in video to desktop technology that is not even on the market yet. We've beta-tested some products that don't even require any additional equipment as current systems require. And satellite technology is changing.

The interesting thing about all of this stuff is that the technology is actually in place in other parts of the world. But it is not in place here. This comes to the point of a lot of things that was said earlier. We can create demand. We have 950 tenants in our buildings alone. Most of the multinational financing institutions that have their regional headquarters in Hong Kong are based in our buildings. These people want the kinds of services they can get in Europe and North America. We want to invest. The technology is existing in the rest of the world. What I find when I want to put internet on the cable tv system when I want to link my buildings for central distribution of satellite services, any number of things, one little thing; the government won't let anybody do it. So the market is waiting, the technology is waiting and the money is waiting for the government to loosen things up enough.

ALEJANDRO VIDELA
NOMURA INTERNATIONAL

(full slide presentation follows – reading from speech)

I want to spend a few minutes explaining how telecoms infrastructure gets funded and this also applies to information technology as long as the projects make commercial sense.

Over recent years, as you can see on the chart, capital markets have become an increasingly important source of funds for telecom infrastructure. The explosive growth, as you can see, in the telecom fund activities in the capital markets has been partly a product of the numerous privatisation programmes around the world and the ever-increasing need to fund the investment necessary unsatisfied demand in new services requirements in order to keep ahead of competition. However, what has propelled such a growth is the turn of what used to be a utility industry into a high growth area. Liberalisation has been the key which has created numerous exciting investment opportunities that have attracted massive pools of funds along three major classes. These are: equity; debt; and equity-linked products.

Nowadays virtually all large, medium and small sized, early-stage and mature enterprises might access funds in the capital markets, providing that the right structure is in place. I will just briefly describe the equity structures.

Preferred shares: traditionally preferred equity has provided the early stage funding of telecom investment. This market has been characterised by eventual capitalists who preferred this class of equity because it runs ahead of common stock in respect of dividends and distribution of assets in case of liquidation. At the same time preferred stock normally has a vote if certain conditions are not met eg, if dividends are missed. Therefore preferred stockholders can exercise certain control over the company's management. The amount of fund investment to preferred equity continues to grow year on year. However its relative importance on early stage financing is declining as common equity and high-yield debt investors become more knowledgeable of the industry's dynamics.

Now I will briefly describe common shares. Common shares is by far the most common equity funding activity of telecom companies and this is due to the large number of privatisations that have taken place around the world. Also common shares enjoy a majority of investors which are not looking to invest regularly on telecom or infrastructure but they are looking for exposure on certain countries' growth. The common equity financing route is more appropriate for more mature enterprises. This is because the majority of the common-stock investors rely on traditional evaluations and methodologies which require an operating track record and cashflow. During the last market bull run actual valuations of mature telecoms to unattractive levels, a number of public funds switched into private equity portfolios which aggressively searched for robust early-stage growth companies with IPO potentials. Unfortunately this trend has experienced a setback as the recent market downturn may establish operations which trade on secondary market a lot more attractive in terms of valuations.

The common-stock holder investor base has become more aggressive in terms of the projects they invest in to. This is due to increased understanding of the operational and technological issues of the industry. They mainly focus on earnings growth potential or the long- or medium-term investment horizon make this an attractive target investor base for funding. They do not seek daily involvement on this basis however they wish to retain limited management control.

The primary debt structures are the traditional yield coupon which pays similar to the yield of return on investment under more innovative structures such as the zero coupon and the stepped-up coupon. An example of the yield coupon structure is Level 3 Communications, a US-based company, which raised US\$2 billion in a bond financing recently for an international

telecommunication network. This was an early stage financing as the company was able to raise such a large amount of funds without even having any cashflow generated by the network. However the company had to pay its price. The coupon for this security which had a 10-year maturity was 9 1/8% which represents US\$91million in semi-annual interest payments. As you can see, this kind of financing puts a very high stress on the company's cashflow.

