WORKING PAPER No. 23
STUDY OF THE IMPACTS OF INFORMATION TECHNOLOGY ON PLANNING

Introduction

1. The increasing adoption of IT in recent years has dramatically affected the daily life of people, especially in the more developed and technologically advanced countries, which in turn may re-shape the structure of modern cities. The objective of the Study is to gain a better understanding of the impacts brought about by the IT development in the context of Hong Kong and, hence, to examine how planning should respond accordingly. The results of the Study would also provide input to the HK2030: Planning Vision and Strategy Study.

2. The Study commenced in May 2001 and it comprises two parts: a series of structured interviews with major stakeholders (undertaken by in-house resources) and a household survey (undertaken by a survey firm). The structured interviews and the household survey were completed in early August 2001 and end September 2001 respectively. The final reports for the Study was issued in April 2002. For details, please refer to Annex I and Annex II.

Summary of Major Findings

3. With the rapid advancement of IT, almost all interviewees of both the structured interviews and household survey have found it difficult to predict their long term business plans or how IT could affect their daily life in future. The views collected are, therefore, mainly based on their recent experience and anticipation of IT development in the short to medium term (say, up to 5 years).

4. The findings of the structured interviews and household survey on the impacts of IT adoption on various aspects of planning are summarized below.

Impacts on Office Development

5. IT has little influence on the choice of office location but it could enable backup offices and data centres to decentralize outside CBD, even relocate to other countries in SE Asia.

6. However, the primary reason for relocation elsewhere is not due to IT adoption but more of the high land and staff costs in Hong Kong and the type of migrated services are usually restricted to those requiring less skills or professional knowledge.

7. The increasing adoption of IT makes teleworking possible which would affect the choice of office location and generate new office floorspace demand for teleworking centres at suburban areas or other residential districts, as experienced in the United States. The impacts of teleworking would be further discussed at paras. 14-20 below.

8. Adoption of IT would neither significantly reduce nor increase office floorspace requirements but there is a growing demand for office building design to be more adaptable to various IT applications, e.g. with fabric optic cabling system to allow high-speed broadband communication. Demands for ‘intelligent buildings’ and ‘serviced offices’ are also expected to increase.

Impacts of Internet Shopping/E-commerce on Retail/Commercial Development

9. Unlike the United States where many major companies have adopted IT for business transaction, e-commerce in Hong Kong is still being perceived only as an additional channel of business for commercial companies. Although many interviewees of larger firms have indicated interests in expanding e-commerce services, the revenue generated from e-commerce is expected to only represent a minute proportion of their overall turnover and could not totally replace the conventional mode of business transaction.

10. The household survey has revealed that paying bills on the internet and e-banking are the most popular amongst all the e-commerce services. However, there are still over 40% of the interviewees who would not consider using IT for money transaction in future due to the lack of confidence in the reliability of the technology and fear of leaking personal information.

11. In United States and many other countries, major shopping facilities are often not provided within walking distance of people's homes which is an important factor rendering e-shopping more popular. Hong Kong is relatively small and shopping facilities are conveniently located and highly accessible.

12. As such, it is not surprising that there is only a very small percentage (3%) of the household interviewees who have experience in using internet shopping. The results of the household survey have reflected that e-shopping is unlikely to replace conventional shopping as most people still prefer to see/touch the real things and unwilling to reveal personal details over the internet. Shopping activities are considered to be a conventional way of life and culture in Hong Kong.
13. In the long term, if the security and reliability for money transaction is improved significantly and the attitude of IT usage becomes more receptive to all people, there might be an increase in the popularity of e-commerce. However, in the short and medium terms, the impacts of IT on retail and commercial developments, except for banking services, are insignificant.

Teleworking/Home-based on Residential Development

14. In the United States, it was estimated that the number of teleworkers has increased by 41% in the period 1997-98. Telework population was still relatively small in Japan in the early 1990s but a resurgence of interest in telecommuting has begun since mid 1995 on both the government and the private sector. Likewise, since 2000, Singapore Government has also introduced a ‘Technopreneur Home Office Scheme’ to facilitate the possible growth of teleworking.

15. However, according to the findings of the structured interviews and household survey, home-based office would unlikely become a major trend in Hong Kong because: a) Hong Kong is small and well-served with public transportation; b) the weather condition in Hong Kong seldom deters commuting; c) the general living space and environment may not be feasible for home-based office practice; and d) team work and human interaction are still vital.

16. According to the household survey, only about 3% of the household interviewees actually work at home at present.

17. 75% of the household interviewees have indicated that they would not choose to work at home in future, mostly because their job nature would not allow it and they believe it would be less efficient. The large majority of the employers interviewed have also indicated that they have no intention to introduce home-based workers policy in their companies in the foreseeable future.

18. As the trend of teleworking/home-based offices in Hong Kong is negligible, particularly in the short term and medium terms, its impact on planning is expected to be minimal.

19. However, it should also be noted that the large majority of the interviewees (over 87%) considered home-based offices not incompatible nor would it pose a nuisance to the residential neighbourhoods. As such, if there is a change in the employers attitude to home-based work in future, home-based offices could become more popular.

20. To facilitate the possible growth of home-based offices in the long term, considerations could be given to provide ‘home-based office centres/rooms’ in residential buildings outside the urban area. However, residential land should also be reserved near public transport interchanges and employment centres/office areas for home-based offices. This is because according to the results of the household survey, contrary to the common presumption of home-based office being footloose, the home-based workers still consider ‘near public transport’ and ‘near company’ as important factors in choosing their home-based office.

Impacts on Other Sectors

Education

21. IT is mainly used as teaching/learning tools and cyber-education in both Hong Kong and overseas. About 78% of the household interviewees considered that e-learning could not replace traditional schools due to the lack of human interaction of e-learning and parents’ unwillingness to allow their children to stay at home without adult's supervision. As such, e-learning is expected to have little impacts on school demand.

