

# **Is Asia's World City Ready to Become the World's Digital City?**

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## **Introduction**

In 1997 the Chief Executive of the Hong Kong Special Administrative Region (HKSAR) stated that it was his goal “to make Hong Kong a leader, not a follower in the information world of tomorrow.” (Hwa, p. 44) In order to do this, he felt that his city needed to concentrate on four main focal points:

1. Infrastructure – the hardware necessary for high-speed communication and Internet access;
2. Interface – a common application through which interaction can take place easily and securely;
3. Manpower – a pool of individuals who understand and can extend the digital infrastructure when it is in place;
4. Environment – a culture that stimulates creativity and the growth of information technologies. (Hwa, p. 44)

In November 1998 and again in May 2001, these four foci were expanded into a plan called Digital 21 Hong Kong. This plan defined the process and the goals in more concrete terms and became Hong Kong's way of informing the rest of the world about how exactly it expects to fulfill the vision of the Chief Executive.

This article explores Hong Kong's Digital 21 strategy and compares it to a model for success in the new digital age. First, we define a model for success in a digital economy. Then we shift our focus onto the first strategy developed in 1998, examine key

elements of that strategy, and assess its success based on our model. Following that discussion, we shift the focus to the second version of the strategy written in 2001. This version is still far too new to adequately evaluate its success or failure. Instead, we evaluate the strengths and weaknesses of this new Digital 21 strategy. As we will see below, the 1998 plan put Hong Kong on the road towards digital readiness, but it is not clear that the 2001 plan will help continue that progress.

### **Digital Economy: Defining the Model**

The phrases “digital economy” and “information society” are rarely given precise definitions. Instead, they are used differently by different organizations. Fortunately, Thomas L. Mesenbourg, Assistant Director of Economic Programs at the U.S. Bureau of the Census, has defined a method of measuring the state of digital readiness within an economy. In order to measure the digital readiness of an economy, Mesenbourg defines four components as integral to such an economy:

1. Supporting infrastructure;
2. Electronic commerce transactions – selling of goods and services online;
3. Electronic business processes – how business is conducted with the aid of computers;
4. Reliance on computer-mediated networks<sup>1</sup> in order to facilitate e-business and e-commerce. (Mesenbourg, p. 2)

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<sup>1</sup> To put it most simply, computer-mediated networks are groups of machines communicating through the use of a central computer facilitating those communications.

These four components, when combined and applied, allow us to gauge the level of sophistication of an economy's digital progress. The following paragraphs examine each one of these components in more detail.

The supporting infrastructure of a digital economy is that which is necessary to support electronic business and commerce transactions. This can include the hardware necessary for the creation and maintenance of networks (computers, routers, cables) as well as the software that utilizes that hardware (firewalls, virus protection, file transfer protocols, web services). Further, this infrastructure includes the personnel (programmers, technicians, repair workers) needed to use, maintain, and extend the networks. Lastly, an economy must provide services for use upon its networks, or the networks are not necessary. These services can include web hosting<sup>2</sup>, Internet services, consulting, e-mail, etc.

E-commerce is the agreement between a buyer and seller to transfer the ownership of goods or services where computer-mediated networks allow for either the agreement or the transfer or both. (Mesenbourg, p. 4) As such, free services of a network (e-mail, downloading of free software, reading web pages or newsgroups) are not considered e-commerce. However, paid transactions performed on a computer-mediated network do constitute e-commerce. We are, perhaps, most familiar with e-commerce in relation to online stores like Amazon.com or CDNow, but it also includes other electronic marketplaces such as eBay, ticket sales, and business-to-business transactions.