Other innovative structures have become more frequent in recent years, such as zero and stepped-up coupons. They both defer the interest payments. The former until maturity and the latter steps up. The advantage of these two structures is that they match the cashflow of the underlying projects that they are financing. As we can see, the investor base is not so much concerned on the industry but more on what returns they get for their investment on a risk-adjusted basis. Therefore they focus on the issues of ability to service debt and, of course, on the value of the assets of the enterprise, given that in certain cases there are no cashflows on early-stage enterprises. They have a medium-term investment horizon, usually maturities range anywhere from three to seven years (sometimes they go 10 years). They do not seek to have daily involvement in the business, however they retain management control through stringent covenants.

Equity-linked structures remain relatively unexploited by telecom companies. We have seen, especially on the small investment and early-stage enterprises, increased interest for this kind of structure; both from the issuers side and the investors side. The reason why issuers are interested in this structure is:

- 1) because it provides a lower funding cost given that the equity option embedded in the product adds to the value of the bond; and
- 2) if the enterprise performs and the equity has some value, investors decide to exchange these bonds into equity in the company, therefore there is no need for redemption of the bond which releases stress from the company's cashflow.

Another more traditional alternative of equity-linked structures is the bond with warrant which provides the bond holder the opportunity to purchase shares in the company and that serves as a way to subsidise the redemption of the bonds.

Going forward, as the Asian future remains uncertain we expect structures that provide solely downside protection, such as collateralised debt and guaranteed convertible bonds to be the structures that enjoy a greater market receptivity.

WILLIAM ROJAS
NOMURA RESEARCH INSTITUTE HK LTD

(full slide presentation follows)

When I first came to Hong Kong I was very surprised how many people had pagers. The next thing I remember is mobile telephones. Sure enough Hong Kong is probably in the top five or six in terms of mobile penetration. But I just came back from Europe a couple of weeks ago and I had a chance to survey the service offerings in the UK and Italy and I came back with some interesting observations.

First of all, before I talk about what I saw in Europe, I would like to just mention that in the US, partly because of the Congress Act in 1996 there has been a lot of activity. None of it has really lead to lower local phone call tariffs but definitely a lot of merger activity between operators and technology companies and the media companies. The latest one of course is AT&T offering about GBP18billion for TCI, a cable operator that has about 14 million customers. Now all this is happening because the US has gone ahead with deregulation. Probably, in my view, the most deregulated market is the UK. I think the UK has done a lot of things and in some cases perhaps to the detriment to some of the operators. I believe the telecoms act of 1996 follows in the steps of the UK market.

Now, when you look at the opportunities here in Asia -- apart from buying stops and bonds in operators or manufacturers (unfortunately most of the telecom manufacturers are in Europe and Japan and some in Korea) you're left to look at what other opportunities there are. Being part of an investment banking group we've had a lot of requests from very smart telecoms investors. You end up having discussions like: "well you probably don't really want to invest in that analogue network, you'd better look for a digital network. Or maybe you don't want to go after that satellite project, you should look at high-speed terrestrial." There are a lot of these kinds of discussions that we get with investors. One of the things that I discovered about two years ago is that when you have the concentrated populations that you have in Hong Kong, Singapore, Shanghai, Taipei, Kuala Lumpur, you actually have an opportunity to securitise or take out the telecom infrastructure and treat it as a separate business. That was how we originally had our discussions with Hongkong Land when we suggested, several years ago, that they should treat their telecom infrastructure as a business and see if there is actually a business model for that. There are examples in Asia where this has happened. The one I'd like to cite here is a project called KL Sentral, in Kuala Lumpur. A company called Malaysian Resources which owned at the time a television company and wanted to restructure it. They got some concessions from the government that gave them a very large plot of land over by a railroad station. To get this concession they had to later build a hotel, a railroad station, some apartment buildings, shopping etc. As part of the deal Malaysia Telekom and bought this television company. In return they told Malaysia Resources they wanted the telecom infrastructure and wanted to own it as a separate business. I believe you will see other examples of that.

We think there are various examples of this around the region, where there's enough activity and enough, if it's mobile calls per minute or hour, or fixed line or interactive VOD to warrant setting up a separate entity.