Community and Recreation Facilities

22. Of all the household interviewees that have used IT services, about 13% and 10% of them have spent less time in library and post office respectively. The impacts of IT on other types of community services and recreation facilities are even more insignificant (less than 3% of the people used IT services have spent less time on these facilities).

Telecommunication

23. Telecommunication would maintain its popularity in Hong Kong and thus more telecommunication stations might be required to improve signal coverage. The land use planning and the existing zoning system should take into account such trend and help to facilitate the growth of the industry.

Logistic Centres

24. Hong Kong has locational advantages to develop hi-tech logistic centre over other countries in SE Asia. Therefore, adequate land should be reserved to foster such development.

Views on Planning to Respond to IT Development

25. The views on how planning could better cater for IT development and innovations have been collected through structured interviews and are summarized below. They should be taken forward in the long term strategic planning and the on-going review of the planning system:
More flexibility in the planning system to allow the market to respond quickly to the changing needs of the business sector.

Mixed-use development, by allowing residential and commercial uses in the same building or same zone, should be encouraged.

Telecommunication radio station should be permitted in all residential zones (in addition to R(A) zone) and country parks to improve signal coverage.

Conclusion

26. Overall, comparing to the overseas experience, the impacts brought about by adoption of IT in various sectors, except banking and telecommunication, are relatively insignificant in the short to medium term and have little implications on planning.

27. However, due to the unpredictable advancement of technology, the impacts of IT on planning may change over time and could become much more noticeable in the long term.

28. As such, there is a need for a conscious and regular monitoring of the planning system in response to IT development.

Attachments

Annex I - Report of Structured Interviews with Major Organizations/Companies

Annex II - Draft Executive Summary of the Household Survey for the Impacts of IT on Planning

PLANNING DEPARTMENT
July 2002
In May, 2001, Planning Department commenced a study entitled 'Study of the Impacts of Information Technology (IT) on Planning' (the Study). The main objective of the Study is to gain a better understanding of the impact that the IT development would bring insofar as the land use and planning framework is concerned and identify how such impact, if any, could be catered for in the land use planning framework. The results of the Study would also provide input to the on-going HK: 2030 Planning Vision and Strategy Study.

As an integral part of the Study, a series of structured interviews were conducted by PlanD with major organizations/companies in various fields in the period between May and July 2001. The purpose of the structured interviews was to obtain general views and comments from the stakeholders on their attitudes to IT usage and any directional changes to their mode of business operations which might have planning and land use implications or demand for new infrastructural services.

This report presents the overview of the findings of the structured interviews with different sectors. A total of 60 companies/organizations in the relevant sectors were successfully interviewed:

- general office development
- computer services
- retail industry
- property developers
- telecommunications
- education
- professional bodies

Details of the interviewees are listed at Annex A and the questions for the interviews are listed in Annex B.

In addition to the structured interviewees, a survey firm has also been employed to undertake a household survey on opinions towards IT usage which may affect their working, living, leisure and learning habits. This household survey was completed in end September 2001 and a consolidated report on the structured interviews and household survey will be issued by March / April 2002.
Nearly all companies/organizations interviewed have expressed difficulties in foreseeing how IT could influence their long term (say, over 10 years) strategy of business plans or services due to the rapid advancement of new technology which makes it almost impossible to predict precisely the future trend of IT development. Their views and opinions were therefore mainly based on their recent experience in IT adoption and anticipation of IT development in the short term.

The views and comments collected from the structured interviews are summarised as follows:

A. General Functions of IT Usage for All Sectors

IT is being applied to a very wide range of uses. For private companies or organizations, the functions of IT can be broadly grouped into 4 categories:

- promotion of customer services, marketing and advertisement e.g. e-services, websites;
- office tool for keeping record, human resource management/ administration/ accounting/ billing/ filing systems, word processing, design and drafting;
- enhanced internal and external communications by intranet, extranet and e-mail; and
- miscellaneous functions e.g. information searches, business transaction.

In addition to the above functions, IT is also used as a learning tool e.g. CD-Rom, on-line lectures, etc, in particular, for education institutes.

B. IT Impacts on Office Development

Location of Main Offices/Headquarters of Companies

Firms and companies of different sizes have different priorities in determining the locations of their headquarters/ main offices. For the large companies and corporations, ‘image of the company’ is one of their primary considerations whereas ‘rent of premises’ would be a more important factor for smaller companies. As such, larger firms and companies are more willing to pay higher rent for their main offices to locate in the Central Business District (CBD) due to its prestigious image. On the other hand, smaller firms would more readily consider moving outside CBD in order to save costs.

However, almost all the interviewees agreed that their main offices have to be highly accessible to their clients and employees.
and thus locating their offices in proximity to major public transportation interchanges would be essential. In this connection, the advantages of IT development in improving communication and reducing reliance on face-to-face contacts have rather limited effects in determining the locations of the majority of the main offices.

**Backup Office Decentralisation**

Adoption of IT has a more apparent and positive effect on backup office decentralisation. Notwithstanding that most of the larger companies have indicated that they would prefer to have their backup offices located in Hong Kong for easier monitoring, with Hong Kong’s advanced infrastructure provision that have allowed high-speed internet connection, many larger companies and corporations have relocated their backup offices and data centres outside the CBD to other less central locations of lower rents, such as Kowloon Bay and Quarry Bay. Some have even been relocated to the Mainland or other countries in the South East Asia.

It should be noted that although IT has enhanced telecommunication which in turn has enabled companies to relocate their backup offices elsewhere without reducing the efficiency of their business operations, the trend of relocating backup offices to the Mainland or other countries is driven more by the high land and staff costs in Hong Kong and relatively less by the adoption of IT.

