

**2016 MANPOWER SURVEY REPORT**  
**INFORMATION TECHNOLOGY SECTOR**

資訊科技業

2016年度人力調查報告書

**COMMITTEE ON INFORMATION  
TECHNOLOGY TRAINING AND DEVELOPMENT**

**VOCATIONAL TRAINING COUNCIL**

職業訓練局

資訊科技訓練發展委員會

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# **Executive Summary of the Report on the 2016 Manpower Survey of the Information Technology Sector**

## **1. *Introduction***

The Committee on Information Technology Training and Development (CITTD) of the Vocational Training Council (VTC) conducted its 17<sup>th</sup> biennial manpower survey in April and May 2016. Through stratified random sampling, some 1 600 companies were selected from about 93 000 including 80 government units. The effective response rate was 90.2%.

## **2. *Current Manpower Status***

### **2.1 *Total Number of Persons Engaged***

The labour market in the information technology (IT) sector keeps steady growth in April 2016 with total IT employment increased to 87 794 IT employees (including freelancers), representing an increase of 5.8% over April 2014 (82 973 IT employees) and 41.4% over March 2004 (62 098 IT employees). However, owing to a slight increase in the total labour force, the percentage share of IT employees (including freelancers) in the labour force grew marginally from 3.1% in April 2014 to 3.4% in April 2016.

### **2.2 *Manpower Structure by Job Category***

The survey shows that of the 87 794 IT employees (including freelancers), 33 622 (38.3%) were in IT / software development, 19 665 (22.4%) in operation services, 10 006 (11.4%) in field support, 7 177 (8.2%) in IT sales and marketing, 6 426 (7.3%) in telecommunications and networking, 4 101 (4.7%) in systems programming, 3 727 (4.2%) in IT education and training, and the rest in general IT management, database and IT security.

### **2.3 *Distribution of IT Employees by Job Nature***

The survey also shows that majority (about 80.9%) of IT employees (including freelancers) have engaged in job nature related to operation and technical support (43.8%), and application development / engineering (37.1%).

### **2.4 *Gender Distribution***

Employers reported that 66 669 male IT employees and 12 564 female ones were engaged in the IT sector, and the rest of IT employees with unspecified gender. It is observed that the number of male and female IT employees (including freelancers) was in a ratio of 5 to 1.

### **3. Existing Vacancies and Staff Turnover**

#### **3.1 Vacancy Rate**

As compared with the 2014 survey findings, the vacancy rate has increased slightly from 2.3% (1 937) to 2.9% (2 629) of the respective total numbers of IT posts in 2014 and 2016 (the total number of posts being the sum of total employees and total vacancies). The greatest vacancy rate (4.9%) was in the medical and health care services sector.

#### **3.2 Leaving IT Employees**

Employers reported that 7 074 IT employees (including freelancers) (or 7.8% of total IT posts) had left their companies in the 12 months preceding the survey. Of these IT employees, 41.4% changed employment within the IT field, 3.2% took up employment in other fields, and 2.3% emigrated or left for other reasons (such as retirement or further studies). The remaining left with whereabouts unknown. It is observed that the turnover rate as a percentage of number of IT posts in the industry sectors has increased from 6.9% (5 817) in April 2014 to 7.8% (7 074) in April 2016.

#### **3.3 Internal Promotion**

The survey reveals that the number of internal promotion in respect of new or existing posts has increased from 1 171 in 2014 to 1 401 in 2016. It is observed that employers in the IT sector were willing to give reasonable promotion opportunities to their IT employees in order to retain their own talent.

#### **3.4 Recruitment Numbers**

The survey also reveals that 8 199 IT employees (or 9.3% of total IT employees) were recruited in the past 12 months with details shown in the table below. It is observed that the recruitment of non-locally trained and locally trained fresh graduates was in a ratio of 1 to 4 and the recruitment of non-locally and locally experienced persons was in a ratio of 1 to 15. It appears that employers in the industry tended to recruit an appropriate ratio of local fresh graduates and experienced persons to non-local ones to fill vacancies over the two-year period to meet the tight labour market.

Recruitment	Number of Fresh Graduate	Number of Experienced Persons
Local	1 152 (1.3%)	6 317 (7.2%)
Overseas	304 (0.3%)	429 (0.5%)
Total	8 199	

#### **3.5 Recruitment Difficulties**

The survey also reveals that 33.8% of employers had difficulties in attracting experienced candidates to apply for the existing vacancies and 23.8% had difficulties in attracting candidates to apply during their recruitment exercises in the past 12 months.