Electronic business is the classification for all processes that a business performs over computer-mediated networks. Therefore, e-commerce transactions within a

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<sup>2</sup> Web hosting is the allocation of space on a computer for information that will be available to all computers connected to the Internet.

business are included in the e-business classification as well. For example, an online purchase would include the following processes: access to a products catalog, ordering, electronic payment, and inventory management. Each of these examples is considered to be e-commerce as well as e-business. However, intra-office e-mail, online employee services, training, payroll management, human resource management, and other internal business processes are not considered e-commerce but are rather e-business. To put it another way, external business practices, when the business interacts with customers, are both e-business and e-commerce. But, internal practices are only e-business. Whether e-business or e-commerce, any digital business practice expands the digital capabilities of an organization, thereby increasing its status within the information-based culture.

It should be obvious that a computer-mediated network is necessary for e-business and e-commerce. Without these networks, the electronic part of those concepts does not exist, and we're left with the business and commerce models of the past. However, we should not restrict our thinking of computers to only personal computers. Computer-mediated networks also include televisions, cellular phones, personal digital assistants, and telephones. (Mesenbourg, p. 4) The use of these devices by the population can usually provide us with a clear picture of how accepting that population is of an information-based culture. The dominant computer-mediated network of the world is, of course, the Internet; and it is to harness the potential of this communication medium that other networks are established. Therefore, a complete view of the state of a digital economy includes other networks as well: communication between banks and their ATMs; connections between collegiate and public libraries for the exchange of reference

information; perhaps even the new digital advances for television which provide us with information about past, present, and future shows.

It is important for us to include a fifth component for digital readiness in addition to the four described by Mesenbourg. Not only must an economy be able to communicate across its computer-mediated networks, but it must also feel secure in those transmissions. The field of cryptography<sup>3</sup> has particular applications to digital communications as even machines like a personal computer can perform the complex mathematical operations involved in most cryptographic systems<sup>4</sup> to produce more secure communications. Most users of the Internet are becoming more and more aware of privacy issues as the process of e-commerce becomes more streamlined. Even on small business Internet sites, secure servers built to digitally encrypt transmissions are commonplace and ensure the security of individuals' personal information. Jeff Palfini of CNN (2001) reports that "the rate of credit card fraud resulting from online transactions is three to four times that of all [other] credit card fraud. Consumers, on the other hand, believe that credit card fraud is twelve times more likely to occur online." Palfini uses as his source a report by Jupiter Media Metrix and VISA. This distrust of e-commerce, or more precisely, distrust of the safety of information transferred during such transactions, is the largest stumbling block to greater acceptance of e-commerce.

It would be nearly impossible for any single organization to implement all of the different components set forth in the preceding paragraphs. But, as other articles within this volume have described, the HKSAR is more than simply an organization. Now that

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<sup>3</sup> Cryptography is the study of altering communications in order to make them unintelligible to those for whom the communication is not intended.

<sup>4</sup> A cryptographic system is a mathematical algorithm in which a normal message is altered, making it unintelligible to those who don't understand the specific cryptographic system used in that alteration.

we have defined components within our model of digital success, we must see how Hong Kong has endeavored to implement them within the HKSAR.

### **Digital 21 1998: Using the Model**

The Digital 21 strategy of 1998 was primarily concerned with producing the supporting infrastructure (to use Mesenbourg's terminology) for the computer-mediated networks that the HKSAR recognized would be necessary in the future. Using the Chief Executive's four policy focus points, the Information Technology and Broadcasting Bureau (ITBB) of Hong Kong developed eighteen initiatives to help motivate its progress towards a digital economy. Fifteen of those initiatives fall within the category of infrastructure, though some rather loosely. The other three all apply to the e-business component as defined by Mesenbourg. Some of the most important of these eighteen initiatives are discussed below.