Among the interviewees with backup offices moved to the Mainland or other countries, the types of migrated services are usually restricted to those requiring relatively less skills or professional knowledge. Such trend of office migration could potentially result in a structural change in employment towards higher value added services such as consulting, sales, marketing and engineering services.

**Office Floorspace Requirements**

There is no apparent change of floorspace requirements due to the growing trend for the use of IT. While adoption of IT may replace some jobs of more routine and repetitive nature, it would at the same time also demand new skills and thus new posts. There would also be new accommodation needs for workstations. Hence the office floorspace requirement would not be significantly reduced.
documents. While IT can provide paperless record keeping, most of the private companies/organizations do not feel that it could significantly reduce the space required for storage, as hard copies of documents are still needed for backup.

Most private companies/organization have both types of record keeping systems.

Growing Demand of ‘Intelligent Buildings’ and Serviced Offices

In terms of buildings types, many interviewees expressed preference in locating their offices in ‘intelligent buildings’ (1) which could better serve their accommodation needs due to increasing adoption of IT. Some interviewees have envisaged that there would be a demand for ‘serviced offices’ which are fully furnished offices with broadband connection as well as administrative, managerial and secretarial service provisions. The flexible leasing terms offered by these ‘serviced offices’ would be particularly attractive to small and medium sized firms.

Note : (1) According to the interviewees, ‘intelligent buildings' should consist of: a) indoor environmental control devices to save energy; b) fibre optic cabling system to enable broadband telecommunications; and c) comprehensive computer-based management system to monitor all aspects of the building.

C. Impacts of E-Commerce/E-Shopping

Impacts on Traditional Mode of Business

Most of the companies kept a close watch on the development of e-commerce, if not already established. However, e-commerce, including e-shopping, only represents a minute proportion of the overall turnover of large corporations and major retailers interviewed. Although some interviewees considered that there would be growing potential for e-commerce, they believed it would mainly provide an additional channel for commerce but as yet it could not totally replace the conventional mode of business transaction. The majority considered that human interaction is still vital for commercial activities and the consumers’ habit has in general not adapted as quickly as the technology advances.

Some interviewees pointed out that among the common e-commerce services in HK, e-banking is gaining more popularity. To save costs, many banks are implementing various strategies to promote e-banking such as minimum balance limits and counter transaction fee. This has in a way put pressure on the customers to do more e-banking. As a result, conventional front desk services at the branches are partially being replaced by e-banking and personal investment services. It is anticipated that the number of local branches of banks could decrease over time resulting in less demand for bank office space as more banks are implementing e-banking services.

Similar to other kinds of e-commerce, most interviewees agreed that e-shopping would continue to grow but it would unlikely replace conventional shopping which brings a different experience and is considered to be a conventional way of life and culture in Hong Kong.

Low customer awareness of e-shopping services and lack of confidence towards the security of online payment have been the main constraints for the development of e-shopping in Hong Kong. The increasing trend of cross-boundary shopping, as observed by some interviewees, is considered to be posing a greater threat to Hong Kong’s retail industry than e-shopping.

Most major retailers have their warehouses in Hong Kong and have no intention to move their backup services elsewhere. Retailers who have their warehouses or backup offices already moved to the Mainland are mainly for cost saving and easier staff recruitment.

Conventional shopping experience cannot be replaced by on-line shopping
E-banking is considered as the most popular type of e-commerce service.

D. Impacts on Education

Impacts on Traditional Mode of Education

E-learning has become increasingly popular in recent years and is particularly welcome among part-time students in continuing education due to its flexibility in time and location.

While the use of internet can broaden the ways of teaching and learning, all the interviewees in the education sector tended to agree that e-learning would unlikely replace classroom learning, especially for primary and secondary education because: a) teacher-student interaction is very important in the learning process; b) schools are not only to offer academic knowledge but also to provide an environment for students to benefit from human interaction which is vital to the upbringing of children and youth; and c) most parents are skeptical of letting their children stay home and learn by themselves in a safe and disciplined way all day.

Impacts on School Design

While the impacts of e-learning may not be significant, the use of computers as teaching/learning tool has become a common practice for almost all schools. To facilitate such trend, many schools have been refurbished e.g. installation of raised floor and fibre optic cabling system, to enable fast speed internet/intranet connection in the classrooms.

Many schools have conventionally provided various function rooms for specific subjects such as geography room, history room, social studies room, etc. Some interviewees indicated that the extensive use of IT as teaching tools for a wide range of subjects may obviate the need of some of the function rooms. This would in a way reduce some of the floorspace requirements although other floorspace requirements may still increase due to the requirements for IT rooms or expansion of other curriculum.
E. Trend of Telecommunication

Need for Telecommunication Stations

Most interviewees believed that telecommunication services would continue to attract patronage in Hong Kong as the technology advances and provides for increasing variety of functions and services. As such, more telecommunication stations with higher frequency would likely be required. Some of the interviewees also indicated that more telecommunication stations should be allowed in residential buildings and country parks to improve signal coverage.

Although some of the telecommunication companies indicated that they have relocated their call services outside Hong Kong, the major parts of their companies would continue to station in Hong Kong.

Many of the telecommunication companies expressed that the costs for modifying existing buildings to include extra utility ducts and laying of cable/optic fibre for providing broadband services were substantial. They suggested that the Government should introduce more proposals, similar to the Teleport at Chung Hom Kok, to attract new technology providers which could not only help lowering their operational costs but also enhance the economic competitiveness of Hong Kong in the region of South East Asia.

F. Trend of IT Industry

Growing Trend of Small Enterprises

The IT boom has resulted in greater business opportunities for software and information services sectors. The majority of local software developers in HK are small in size (mostly with less than 20 employees). They are usually located in office buildings and to a less extent in some industrial buildings.

Many larger firms and corporations have contracted out their IT tasks including IT systems management and development, web design, web hosting, programming, etc, to specialists even though they have their own IT personnel. Small enterprises would thus continue to dominate the IT field in the foreseeable future.