#### **4. Employers' Requirement / Expectations of Employees' Competencies and the Average Annual Remuneration Package of their IT Employees**

##### **4.1 Preferred Academic Qualification**

Over the past two years, there has been slight changes in employers' preferred academic qualification profile of IT manpower. 52.5% of IT posts were preferred to have first degree or above qualifications and 25.2% to have sub-degree qualification in 2016. It is considered that the IT industry is one of the most knowledge-intensive sectors and therefore employers generally preferred their IT employees to have job-related experience with tertiary level qualifications for most of the IT jobs.

##### **4.2 Preferred Relevant Years of IT Experience**

Employers generally preferred their IT employees to have substantial relevant experience in the industry. For instance, 60.4% of the IT posts for systems analysts require having 5 to 10 years' IT experience and 22.1% of them require having 2 to 5 years' IT experience in 2016.

##### **4.3 Income Distribution of IT Employees**

It is noted that the average annual income range of IT employees is in general on the steady uptrend between April 2014 and April 2016. This has been supported by the increasing demand for IT professionals both within the IT & communications services organizations and the IT users organizations, coupled with a renewed focus on retaining top talent to support business growth. However, due to the differences in demand and supply conditions, the average annual income range of IT employees by job title varied across different industry sectors.

##### **4.4 Skills and Knowledge Requirements**

The survey reveals that 49 934 IT employees (in terms of man-times) were reported by their employers to have training needs in the next 12 months. Demand for "Information and System Security" is the top essential skill priority among companies in 2014 and 2016, even in tough economic times.

	Skills	Objective	Major Sectors
Top Essential Skills	Information & System Security	Enhance IT Security	All
Emergent Skills	Data Science and Data Analytics	Developing data analytics tools to enhance their competitiveness in the market places	WIRE, catering and hotels sector and IT products and services suppliers sector
	e-Learning Technology and Development	Develop e-learning platform to enhance the knowledge and skills	WRIE, catering and hotels sector and community, social and personal services

#### **4.5 Equivalent IT Staff from Contractor Companies**

At the time of the survey, employers reported that there were 4 606 seconded IT staff from contractor companies (1 241 and 3 365 from IT & Communications Services Organisations and IT Users Organisations respectively). The Committee observes that, in the present survey, regarding the ratio of IT seconded staff to IT employees, a majority of the seconded staff were found in the sectors of Government Bureau/Departments (55.8%), Medical and Health Care Services (47.4%), and Wholesale, Retail and Import/ Export Trades (WRIE) of Computer Products and Software Packages (14.0%).

### **5. *Manpower Growth and Forecast***

#### **5.1 Employers' Forecast of IT Manpower Demand by April 2017**

Employers forecast that there would be 90 544 IT posts by April 2017, an increase of 0.1% (121) over the number of existing IT posts (90 423). Among the job categories, system programming recorded the highest growth rate of 1.0%, followed by field support (0.4%) and IT / software development (0.2%).

#### **5.2 Projected Annual Additional Manpower Requirement from 2017 to 2020 by Preferred Academic Qualification**

As the pace of globalization continues to accelerate, supported by domestic consumption as well as CEPA, the Committee considers that IT manpower requirement will follow a growing trend in the long run. The projected annual additional manpower requirement from 2017 to 2020 by preferred academic qualification is estimated to be 3 051 IT employees with degree or above qualifications and 1 387 with sub-degree qualifications.

#### **5.3 Estimated Average Annual Supply of Graduates in IT or Computing Programmes from 2017 to 2020 by Educational Level**

The average annual supply of graduates in IT or computing programmes joining the IT sector from local educational institutions from 2017 to 2020 by educational level is estimated to be 3 293 with degree or above qualifications (including 1 663 at full-time mode and 1 630 at part-time or distance learning mode) and 882 with sub-degree qualifications.

#### **5.4 Manpower Demand and Supply Analysis**

It can be concluded that the average annual supply of 3 293 local degree graduates from IT or computing programmes would be able to meet the forecast annual additional manpower demand for 3 051 IT employees with such qualification. At the sub-degree level, the average annual supply of 882 IT or computing graduates with such qualification would not be able to meet the forecast annual additional manpower demand for 1 387 IT employees. However, the forecast annual shortfall of 505 additional IT employees could be met in general by IT or computing graduates returning from overseas and non-IT / computing graduates who have received in-depth conversion IT training.