Here in Hong Kong I think there is a couple of areas we could look at. I am really tired, when walking on the street, of the spot checks. But when police spot check they call on the telephone, read the ID number and it takes ages. I never could figure out what the problem is. I suspect if they had a smartcard and it had a fingerprint in it it would probably prevent a lot of fraud because there are many examples here in Hong Kong of people carrying fraudulent ID cards. It would be tremendous to have a smartcard linked to passport control and the octopus card.

Telemedicine is another area that Hong Kong has done some work on. There was a pilot test done at the handover with Beijing and the US. Buses now are installing Octopus cards. We have Mondex, Visacash etc. I feel that all the databases are there. Probably everybody's using TCP/IP or common standards but I feel from a users point of view there is a lot we can do in terms of standardising electronic transactions. If you want to have some fun go to the Marriage, Birth Registration office here in Hong Kong and ask for a copy of a child's birth certificate and watch the process they have to go through to get that. It shouldn't have to be that way. I think

there's a lot of opportunity to take advantage of mobile smartcard and the high-speed fibre networks that have been built here.

The last area which I think has a lot of opportunities is VSAT. This is something that we have seen a lot of activity in in China. As a matter of fact so much so that the MPT or the MII has put a moratorium on VSAT licences because they want to set up their own businesses, presumably. So there is a lot of opportunity in VSAT, especially cross-border.

Mobile: in Europe I had a chance to see some of the UK operators and Telecom Italia, Omnitel. One of the things that surprised me is that they have run already pilot tests of an electronic mobile commerce smartcard system. In the case of the UK it was Barclays Bank together with Alcatel and Cellnet (Cellnet is 60% owned by British Telecom). This was all made possible because of several things:

1. GSM phase II and phase II+ has some interesting specifications and one of them is a toolkit. This helps the SIM card actually communicate with the handphone. A number of companies like Gemplus have developed a language (and I believe this has gone into the GSM Phase II spec).
2. Another is SMS (short message system). If you go to the UK you can go on the internet and send a short message to an Orange customer. Orange is affiliated with Hutchison Telecom. Yet here in Hong Kong we still cannot do short messaging unless it's a Vodafone user in the UK who happens to be roaming into Hong Kong and uses the Hongkong Telecom network.

I get the feeling that we have done a lot with the mobile here in Hong Kong eg, the six PCS licences, but in terms of functionality definitely Europe is leading the way.

Then there is the whole promise of the third generation mobile. If you bring in high speed data rates, put some multimedia capability, larger screen, special multi-layer menus you can turn the mobile phone into a true mobile banking machine in your pocket. That would probably fit very well into the Hong Kong way of life. Somehow Hong Kong people don't like to sit in their homes and play with the internet, like people in the US do. In Hong Kong the mobile phone's become crucial and I think that's where the opportunities lie.

SIN CHUNG KAI
IT FUNCTIONAL CONSTITUENCY, LEGCO

Before I proceed I want to react to one of the participants on their awareness of the IT about people of Hong Kong. I give you a verse of stories of my party chairman. In early April we launched a website for my party for campaigning. The chairman had to demonstrate the site to the press but the chairman had difficulty using a mouse. You can criticise the chairman for being ignorant about IT but he is still able to communicate with his son in the UK every night when necessary through the internet. So the story in Hong Kong is what do IT people expect of the people in the streets. Do we require the average person to understand IT or do you want them to use what we provide. My simple answer is I am happy with my party chairman because he knows the internet, he can find things on web pages etc. This is the ultimate goal that most of the people in Hong Kong can use what we provide.

Also I want to address Tony Au's point about hiring PR people from Singapore. To a certain extent I agree with him as Singapore is having an excellent PR strategies. It created many rosy

and beautiful pictures for people worldwide and is able to attract a lot of big firms into Singapore. However, I think when we talk about entrepreneurs there has been difficulty in creating the best environment for entrepreneurs. So different societies have different problems. I think we need to have a balance between the strategy of Hong Kong and Singapore. Singapore has government-led policies. If the government does not tell you to do that thing it is stupid to do it. I think people will agree. It is quite difficult to penetrate the market if the government does not give you an incentive. During the course of the campaign I advocated my blue-print for future IT development. That Hong Kong should be developed into a digital city in 2005. This is a strategy for Hong Kong to revitalise its economy in the current economic and financial crisis. I think Hong Kong should also have a better PR strategy. This is one way to tell the whole world the direction Hong Kong is heading and how we are going to reach the destination. In Singapore they have IT2000. Mahathir is building the Multimedia Super Corridor. USA is considering Internet 2 etc. So the whole world is competing. The Hong Kong government is going to offer tendering on ESD (electronic service delivery) which is good. I think the government takes a lead in providing a government service to the public. But this is not enough. I think we should focus on a greater plan. I am not asking for the government to compete with business but it should do something to promote Hong Kong as an IT centre, in this region at least. I think a Digital Hong Kong 2005 is a good strategy.