G. New IT Related Land Uses

Growing Demand for Logistics Centres

With the availability of advanced technology, the provision of high-speed Internet connection, good transportation system, and the locational advantage of being at the gateway to the Mainland, many interviewees considered that Hong Kong has competitive advantages to develop hi-tech logistics centre over other countries in South East Asia. They suggested that more land should be reserved for such use. Logistics centre would generally require about 2 ha of land and of low rise with high ceiling to facilitate installation of machinery and advanced telecommunication devices for tracking and storage of goods.\(^2\).
Hong Kong is considered having advantages over other countries in South East Asia in developing hi-tech logistics centre

Note : (2) The Note of 'Industrial' zone has been amended since 13.7.2001 to allow non free-standing "Distribution Centre" and "Freight Forwarding Services Centre" as of right whereas, due to the traffic consideration, free-standing "Distribution Centre" would still need to obtain planning permission

H. Teleworking

Mobile Teleworkers

Although the continual advancement of IT has made it possible for people to work footloose without being location bound, i.e. the so-called 'mobile teleworkers', which is a trend in many overseas countries, many interviewees opined that such trend in Hong Kong would unlikely affect the working pattern of the workforce significantly. The trend would likely be limited to certain jobs such as salesmen, insurance agents, finance brokers and small 'one-man' companies.'

Home-based Office

Most Interviewees considered that the home-based office would only be suitable for certain fairly independent jobs which do not require a high degree of collaboration with colleagues or teamwork, e.g. designers, writers, artists, translators, private tutors, technicians and accountants or those who are setting up their own business for the first time. For these home-based office users, once their business is well established or needs to expand, they would likely look for premises in office buildings so as to establish a better image for the company.

The majority of the interviewees agreed that home-based office would unlikely become a prevailing trend in Hong Kong because: a) Hong Kong is relatively small and compact with convenient public transportation and other services easily accessible. The saving of commuting time and cost by working at home are much smaller compared to other countries; b) the
weather condition in Hong Kong is seldom unfavourable for commuting to work except in very inclement weather; c) general living space and environment may not be suitable for or conducive to home-base office practice; and d) team work and human interaction improve working relationship and enhance business operation.

None of the firms interviewed has the policy to allow home-based staff. Although there is one company that has less than 1% of its overall manpower being home-based, it is only limitedly enforced on a need basis for those jobs which could be handled alone without assistance of other people, e.g. translation work. The company has no intention to extend such arrangement any further.

I. Views on Planning System to Facilitate IT Development

Most of the interviewees were not familiar with the current planning system. However, some showed understanding of the constraints in the regulation of uses. Their primary concerns were on the high land cost or rental cost in looking for suitable premises. Some interviewees opined that the existing planning system should be made more flexible to allow the market to respond more quickly to the changing needs of the business sector:

More Flexibility in the Planning System for IT and Telecommunication Uses

Existing data centres are often converted from industrial premises which would require planning permission due to the need for extra floor loading for heavy machinery, reliable power supply and sufficient utility ducts to install fibre optic. With the anticipated growing demand for data centres due to increasing adoption of IT, some companies expressed that the zoning system should be more flexible to cater for the accommodation need of data centres (3).

In view of the increasing patronage of telecommunication services and the upcoming 3rd Generation Telecommunication, some interviewees also suggested that telecommunication related uses such as antenna and radio station for telecommunication should be permitted as of right in all zones including 'Residential' zones and country parks to facilitate the growth of the industry (4).

Mixed Residential/Office Land Uses

Some interviews suggested that the Government should encourage more mixed use developments by allowing residential and commercial uses in the same building or the same zone to reduce travelling trips. A few considered that mixed land use zone could allow greater flexibility in responding to market conditions more readily for changing needs and enhance marketability of buildings.

Note : (3) The Notes of 'Industrial' zone were amended on 13.7.2001 to allow, among others, IT and telecommunication industries uses as of right.

Note : (4) Mobile communication radio base station(s), with an equipment cabinet not bigger than 4.5 metres x 4.5 metres x 3.2 metres (length x width x height) within or on the roof-top of a multi-storey building, and antenna(e) not bigger than 0.6 metre x 2.5 metres (length x width x width x length) at the side or on the roof-top of a multi-storey building, are always permitted in Residential Group (A) zone.
Overall, the general feedback from the structured interviews suggests that there is a recognition in the changes in development trend driven by IT in all sectors. Among the sectors interviewed, the impacts of changes so far are more apparent in the banking and telecommunications services. However, most interviewees seem to be uncertain or cautious of what the likely future trend and impacts could be as a result of the unpredictable advancement of technology. It goes without saying that adaptation of the modus operandi and work/life style would always be slower than technological changes. This points to the need for a more conscious and regular monitoring of the planning system in response to IT development.
ANNEX A
LIST OF INTERVIEWEES

Computer Services
BOB Systems Company Limited
EDS Electronic Data Systems (HK) Ltd.
IBM China/Hong Kong Limited
Manpower Resource Computing Limited
Media Explorer Limited
Skynet Technology Development Limited
SOLAR INC
SUNeVision Holdings Limited
Sun Microsystems

Education
Centre for Enhanced Learning and Teaching, Hong Kong University of Science and Technology
Hennessy Road Government Primary School (AM)
School of Continuing and Professional Education, City University of Hong Kong
Shatin Government Secondary School
St. Stephens College Preparatory School
Yaumatei Catholic Primary School

General Office Development

Architect
Wong & Ouyang (HK) Limited
Wong Tung & Partners Limited

Bank
Bank of America (Asia) Limited
Dao Heng Bank Group Ltd.
The Hong Kong and Shanghai Banking Corporation Limited

Finance
GE Capital (Hong Kong) Limited

Insurance
Manulife (International) Limited
The Prudential Assurance Company Limited

Law Firm
Yip, Tse & Tang Solicitors

Major Corporations
Jardine Matheson Limited
John Swire & Sons (HK) Ltd.
The Wharf (Holdings) Limited

Media
South China Morning Post Publishers Limited

Surveying
Chung Sen Surveyors Limited
DTZ Debenham Tie Leung Limited
RHL Appraisal Limited

Transportation
Kowloon-Canton Railway Corporation
Mass Transit Railway Corporation Limited
We would like to extend special thanks to all of the above organizations for their time and comments to make this study a success.