First, in order to develop high capacity communication systems, Hong Kong announced a policy of partial liberalization for external telecommunication services beginning in January 1999 that allowed telecommunications service operators to refile communications through Hong Kong. Then, the telecommunications services were fully liberalized in January 2000, allowing for local fixed telecommunication network services (FTNS) using wireless technology, twelve satellite-based FTNS, and four cable-based FTNS licenses. Each of these licenses allowed for the creation of new telecommunication service companies. Also, Hong Kong Cable TV was issued a license to provide new services over its hybrid fiber-coaxial cable. ("Milestones of Telecommunications in Hong Kong") Prior to these changes, control over

telecommunications services by Hong Kong Telecom International had fixed the prices at whatever rate that company desired. These two changes drove down the prices for those services, enabling businesses to continually invent new and better services. (Lai) Further, they were forced into competition with other businesses.

As a result of the lower prices for telecommunications services, in March 2001 5.4 million mobile phone users (81 percent of the population – among the highest rates in the world) were counted, and over 440,000 broadband Internet connections<sup>5</sup> were in operation. (“Milestones of Telecommunications in Hong Kong”) The number of broadband users is expected to increase as such connections, in the form of both wired and wireless connections, are being included in all new buildings in Hong Kong. (“Digital 21: Hong Kong ...,” §2.1.1.2) While this liberalization doesn’t affect e-commerce directly, it has allowed the businesses and people of the HKSAR to connect in an ever-increasing variety of ways.

Second, in order to corner the market in Hong Kong Internet traffic, the Chinese University of Hong Kong was used as an exchange point for Internet traffic inside Hong Kong. Furthermore, an agreement was made in 1998 between the governments of the HKSAR and the Guangdong Province (lying directly north of the HKSAR) to install a direct broadband connection in mid-1999 between those two regions. Prior to the establishment of this connection, most of the Internet traffic coming out of the Asia Pacific region had to be routed through the United States. With this connection, the Asia Pacific traffic is now routed through Hong Kong, enabling the HKSAR to sell this bandwidth. (“Digital 21: Hong Kong...,” §2.1.3.2)

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<sup>5</sup> A broadband Internet connection is a link to the Internet that can provide much greater speeds than a 56.6 kb/s modem. These connections include fiber optic direct connections, DSL, and cable modems.

These two improvements helped prepare Hong Kong with the hardware infrastructure necessary for growth. The flip side to that coin, however, is software. The Chinese language interface standard was developed in concert with the International Organization for Standardizations as ISO 10646. This standard incorporated the characters of the Han alphabet into one single common character set and was prepared and released in October of 2000. (International Organization for Standardizations) This Chinese language interface empowered the HKSAR government and local businesses to communicate with residents in their native tongue and is used extensively in the government's Electronic Service Delivery system described below. ("Digital 21: Hong Kong...", §2.2.1.2)

We now know that Hong Kong has the ability to communicate across computer-mediated networks and has the hardware to create such networks. However, two major questions remain: are those communications secure and does Hong Kong have the human capital to support the new systems?

To examine the security of network communications, Hong Kong has developed a public key infrastructure (PKI) to secure electronic transmissions. A discussion of the intricacies of public key cryptography is beyond the scope of this article, but such an infrastructure provides two main features that the HKSAR government has deemed of paramount importance. The first is a state-of-the art level of security – PKI systems are the closest thing we have to computationally secure algorithms<sup>6</sup>. Secondly, with some manipulations, public key systems can authenticate the sender and receiver of all

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<sup>6</sup> A computationally secure algorithm is one where a person wishing to break the security system would have to take an unreasonable amount of time to do so. (Stinson, p. 44) For example, if a message needs to remain secure for one week, then a computationally secure algorithm protecting that method must take longer than a week to break.

messages and verify those involved in electronic transmissions. This provides both security and authentication via digital signatures in the same system. (“Digital 21: Hong Kong...,” §2.2.2.2)

The manpower problem is being addressed not by the ITBB but rather by the Education and Manpower Bureau (EMB). In August 1998, the EMB proposed a five-year plan to increase the number of workers within the HKSAR trained to deal with technological problems and develop new digital solutions to them. In 1999 it was estimated that 50,000 IT professionals worked in Hong Kong. By 2005, the demand is expected to increase to approximately 98,500 jobs. (“Report on Manpower Projection to 2005,” p.19) In order to increase the number of IT professionals within the HKSAR, the EMB initiated efforts to train existing teachers to use technology in the classroom, thereby making students more comfortable using IT. Further, networking and computer infrastructure is being incorporated into all levels of schooling, and a post-secondary level education in information technology is now available at many of the universities within Hong Kong, including the Chinese University of Hong Kong.