## **6. Business Outlook**

### **Impact of New Technology and Global Trend**

6.1 The Committee believed that with the impact of new technologies such as big data, data science and analytics, artificial intelligence, the IT practitioners should continue to acquire the knowledge and skills of these technologies such that they would follow the global trend to provide the optimal services and products to meet the growing customers' expectation. According to the findings of the survey, IT / software development, operation services, and field support skills remain in strong demand, particular for IT architects, systems analysts, programmers, web designers / developers, field technicians, computer / systems operators help-desk representatives, user support / co-ordinators, and sales / marketing representatives who offer a blend of technical expertise with solid customer-service abilities.

6.2 However, the factors that might affect the growth rate of the IT sector for the years ahead include industry consolidation, the introduction of new technologies, greater use of services outside the sector, and competition from different emerging media platforms.

### **Enhanced Collaboration with Mainland China**

6.3 The Mainland recorded an economic growth of 6.5% in 2016, showing a slower economic growth and is moving towards a more sustainable growing path under the National 13th Five-Year Plan for 2016-2020. It is noted that the Government will continue to forge closer economic ties with the Mainland through CEPA and other regional co-operation platforms, in particular, the Mainland's "Belt and Road" Initiative, which encompasses over 60 economies (including many emerging market economies in Southeast and Central Asia, Central and Eastern Europe, as well as Africa), will bring forth extensive business opportunities stemming from infrastructural investments, deepening of financing linkages, trade expansion and people-to-people connectivity.

6.4 The development of the Lok Ma Chau Loop into the Hong Kong / Shenzhen Innovation and Technology Park (HK/SZ I&T Park), will help shape the future of Hong Kong's information and technology development. The planned new park is about four times the current size of the Hong Kong Science Park. It will provide land for the long-term development of innovation and technology, thereby enhancing Hong Kong's attraction to the Mainland and overseas technology enterprises and research institutions.

6.5 To meet the opportunities and challenges ahead including closer integration of Hong Kong's economy with that of the Mainland, the Committee recommends that there could be more sharing of professional experience and service know-how of the IT sector between the Hong Kong and Mainland professionals via regular industrial visits across the border. The IT practitioners should be familiarized with working and doing business in the Mainland, strengthening business networks with Mainland counterparts, speeding up with China's economic and technology policies so as to keep abreast of the development of Mainland's technology industries and companies.



## **7. Recommendations**

Major recommendations on the manpower and training needs of the IT sector are summarized as follows:

- (i) The annual additional training requirement for IT employees from 2017 to 2020 is estimated to be about 5 200 in the IT sector.
- (ii) The combination of IT skills with entertainment tools is a new trend in social media to arouse the interest of potential or existing customers to be engaged in their services or products.
- (iii) The IT employees today are required to acquire the relevant skills / knowledge such as data science, big data and data analytics in order to enable enhanced insight and decision making.
- (iv) IT practitioners should enhance their skills in Internet and Cyber Security in order to protect their data/assets against attacks especially over the Internet.
- (v) The Business Skills for IT Professionals are essential specifically to equip technical professionals with the inter-personal skills and business knowledge required to succeed in today's demanding business environment.
- (vi) The IT practitioners should be familiarized with working and doing business in the Mainland, strengthening business networks with Mainland counterparts, speeding up with China's economic and technology policies so as to keep abreast of the development of Mainland's technology industries and companies.
- (vii) The local educational institutions could strengthen the STEM education for students including the promotion and the offering of more degree and sub-degree courses in the IT Discipline so that more secondary school graduates could be encouraged to study IT related programmes when they attend tertiary education and to adopt IT as a career.
- (viii) Internship programmes in collaboration with education institutions with funding sources from government or employers could be explored to equip the IT students with the necessary skills and capabilities to enhance their employability upon graduation. These programmes would resolve the major difficulties encountered by employers in the recruitment of IT employees where they find candidates lack the relevant experience and skills / expertise.
- (ix) Enhanced promotion of the New Technology Training Scheme and the Engineering Graduate Training Scheme could be arranged to encourage the IT employees to participate in order to keep abreast of the latest development in the IT Sector.
- (x) VTC should strengthen the collaboration with IT trade associations and professional bodies to offer advanced IT courses to the IT personnel.
- (xi) VTC could strengthen the technical know-how of the workforce by enhancing the collaboration with IT trade associations and professional bodies to offer courses in advanced technologies related to the IT sector.