We apologize for any possible errors, or misinterpretation, omissions arising from the interviews in the compilation of this report.
The interview questions are tailored made for individual companies/organizations taking reference to the nature of their business/services. In general, the scope of the questions would comprise the following issues:

1. General IT applications/usages in different sectors.
2. Impacts of IT on traditional mode of business/education.
3. Types of premises, preferred locations and other spatial requirements with the increasing use of IT.
4. Views on the future development of IT.
5. How IT would affect their business plans, employment planning and facilities planning e.g. possible relocation of backup offices to Mainland due to increasing use of IT.
6. Plans consider adding/expanding online services in addition to or in replacement of their conventional services and the reasons for such changes.
7. Types of supporting facilities/services/infrastructure/accommodation needs that would be required due to the increasing use of IT but are currently not available or inadequate.
8. Whether home-based office could become a common trend. If so, how to cater for it. Types of employment/services/business which could be home-based.
9. Problems in relation to the current planning system that the companies have encountered in finding suitable premises.
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1. BACKGROUND

1.1 A territory-wide household survey was commissioned by Planning Department to study the impact of information technology (IT) on planning.

1.2 The survey objectives were to assess:

- the popularity of application of IT services and attitudes towards using them;
- the effect of the internet on traditional modes of retail, business and other consumer services;
- the impact of IT on the usage of and aspirations for community facilities and service provisions;
- the impact of IT on the mobility of the workforce, and in particular, to understand the extent of home-based offices and their characteristics and to gauge the implications on residential and office floor space;
- the impact of IT on and the general acceptance of more distant and less locationally interdependent places of living/working/shopping/other services; and
- views on IT learning.
2.1 The main fieldwork was conducted between 3 July and 22 August 2001.

2.2 A total of 8,303 households were enumerated with 22,276 household members interviewed, all of whom were aged 15 and above, giving an overall response rate of 87%.

Figure 2.1 Enumeration results
3 IT SERVICES

3.1 IT Usage

- In the Survey, 446 respondents (or an estimated 1,648,700 persons in HKSAR) claimed that they were IT service users. The rate of usage, therefore, was 295 per 1,000 (Figure 3.1). Their median age is 29.

Figure 3.1 Percentage share of respondents with experience using IT services

- The rate of IT service users was highest for those in age group 15-24, and the rate gradually decreased with increasing age, showing that younger people tend to have a higher usage rate of IT services than older people (Figure 3.2).

Figure 3.2 Use of IT services by sex by age

- Overall, persons with higher household incomes were more likely to use IT services (Figure 3.3).

Figure 3.3 Rate of IT service users by monthly household income
For IT service users, the average number of hours per week spent on IT services was 10.3 hours. The median was 6.0 hours (Figure 3.4).

Figure 3.4 Number of hours spent on IT services per week

Homes (78.5%) were the most common places of using IT services, with offices (18.2%) and school (2.3%) as the second and third most common places respectively (Figure 3.5).

Figure 3.5 Place of using IT services
The most common IT activity was "entertainment" (36.7%), which included on-line game, watching entertainment programme (excluding booking movie tickets) and browsing information (but not for work or study). "Communication" was the second most popular IT services which included e-mail services (excluding those for work or study), internet chatting and video conference. "Transaction services" (15.8%) including telephone / e-banking, ticket booking and bill paying services was ranked the third. Excluding "others", "shopping" (1.8%) was the least common IT activity (Figure 3.6).

Figure 3.6 Proportion of time spent by IT activity

- In the Survey, 720 respondents (or an estimated 183,900 persons in HKSAR) had used IT shopping services. The rate was 33 per 1,000. The median age was 30. Most of them (70.9%) cited "fast and no need to queue" having "24-hour access" (39.4%) and "some goods cannot be bought in Hong Kong" (24.4%) as the reasons for using IT shopping services (Figure 3.7).

Figure 3.7 Reasons for using IT shopping services

3.2 IT Shopping Services
About 88.8% of IT service users had not tried IT shopping services. The main reasons cited were "not reliable" (49.4%) and "afraid of releasing personal details" (41.5%). Other major reasons included "want to see/touch the real thing" (28.8%) and "it is very convenient to buy things at shops" (21.9%) (Figure 3.8).

Figure 3.8 Reasons for not using IT shopping services

When analysed by purchased items, most (over 90%) of the IT shopping service users in fact still spent more on traditional shopping rather than IT shopping services.

For persons who spent more money on IT shopping than traditional shopping, "books & magazines" (8.0%) and "recreation and entertainment activity/goods (including booking tickets and venues)" (6.8%) were the most popular purchased items whereas "wet-groceries" (0.9%), "durable goods" (1.3%) and "clothes and shoes" (1.5%) were the least popular items (Figure 3.9).

Figure 3.9 Proportion of persons who spent more on IT shopping by purchased items
3.3 IT Transaction Services

- A total of 2,495 respondents (or an estimated 636,100 persons in HKSAR aged 15 and above) had used IT transaction services. The rate was 114 per 1,000. The median age is 33.

- Similar to IT shopping service users, most persons reported using IT transaction services because they were "fast and no need to queue", "have 24-hour access" and "more comfortable to carry out transaction at home (Figure 3.10).