These areas of focus in the HKSAR fall under Mesenbourg’s supporting infrastructure category. With the exception of two major electronic business thrusts and the regulation of e-commerce, most of the 1998 plan deals with such issues. The first is the government’s electronic service delivery system (ESD). The ESD is a network of governmental services available online from any site with an Internet connection. By providing over 220,000 services online, including online tax filing, marriage booking, change of address, voter registration, license renewal, and by providing over 200 forms online, the ESD has changed the way the citizens of the HKSAR can interact with their

government. (Lai) In a press release on May 2, 2001, Carrie Yau, the Secretary for the ITBB, reported over five million hits to the ESD between January 2001 (the release of the system) and April of the same year. The second e-business thrust is the creation of an e-government. This thrust is more heavily discussed in the 2001 edition of the Digital 21 strategy, and as such will be discussed later.

In order to legally protect e-commerce, the Electronic Transaction Ordinance (ETO) was enacted on January 5, 2000, and is used by the HKSAR to legitimize digital signatures. This ordinance, similar to the American Bar Association's digital signature guidelines, deals chiefly with certifying authorities<sup>7</sup>, their registration, and the legal recognition of digital signatures. The ordinance defines a digital signature as a method of authenticating individuals using public key cryptography. These digital signatures provide two pieces of information vital to security within electronic business: firstly, that the original sender of the communication can be verified; and secondly, that the original message has not been tampered with before or during transmission. The legal recognition of such signatures means that they are as binding as real signatures. Certifying authorities, which can be registered with the Director of Information Technology Services, provide for this recognition. (Wu, §3.3) The major certifying authority for the HKSAR is the postal service.

### **Digital 21 1998: Assessing the Model**

With its strong focus on preparing the HKSAR for the supporting infrastructure

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<sup>7</sup> A certifying authority is an organization that verifies digital signatures. Essentially, in order to have legally binding digital signatures, an organization must verify the authenticity of those signatures. A real world analogy is the use of a notary public when legalizing documents.

necessary to create a digital city, the Digital 21 Strategy of 1998 empowered Hong Kong to move step-by-step towards its goals. Each of these goals was subdivided into many very simple, easily attainable sub-goals to make realization of the larger goals easier. Attached to each of the sub-goals was also a time frame. These defined, attainable goals helped to make the 1998 strategy a success with respect to the more broadly encompassing goal of digital readiness.

Not only did the 1998 strategy set up the HKSAR for success with its infrastructure, but the ETO, with only one notable shortcoming, has been successful in regulation and helpful in promoting e-commerce within the HKSAR. Its major shortcoming is that, although all registered certifying authorities are required to maintain a trustworthy system for protecting information, there is nothing in the ordinance to require the subscribers of those authorities to use similar systems. Therefore, the insecure users of those authorities may undermine the security of the system. In 2000, e-commerce transactions within the HKSAR were valued at an estimated US\$2 billion (“Digital 21: Connecting the World,” p. 16) accounting for 1.2 percent of Hong Kong’s GDP. (“Hong Kong, China at a Glance”) By way of comparison, in 1999 the e-commerce transactions of the United States were 1.9 percent of its GDP. (USTD; “International Gross Domestic Product...”) Furthermore, the amount of e-commerce transactions within the HKSAR is expected to increase to US\$70 billion by 2004. (“Digital 21: Connecting the World,” p.16)