# SECTION I

## INTRODUCTION

### **The Committee**

1.1 The Committee on Information Technology Training and Development of the Vocational Training Council (VTC) is appointed by the HKSAR Government to be responsible for matters pertaining to the manpower and training needs of the information technology (IT) sector. Comprising representatives of the IT professionals from major economic sectors, academics and government officials, the Committee is required, among other duties, to recommend to the Council the development of training strategy to meet the need for trained IT manpower. The membership list and terms of reference of the Committee are given in Appendices 1 and 2.

### **Objectives of the Survey**

1.2 The main objectives of the manpower survey are to collect detailed information on existing manpower situation and training needs of the IT sector, to project manpower demand, and to recommend measures to meet industry needs.

### **Time of the Survey**

1.3 Since 1983, the Committee in collaboration with the Census and Statistics Department (C&SD) has been conducting IT manpower surveys on a two-year cycle. The recent manpower survey was conducted in April / May 2016 with its scope covering most of the IT functions.

1.4 The findings of the survey reflect the manpower situation of the IT sector at the time of the survey. However, the current uncertainty in global economic climate might have an effect on the IT manpower demand. The manpower data and forecast in the report should therefore be read in this context.

### **Working Party on Manpower Survey**

1.5 Under the Committee, a Working Party was formed to oversee the conduct of the manpower survey. The scope of its work can be broadly divided into four parts: questionnaire design, sampling, analysis and reporting. The Working Party has prepared the relevant survey documents and subsequently submitted to the Committee for approval. On the other hand, C&SD provided the following professional services: fieldwork, data input and tabulation. The Working Party's membership list is given in Appendix 1.

## **Method of the Survey**

1.6 As IT employees are found not only in computer firms, but also in other commercial and industrial companies and public organizations, the IT manpower survey has covered the whole economy of Hong Kong (except mining and quarrying, agriculture and fishing) and all relevant government units. On the advice of C&SD, the survey covers a frame of about 93 000 companies in the Central Register of Establishments maintained by the C&SD.

1.7 Under the constraint of limited resources, a stratified random sampling method was adopted to select some 1 600 companies (excluding some companies with employment size less than 5) in the specified frame. The Companies were asked to complete a detailed questionnaire on IT manpower and training needs (Appendix 3). Interviewing officers of the C&SD visited the sampled / selected companies to ensure the information collected was accurate. The distribution of samples by sector and by employment size (sampling plan) is shown in Appendix 25.

1.8 The survey covered 7 job categories, namely, general IT management, IT / software development, telecommunications and networking, technical services (including IT security, database, systems programming and field support), operation services, IT education and training, and IT sales and marketing. The job category of data entry operation was excluded in this survey because most of the jobs were performed by IT users. Based on the qualification, experience and remuneration package of IT employees in this survey, the Committee further subdivided the 7 job categories into 33 principal IT jobs for a detailed analysis. The collected information was also classified by industry sector as defined in paragraph 1.27.

1.9 Employers were requested to classify their IT employees according to job specifications based on the duties the employees performed rather than the job titles held in the organization (Appendix 4). Interviewing officers of the survey were specially briefed about the nature of various jobs before they carried out the fieldwork. Questionnaires collected were checked, coded and if necessary verified with the respondents. The data collected were grossed up statistically to reflect the overall IT manpower situation of the whole sector.