Figure 3.10 Reasons for using IT transaction services

- About 61.4% of IT service users had not tried IT transaction services. The main reasons cited were "afraid of releasing personal details" (46.1%), "not reliable" (44.8%) and "complicated procedures/easy to make mistakes" (19.5%) (Figure 3.11).

Figure 3.11 Reasons for not using IT transaction services
3.4 Future Usage of IT Services

- For those respondents with no experience in using IT services, more than half (56.1%) of them claimed that they would not use IT services in the future (Figure 3.12). The primary reasons were "no interest" and "difficult to learn".

Figure 3.12  Percentage share of non-IT service users who would use IT services in the future

- People who have used IT services are more likely to use IT services again in the future. Amongst all the IT service users interviewed, only 3.6% of them said that they would not use IT services again because they are no longer interested (Figure 3.13).

Figure 3.13  Percentage share of IT service users who would use IT services in the future
Among all the respondents who said that they would not use IT services in the future, only less than 10% is aged 15 to 24. This proportion appears to increase with age, such that some 86.2% of persons aged 65 and above said they would not use IT services in future (Figure 3.14).

Figure 3.14  Indication of whether would use IT services in the future by age

Of the IT service users who would continue using IT services in future, only 1.2% said they would spend less time using the services. The rest would either spend more time (52.2%) or more or less the same amount of time (46.6%) in future (Figure 3.15).

The two primary reasons given by the IT service users for spending less time on IT services in the future were “too busy” (77.9%) and “no need” (18.9%).

Figure 3.15  Percentage share by whether would spend more time on IT services
3.5 Impact on Community Facilities & Traditional Services

- 13.3% of IT service users said that they spent less time going to the "library" than before. This may be owing to the fact that information could conveniently be found by IT services (e.g. via internet) without going to the library.

- Another 9.7% said that they spent less time going to the "post office" which may be attributable to the increasing popularity of e-mail and other means of communication via IT (Figure 3.16).

Figure 3.16 Proportion of IT service users who spent less time in community facilities by facility type

Moreover, a higher proportion of IT service users spent less time on traditional commercial services. For example, 26.7% of persons spent less time going to "ticket office/bill payment center" and 19.1% of persons spent less time going to "bank/broker center" This possibly reflected the higher popularity of IT transaction services (telephone/e-banking, bill payment and ticket booking services) (Figure 3.17).

Figure 3.17 Proportion of IT service users who spent less time on traditional commercial services by service type
However for shopping services, only a very small proportion of persons (1.5%-2.6%) said they would spend less time on traditional shopping places like supermarkets, wet markets, food places, shops and malls (Figure 3.18).

For leisure/sports activities, about 8.2% of IT service users spent less time going to "entertainment place". This reflects that some forms of entertainment may be substituted by entertainments offered via the IT channel.

On the other hand, only a small proportion (1.8% - 2.9%) of IT service users said they would spend less time going to "sport center" and "park/country side". This may be a reflection that IT services could not offer a similar kind of experience (Figure 3.19).
Base: Persons who were IT service users
4.1 Home-Based Workers

- A small percentage (3.1%) of the working interviewees in this Survey said they were able to work at home and were not required to go to the office/workplace daily (Figure 4.1).

Figure 4.1 Percentage share of home-based workers

- More than half (62.1%) of the home-based workers described themselves as "manager & executive" or "professional" with a median monthly personal income of $17,500.

- About 24.9% of the working and unemployed interviewees said that if given the choice and assuming that it was permitted by their companies, they would opt to work in a home-based office with full access to IT services (Figure 4.2).

Figure 4.2 Percentage share of working and unemployed interviewees who would choose to work in a home-based office with full access to IT
- The main reasons that they would choose to work at home were "more flexibility" (75.3%), "savings in transportation expenses and time" (57.3%) and "more private time" (55.8%).

- On the other hand, the two main reasons for not choosing to work at home were "the nature of the job did not allow" (56.7%) and "less efficient and lower quality of work" (41.7%).

- Most (87.4%) respondents were of the opinion that home-based offices were neither incompatible nor would pose a nuisance to residential neighbourhoods (Figure 4.3).

**Figure 4.3  Percentage share by whether home-based offices were incompatible or a nuisance to residential neighborhoods**

![Percentage share by whether home-based offices were incompatible or a nuisance to residential neighborhoods](image)

- Of the 12.6% of respondents who said that home-based offices were incompatible or a nuisance to residential neighborhoods, most felt that home-based offices would make neighborhoods "less secure" (75.6%) and "noisier" (22.3%).

### 4.2 Home-Based Workers enabled by IT provision

- Of the home-based workers surveyed, 142 or 39.7% were enabled by IT provision. The corresponding rate was 12 per 1,000 working population.

- About 38.8% of the home-based workers enabled by IT provision were in the "community, social & personal services (including IT)" sector with another 22.3% in "wholesale, retail, import & export trading, catering and hotel" industries and 15.6% in "financing, insurance, real estate & business services". The majority (76.0%) were "managers & executives" or "professionals". (Figure 4.4).

**Figure 4.4  Occupation of home-based workers enabled by IT provision**

![Occupation of home-based workers enabled by IT provision](image)
The median age of such home-based office workers was 33 and more than half (51.0%) of them had tertiary (degree) education attainment.

Similar to other home-based workers, a large proportion (55.7%) of them had monthly personal income of $20,000 or more.

Slightly less than a quarter (24.8%) of them worked at home for 20 hours or more a week. The median number of hours spent working at home was only 7, representing 20% of their total working time. (Figure 4.5)

Figure 4.5 Working hours per week spent on home-based work enabled by IT provision

Most (45.0%) of such home-based office work was carried out in the "living rooms", with 22.6% in the "study rooms" and another 17.3% in the "bedrooms" (Figure 4.6).