Another sign of the success of the 1998 strategy is the attention that the Cyberport has attracted from international information technology firms. The Cyberport is a building project within Hong Kong that promises to be a state-of-the-art, campus-like

environment connecting tenants of the Cyberport to each other. The connected buildings will be complemented by multi-media laboratories, content centers, studios, and media conference theaters. ("Digital 21: Connecting the World," p. 31) The Cyberport will also include a "cybercenter" where professionals and the public can interact and display their technological products for retail and entertainment. Many companies have expressed interest in becoming tenants within the Cyberport, including Hewlett-Packard, IBM, Microsoft, Oracle, Silicon Graphics, and Yahoo! These tenants would be able to move into the new facility starting early in 2003.

Finally, it should be noted that one of the key goals of the 1998 plan was to increase the number of Internet users within the HKSAR. In 1995 there were an estimated 5.2 Internet accounts per 1,000 people. By 2000 this had increased to 33.6 accounts per 1,000 people. ("Human Development Report 2001....") While this is a move in the right direction, it should be noted that only 51 percent of businesses in Hong Kong have accesses to personal computers. Moreover, only 18.9 percent have Internet access, and a meager 1.3 percent of businesses actually have web pages – the first step towards electronic business. (Lai) These numbers are alarmingly low. If Hong Kong wants to promote the digital quality of its business practices, these low percentages will have to be addressed in the future.

The 1998 plan seems to have been a success. The infrastructure was put in place providing the HKSAR with a firm foundation on which to build. Each of the goals laid out in the 1998 plan helped to prepare Hong Kong for the next step of its Digital 21 strategy, which we will examine in the next section.

### **Digital 21 2001: Abandoning the Model**

The 2001 strategy is filled with plans, but few new ideas. It is broken into five key result areas (KRA), which are vaguely reminiscent of the Chief Executive's four foci of 1997. And like the 1998 plan, each of the KRAs is broken into sub-goals. However, of the twenty-three sub-goals only three are entirely new. The other twenty are simply elaborations upon the 1998 strategy or concepts that do not fit our model. This latter group of concepts, therefore, does not help us gauge the digital readiness of the HKSAR and will not be discussed within this article.

The three new sub-goals are the decisions to attract a supply of IT professionals from foreign sources, to develop wireless networking technologies, and to exploit smart-card technology. The first two of these sub-goals are still in the supporting infrastructure category while the last could fall into e-business or e-commerce depending on its application.

Professor Vincent Lai of the Chinese University of Hong Kong has stated that by 2010 up to 100,000 new IT professionals would be needed in the region. It is interesting to note that the "Report on Manpower Projection to 2005" predicted that the same 100,000 new IT jobs would be needed by 2005 – a full five years earlier than Professor Lai predicted. (p. 19) Either way, the 2001 strategy recognizes that these professionals are needed soon. To solve the shortage, it emphasizes the need to attract professionals from outside the HKSAR. A major pool for such professionals could be mainland China. While this focus on foreign professionals is necessary, nothing within the document truly discusses how these new professionals will be attracted to the region. This problem will be addressed further below.

The other infrastructural sub-goal is the development of wireless technologies. While wireless technologies have the potential for benefits at many levels, from small businesses to the larger citywide information systems (like the Electronic Service Delivery system discussed above), this focus on wireless technology is a push towards a new form of infrastructure, the lowest level of digital readiness within our model. Though it is an easier infrastructure to install than cables and wires, it is unclear whether this push towards a wireless infrastructure will truly aid Hong Kong in promoting a digital economy.