TEXT OF SPEECH TO FOLLOW HERE.

SAMSON TAM
HONG KONG ELECTRONIC INDUSTRIES ASSOCIATION

(see full slide presentation follows)

Comments on slides:

Slide 4 – Who are Hong Kong's Competitors;

Hong Kong used to be strong in electronics but now Taiwan and China are overtaking.

Consumer products: Hong Kong is still one of the strongest. However, the competitors are Japan (very strong in high-end products) and China (very strong in low-end products) and Taiwan is getting stronger.

Computer field: in this field Hong Kong is really weak. Ten or 20 years ago Hong Kong was good but now Taiwan is the strongest. Of course, Japan and USA has the big names (Compaq, NEC) etc.

Communication field: most of the leaders are European or American. Japanese brands are strong locally but not overseas. The standards, like GSM and CDMA, are keeping Hong Kong out of the market.

Software business: Hong Kong is not strong and has a long way to go to compete with US (Microsoft) or even India.

Slide 5 – What are Hong Kong's Constraints.

Capital investment: although we have heard that there is some money ready to be invested in technology it seems that although Hong Kong has a lot of investment most of it is into other activities like property etc. Seldom does money flow into high-end or technology related

product. Especially banks will only lend if there are assets in a company. Also the P/E ratio in Hong Kong is very low.

Technical workforce: although Hong Kong has seven universities, most of the technical students end up in business or finance. Seldom stay in the technical field. Like Singapore they import a lot of technical workforce but don't have a policy for importing good workers. I had to open an office in Singapore to recruit good engineers from China. The Hong Kong government should definitely review their policy in this area.

Intellectual property concept: this is poor in both Hong Kong and Asia. This affects the development of software. This is a great constraint asia-wide for building software businesses.

Government leadership: everybody recognises that the Hong Kong government has to give more good leadership to give more good insights.

Slide 6 – What are the Trends

Technology or IP is changing so it is never too late to enter the market.

Wireless communication, especially wireless data, is really the trend. Since voice already has enough infrastructure to support voice communication but wireless needs more infrastructure. In the coming years wireless data will bypass wireless voice volumes.

Information network: the internet, intranet will be very promising in the coming years. We must keep our eyes on these trends

Software Driven: as hardware becomes cheaper the promising trend is in software. We need more and more software technicians and engineers in Hong Kong. For five years we have been recruiting software engineers but never enough. The demand for software is huge and will grow.

Small order/customization: in the future the trend will be away from mass orders. This is a good trend for Hong Kong companies that are flexible and can produce efficiently customised products.

Consumer products merge with PC: Hong Kong is very strong in consumer products (tv, telephone, toys etc). During the past 10 years consumer products aren't so value added but once they merge with PC this will revitalise the products. Microsoft is going to put more resources into Windows CE, adding consumer products (pager, telephone, tv etc).

ADDITIONAL FINAL TEXT

Slide 7: What are HK's Strengths?

Entrepreneurship: thanks to the Hong Kong government's "hands-off" approach the country has a lot of entrepreneurs. This will become a critical success factor for Hong Kong's success in the IT field.

Management capabilities: Hong Kong so far has not got much technical expertise but is strong in management in Hong Kong and throughout the region.

Locate in and Understand Asia's markets: this is important because IT will be a booming market in Asia, especially China and India.

Good IT Infrastructure: Hong Kong's infrastructure is sound and good.

Slide 8: The IT & Electronics Industries Development Model

There is now handshaking between IT/Telecoms, consumer electronics and software & content. This will prove good for Hong Kong.