The median net floor area of living space for such home-based workers was 55m², with a median of 7m² of working area. However, about two-fifth (41.9%) of them have a working area less than 5m². (Figure 4.6)
71.7% of the home-based workers enabled by IT provision considered "accessibility to transportation" to be an important factor in choosing the location of a home-based office. Of that sub-population, 64.4% considered their existing home-based office as meeting this accessibility requirement.

The second and third most important factors were "quiet environment" (50.2%) and "near company" (27.6%) respectively (Figure 4.7).

Figure 4.7 Criteria considered to be important in selection of home-based office location

The main reasons given for working at home rather than in an office environment were "more flexibility", "more private time", "more efficiency" and "savings in travelling expenses & time" (Figure 4.8).

Figure 4.8 Reasons for working at home rather than in an office for home-based workers enabled by IT provision
The major difficulties encountered with working at home were the "lack of supporting facilities & services at home" and "lack of personal contacts" (Figure 4.9). 10.1% of the home-based workers however did not experience any major problems working at home.

Figure 4.9  Major difficulties encountered working at home-based office of home-based workers enabled by IT provision

Of these home-based workers enabled by IT provision, the majority had no intention of moving their home-based offices to formal offices. Only 10.1% thought that they would move to purpose-built office buildings (Figure 4.10).

Figure 4.10  Intention of home-based workers enabled by IT provision to move their home-based office to purpose-built office buildings
4.3 Mobile Teleworkers

- Of the working interviewees, 64 identified themselves as mobile teleworkers, giving a rate of 5 per 1,000 working population. 6.8% of these persons worked in the "IT" industry.

- 32.0% of mobile teleworkers were also home-based workers enabled by IT provision.

- The median age of mobile teleworkers persons was 36 and their median monthly personal income was $22,500.

- Over one-third (36.1%) of the mobile teleworkers spent 20 hours or more per week in the office. The median amount of time spent at the office was 10 hours per week (Figure 4.11).

Figure 4.11 Mobile teleworkers by number of hours spent in the office per week

- 17.1% of mobile teleworkers shared their office space with other companies and 26.8% shared their office desk with other colleagues.
• 78.8% of all the respondents considered "accessible to transportation" a main factor in choosing the location of their homes. Other important considerations included near "shopping areas" (62.5%) and "urban areas" (52.3%) (Figure 5.1).

Figure 5.1  Factors considered to be decisive in choosing the location of home in the future

- For IT service users, "accessibility to transportation" was still regarded as the most important factor for selecting a home. This shows that even for frequent IT users, access to transport mode is still a prime concern in this choice of home location, reflecting the possibility that the current usage of IT may not have significant impact on people's propensity to commute.

- The factor "accessible to transportation" however tended to become less important with age, although as noted above it was the top consideration for all age groups. This was particularly the case for the elderly persons, who were also concerned with "near community facilities" and "in sub-urban areas with quieter and less dense environment".

- Persons with higher monthly household income considered the factor "near entertainment venues" to be more decisive factors in choosing the location of home in the future. On the other hand, other factors, "near school" and "near community facilities", were regarded by persons with lower monthly household income to be more decisive in influencing their choice.
• Only a very small portion (1.7%) of IT service users felt that traditional classroom learning for primary and secondary schooling could be completely replaced by internet learning. While 41.7% thought that it could not be replaced (Figure 6.1).

**Figure 6.1** Percentage share of IT service users who consider internet learning could replace traditional classroom learning for primary & secondary education

![Pie chart showing percentage share of IT service users who consider internet learning could replace traditional classroom learning for primary & secondary education.](chart1.png)

Base: Persons who were IT service users

• Some 8.5% of them thought that traditional classroom learning could be completely replaced by internet learning for university education. This represented about 5 times the proportion of persons who felt the internet could replace traditional classroom for primary and secondary school learning (Figure 6.2).

• Only 11.8% of them thought that internet learning could not replace traditional learning for university education. This was significantly lower than the 41.7% who felt internet learning could not replace traditional classroom learning for primary and secondary education.

• Overall, a higher proportion (88%) of IT service users thought that internet learning could totally or partly replace, or act as a supplementary tool, to traditional classroom learning for university education than for primary and secondary education (58%). This situation could reflect difference in the level of personal guidance required for primary/secondary and university education respectively.

**Figure 6.2** Percentage share of IT service users who consider internet learning could replace traditional classroom learning for university education

![Pie chart showing percentage share of IT service users who consider internet learning could replace traditional classroom learning for university education.](chart2.png)

Base: Persons who were IT service users
As for "other informal types of education" (such as private tutorials, extra-curriculum classes and adult education), about 8.9% of IT service users thought that traditional classroom learning could be totally replaced by internet learning. This proportion was similar to the responses to the replacement of traditional classroom by internet learning for university education (8.5%) (Figure 6.3).

Figure 6.3 Percentage share of IT service users who consider internet learning could replace traditional classroom learning for other informal education
7 SUMMARY ON KEY FINDINGS

7.1 The popularity of application of IT services and peoples' attitudes towards using them

- The rate of the interviewed persons who were IT service users was 295 per 1,000 persons. The majority were in the younger age group. The rate of using IT services tended to be higher for persons with higher education level and higher monthly household incomes.

- The rate of interviewed persons who said they would or may use IT services in the future was 593 per 1,000 persons. Generally, younger persons tended to display more willingness to use IT services. For those persons who said they would not use IT services in the future, the reasons were "no interest", "difficult to learn" and "too expensive".

- For IT service users, the average number of hours per week spent on IT services was 10.3 hours and the two most popular activities were "entertainment" and "communication". Homes were the most common places for using IT services, with offices and school as the second and third most common places respectively.

7.2 The effect of the internet on traditional modes of retail, business and other consumer services

- The rate of using IT shopping services was 33 per 1,000 persons, reflecting that internet shopping is still not popular to the extent to replace conventional shopping. This may be attributable to Hong Kong being a "small place" with many shopping centres or markets conveniently accessible. The median age of persons who used IT shopping services was 30.