One way in which wireless technology can help the city, and one way in which it can be an e-commerce thrust as opposed to simply infrastructure, is a focus on mobile commerce – or so-called m-commerce. M-commerce comprises the use of mobile phones, personal digital assistants, and other mobile computing devices to facilitate small purchases from vending machines, convenience stores, gas stations, the Internet etc. M-commerce also includes the reception of text on such mobile devices from subscription services run by newspapers, magazines, and the like. Because of the inherently mobile status of these devices, only a wireless network can provide support for them over a wide area. But, the Digital 21 strategy does not focus on these type of technologies, despite the over 80 percent mobile phone penetration within the populace of Hong Kong. (“Digital 21: Connecting the World,” p. 10) However, the plan does include measures to recognize digital signatures for mobile commerce in the same way that other e-commerce purchases are recognized. (“Digital 21: Connecting the World,” p. 48)

The 2001 strategy does include an effort to replace the identity cards of HKSAR citizens with a new card capable of interfacing with the computer systems throughout the

city. However, the plan does not describe the purpose of these new “smart cards.” Some possibilities include drivers’ licenses, library cards, e-certification records for businesses, identification (photo and address), as well as a provision to allow smart cards to function as e-cash. (Lai) This final possibility, if implemented, could make the smart card an e-commerce thrust. This idea is not new, but rather an expansion on the existing idea of a credit or debit card. The possibilities above were described by Professor Lai and were not discussed in the 2001 strategy. All that is stated in the strategy is that the populace will be included in studies expected to take place in 2002 in order to produce the new smart card technology in 2003. (“Digital 21: Connecting the World,” p. 48)

We have briefly touched on the subject of e-government above, and the 2001 strategy includes an extensive plan for the implementation of an e-government system. This is not simply a section of the newer strategy, but actually one of the key result areas (KRAs). The e-government policy includes four different project areas:

- 1) Government-to-citizen programs to provide user-friendly public services online within the electronic service delivery system already in place after the 1998 plan;
- 2) Government-to-business programs allowing the HKSAR government to transact with business partners online in order to “improve efficiency and reduce the compliance costs of the business sector, thus enhancing competitiveness”; (“Digital 21: Connecting the World,” pp. 36-37)
- 3) Government-to-employee processes to promote security and enhancements to internal management among government officials and civil servants;

- 4) Government-to-government systems to facilitate “inter-departmental and intra-departmental operations.” (“Digital 21: Connecting the World,” p. 37)

The summary of the e-government key result area demonstrates a fundamental problem of the 2001 strategy: its nebulosity. Both the key result area and the strategy in general are filled with poorly described goals with nebulous phrasing like the two quotations above. In fact, gone are the concrete, easy-to-understand goals that we saw in the 1998 plan. Within that plan the goals included the broadband connection between Hong Kong and the Mainland, the construction of the Cyberport, and the development of the public key infrastructure for the security of people’s private information. These goals were defined with clear, logical steps and a timeline for completion. As such, it was easy to see that the goals of the 1998 strategy were attainable. The 2001 strategy is missing this definition. Even the key result areas are rife with blanket statements with little or no elaboration. The quotations provided about e-government styles above have no real substance, and they are not further explained within the full text of the plan. Which “inter-departmental and intra-department operations” will be helped with the new focus on government-to-government communications? How will the government-to-business plan help to enhance competitiveness? These questions are left unanswered within the plan, lending a sense of incompleteness to the strategy.

### **Digital 21 2001: the Future of the Model**

Because the new strategy has only been in place for just over a year, it remains to be seen if the Information Technology and Broadcasting Bureau (ITBB) and the HKSAR

government will be able to overcome the lack of substance within the 2001 strategy. There is nothing to indicate that this plan will fail, and we can only assume that the government and its bureaus understand what will be necessary to reach their goals despite the opacity of their documents.

To better fit a new strategy for Hong Kong to the model, the government of the HKSAR should de-emphasize its focus on an e-government and emphasize a plan to promote the use of digital technology in small- and medium-sized enterprises throughout the region. E-government, while important and helpful in reducing the bureaucracy endemic to governments like that of the HKSAR, is not a major thrust forward into the world of e-business. That the Digital 21 strategy stresses this point as a separate key result area shows that the ITBB feels an e-government structure is essential to the future of the city. However, it must also be recognized that the focus on an e-government may hamper the HKSAR's growth in e-business.

In fact, the focus on an e-government may already be hampering, or at least slowing, the growth of e-business. The stated purpose of the e-government focus is so that the "government can lead by example" in the hopes that industry and business will follow. (Lai) However, the disturbingly low 1.3 percent of businesses local to Hong Kong with web pages shows that businesses are slow to jump on the electronic bandwagon. Despite its policy of non-interference, the HKSAR government, or at least the ITBB, may have to become more involved with the small- and medium-sized enterprises within Hong Kong. Perhaps workshops available to business owners to instruct them in the use of web pages to distribute information or to actually conduct business online would increase the number of businesses using the Internet within their

practice. These suggestions would definitely fall within the model that we have defined, and would obviously increase the level of e-commerce and e-business within Hong Kong.

Simpler even than workshops or seminars would be the distribution of computers to businesses that lack them. Professor Lai reported that only 51 percent of businesses have access to a personal computer. While it may be true that the Digital 21 strategies have allowed the HKSAR as a region to communicate across computer networks, almost half of the businesses within that region cannot. If Hong Kong's goal is to become a digital leader, then a startlingly small number of computers are available to her constituents. This infrastructural point is lacking in both of the Digital 21 strategies.

The focus in the 2001 strategy on attracting foreign professionals would seem to indicate that the ITBB recognizes the shortage of manpower within the HKSAR. However, what is being done to attract those professionals? Only six new patents were awarded per million people for new technologies in Hong Kong in 1998. This alarmingly low number of patents per capita places the HKSAR in the same realm as Portugal (six) and Croatia (nine) and far below the leaders such as Japan (994) and the United States (289). ("Human Development Report 2001....") Furthermore, only 2.8 percent of all research and development projects performed within the region were funded by business from 1987 through 1997. During the same time period 81.7 percent of R&D in Japan was funded by business and 59.4 percent in the United States. ("Human Development Report 2001....") These numbers show that Hong Kong doesn't seem to have the research and development opportunities that would attract professionals into the region, despite the focus of the 2001 plan on this very issue.

These numbers do not represent the research and development being done specifically in information technology, just technology creation in general. However, in today's society information technology and information technology professionals are necessary for modern research and development. This need will probably only increase in the future. Again, the government's leave-it-alone attitude concerning businesses in the region may be contrary to promoting development opportunities in Hong Kong.

There is one major government-subsidized thrust into the research and development sector of business within Hong Kong. Five billion dollars has been set aside in a fund for the development of information technology. An additional 250 million dollars is set aside for proposals for the development of information technology as long as those proposals support manufacturing and service sectors. (Lai) This fund could greatly increase the R&D technology sector within Hong Kong. However, the recent establishment of the project limits the ability to report on its successes.

## **Conclusion**

The HKSAR has made great strides towards becoming ready for the digital world of tomorrow. The 1998 Digital 21 strategy was instrumental in that progress. However, the new 2001 strategy does little more than elaborate on the foundation laid by the original strategy. Moreover, the new ideas presented within the latter plan are not explained in such a way as to make them easy to understand. Furthermore, the new ideas are not broken into the incremental steps, as was the case with the 1998 plan. And lastly, the new key result area describing the e-government focus is more of a service provided

to the citizens by the government, and therefore does not help us measure the level of digital readiness in the HKSAR.

Both of the Digital 21 strategies have given Hong Kong the start it needed in order to move towards its goal of digital readiness and a status as a world leader in information technology. As the city and the region become more and more involved with the development of digital technologies and the services that those technologies can provide, the Digital 21 plans will become even more important to that development. It remains to be seen whether the nebulosity of the newer Digital 21 plan will stunt this development or whether the government and bureaus of the HKSAR will overcome this problem and continue on the road toward digital readiness.

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