- Of those who used IT shopping services, most cited "fast and no need to queue", "having 24-hour access" and "some goods cannot be bought in Hong Kong" as their reasons for using the services.

- For IT service users who had not used IT shopping services, their major reasons were "not reliable" (49.4%) and "afraid of releasing personal details" (41.5%). In the future, it would appear that people may be more willing to use more IT shopping services if greater assurance on the security of IT shopping services could be provided.

- Most IT shoppers spent 20% or less (on average 12.2%) of their total shopping expenditure on IT shopping. "Books & magazines" and "recreation and entertainment activity/goods (including booking tickets and venues)" were the most popular purchased items.

- The rate of use of IT transaction services was 114 per 1,000 respondents. The rate was three times higher than those for IT shopping services, reflecting possibly the popularity of IT transaction services (telephone/e-banking, bill payment and ticket booking services) which are strongly being promoted and marketed by the relevant services providers.

7.3 The impact of IT on the usage of and aspirations for community facilities and service provisions

- For usage of community facilities, 13.3% of IT service users said that they spent less time going to the "library" than before, reflecting that information could conveniently be found by IT services (e.g. via internet), thereby reducing the need to go to the library. In addition, there were 9.7% of persons who said that they spent less time going to the "post office" and this may be the impact of the increasing use of e-mail and other IT communication services. For other leisure/sports activities, the impact of IT is insignificant, probably because IT services cannot offer a similar kind of experience.

7.4 The impact of IT on the mobility of the workforce, and in particular, to understand the extent of home-based offices and their characteristics and to gauge the implications on residential and office floor space

- The rate of home-based employment was estimated to be 31 per 1,000 working population. More than two-thirds of the home-based employment were in the following three industries taken together - "community, social and personal services", "wholesale, retail, import & export trading, catering & hotel" and "financing, insurance, real estate and business service". The median monthly personal income for home-based workers was $17,500.

- Most persons expressed that home-based offices were neither incompatible nor would pose a nuisance to residential neighbourhoods. Of the 12.6% of persons who thought the otherwise, most had the concern that home-based offices would make neighbourhoods "less secure" (75.6%) and "noisier" (22.3%).
The rate of home-based workers enabled by IT provisions was at 12 per 1,000 working population. Almost half of them were in the age group 25-34. More than half of them were degree holders, had a monthly personal income of $20,000 or more and were "professionals" or "managers". The majority of them worked in the "community, social and personal services", "wholesale, retail, import & export trading, catering & hotel" and "financing, insurance, real estate and business service" sectors.

Most home-based workers only spent a few hours per week working at homes and more than half of them worked more than 20 hours a week at their non-home based offices. In addition, the majority (75%) of them had to go back to their non-home-based offices every working day (i.e. 5-7 times a week).

Over 90% of the home-based workers enabled by IT provisions have their (non-home-based) offices in the urban areas (i.e. Hong Kong Island and Kowloon).

The median net floor area of living space for them was 55m², with a median of 7m² of working areas. Most of them considered "accessibility to transportation" to be an important factor in choosing the location of a home-based office, reflecting that the convenience offered by IT services could not totally eliminate home-based workers' commuting need.

The main reasons given for working at home were "more flexibility", "more private time", "work more efficiently" and "savings in travelling expenses & time". About 51.9% of them however considered that the major difficulties encountered were "lack of supporting facilities & services at home" and "lack of personal contacts".

One quarter of the working and unemployed interviewees said that if given the choice and assuming that it was permitted by their companies, they would opt to work in a home-based office with full access to IT services. The main reasons were "more flexibility" (75.3%), "savings in transportation expenses and time" (57.3%) and "more private time" (55.8%).

The rate for mobile teleworkers was 5 per 1,000 working population. 32.0% of the "mobile teleworkers" were also "home-based workers enabled by IT provision". The median monthly personal income of these persons was $22,500.

For mobile teleworkers, the median amount of time they spent at their formal offices was 10 hours per week. 17.1% of them shared their office space with other companies and 26.8% shared their office desk with other colleagues.

### 7.5 The impact of IT on and the general acceptance of more distant and less location interdependent places of living/working/shopping/other services

Despite the use of IT services becoming more prevalent, the majority (79%) of the interviewed persons still considered "accessible to transportation" a main factor in choosing the location of their homes. This decisive factor tended to become less important with increasing age, in particular for the elderly persons who were more concerned with "near community facilities" and "in sub-urban areas with quieter and less dense environment" in considering their living locations.

When analysed by monthly household income, persons with higher monthly household income considered the factor "near entertainment venues" to be more decisive when compared to persons with lower household income, reflecting a higher disposable income of the former.

In addition, "near school" and "near community facilities" were considered by persons with lower monthly household income (excluding those of less than $5,000) to be more decisive in the choice of home location in the future compared to persons with higher monthly household income. The first factor may be an indication that people in lower income groups may require more, or reply more on, community facilities. On the other hand, the lesser importance of "near school" to the higher income groups could indicate the higher importance attached to "quality and status" as opposed to other tangible factors.

### 7.6 Views on IT learning

Only a very small proportion of IT service users (1.7%) thought that internet learning could completely replace traditional classroom learning for primary and secondary education and over 40% felt that traditional classroom learning for primary and secondary schooling could not be replaced by internet learning. However, for university and other informal education, the proportion of
persons who thought classroom learning could not be replaced by internet learning was lower, at just over 10% and less than 25% respectively.

- The main reasons cited for internet learning being not able to replace traditional classroom learning for primary and secondary schooling were "lack of social interaction between persons" and "lack of supervision and self-discipline at home".

- Overall, internet learning appears to be more readily acceptable for university and other informal education rather than for primary/secondary schooling, reflecting the higher level of personal guidance and attention required for the latter.