## **Time Reference of Data**

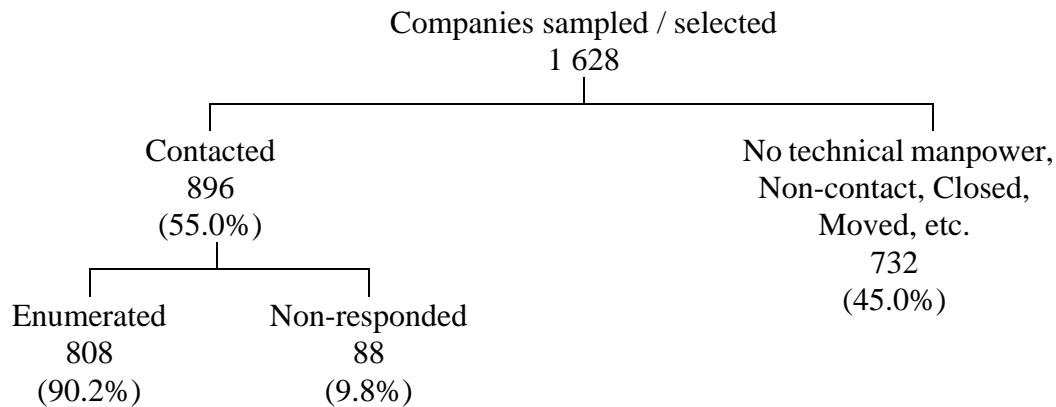
1.10 All the data entered by the respondents of the survey was based on the reference date of 14 April 2016.

## **Publicity**

1.11 A press release about the survey in Chinese and English was issued on VTC website on the first day of the fieldwork. Some relevant bodies were also requested to publicize the survey among their members.

## Analysis of the Responses

1.12 Out of the 1 628 companies selected, 446 had no technical manpower, 167 were non-contact, and 119 had closed, moved, were untraceable or registered offices without operations, temporarily not in operation, merged with other company, and others. Only 88 companies refused to respond. Taking into account those 808 companies (including 3 newly discovered cases) which had completed and returned the questionnaires, the effective response rate was 90.2%. The analysis of the responses of the survey is summarised as follows:

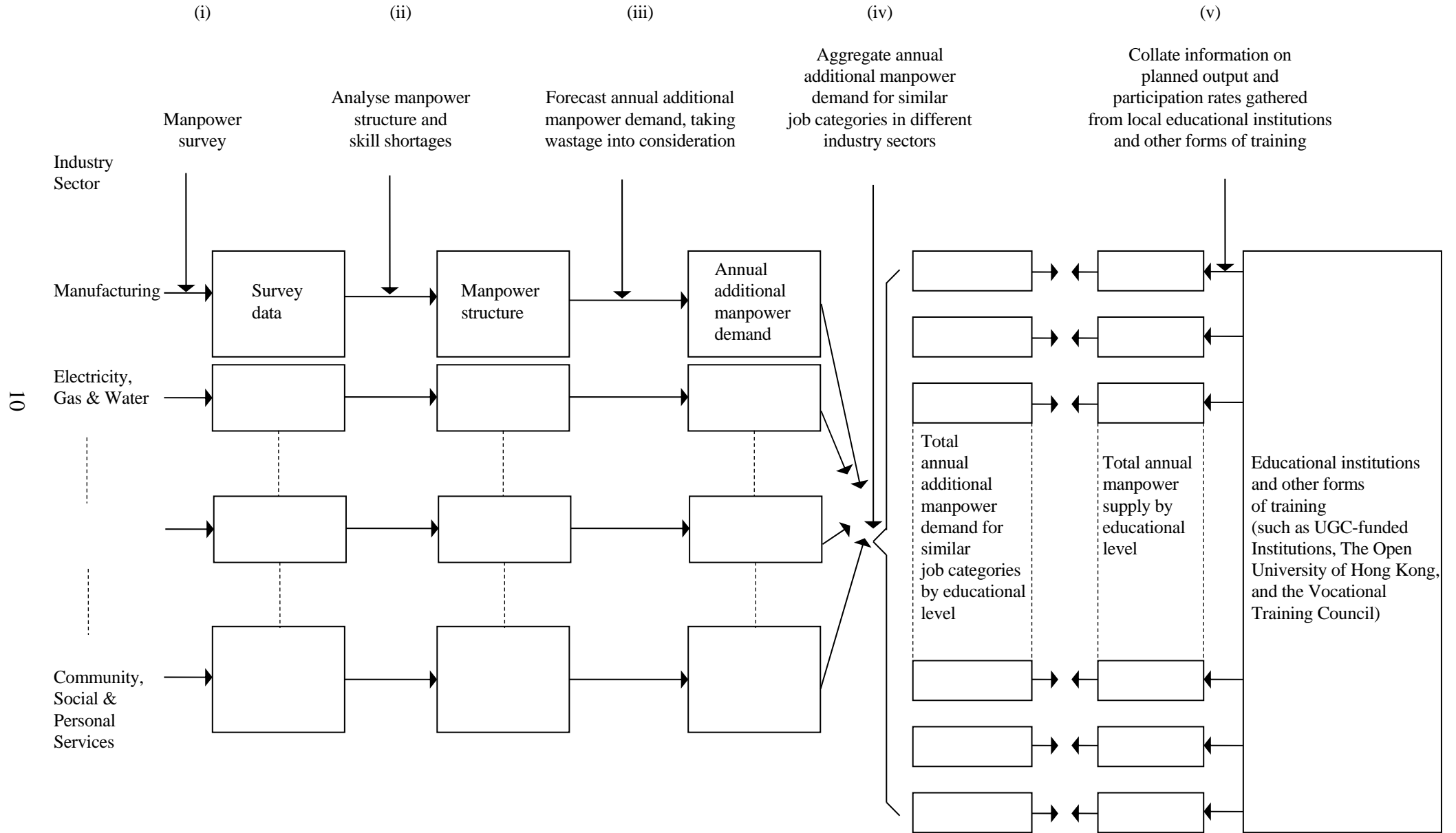


## Manpower Assessment Procedure

1.13 The method of assessment diagrammatically illustrated in Figure A consists essentially of the following steps:

- (i) Collecting up-to-date information on employment situation classified by industry sector and by job category;
- (ii) Analysing the manpower structure and skill shortages from the survey data;
- (iii) Forecasting annual additional manpower demand, taking wastage into consideration;
- (iv) Aggregating annual additional manpower demand for similar job categories in different industry sectors; and
- (v) Estimating the annual manpower supply from information on planned output and participation rates gathered from local educational and training institutions.

**Figure A Manpower Assessment Procedure**



## **Presentation of the Survey Findings**

1.14 A summary of the survey findings (including the manpower and training needs of the IT sector and their statistical analysis) is presented in Section II of the survey report, while the Committee's recommendations are set out in Section III.

## **Definition of Terms**

1.15 “Information Technology (IT)” encompasses methods and techniques used in information handling, transmission and retrieval by automatic means, including computing, telecommunication (voice, data and video transmission by digital or analogue means), office automation and industrial automation.

1.16 “Employees” refers to all full-time personnel who are directly paid by the company and who are either at work or temporarily absent from work, viz sick leave, maternity leave, annual vacation, casual leave or on strike.

1.17 “IT employees” refers to all full-time personnel who are engaged in principal jobs related to general IT management, IT / software development, telecommunications and networking, technical services (including IT security, database, systems programming and field support), operation services, IT education and training, and IT sales and marketing. Users of IT systems as well as frequent users of IT packages are not considered as IT employees in this survey.

1.18 “A Freelancer” is a person who pursues a profession without a long-term commitment to any one employer in the IT sector. Freelancers may be engaged on a daily, an hourly or a project basis.

1.19 “A company” is defined, for the purpose of this survey, as a business undertaking including establishments having the same first 7 digits of business registration number (i.e. under a single ownership or control) with the same nature of business (i.e. in the same branch). A company forms the basic enumeration unit in the survey.

1.20 “Existing vacancies” refer to those unfilled, immediately available job openings for which the company is actively trying to recruit personnel at date of survey.

1.21 “Participation rate” in each discipline is defined as the percentage of graduates who will enter into employment in their related field of study or training. Such information is usually obtained from employment surveys of full-time graduates conducted by educational institutions.

1.22 “Wastage rate” is defined as the percentage of IT employees leaving their current IT jobs and taking up non-IT positions, retiring, for other reasons, out of the total number of IT employees. The formula for calculating the annual wastage rate in the respective sector is shown as follows:

$$\frac{\text{No. of IT Employees Taking Up Non-IT Positions} + \text{No. of Retirees} + \text{Other Wastages}}{\text{No. of IT Employees in the Respective Sector}} \times 100\%$$

1.23 “Retrenchment” is defined as employer’s decision to downsize or re-organize to cope with the company’s recent financial situation.

1.24 “Outsourcing” is defined as a contractual agreement between a company and one or more external suppliers (local or overseas) on the provision of all or some of IT functions that the company is currently providing / has provided internally.

1.25 “IT and Communications Services Organizations” includes companies engaged in manufacture / wholesale / retail / import / export of computers / peripheral equipment and computer software packages; provision of IT related products and services (such as Internet access / communications services, software support, data processing and technical services of computer facilities management), and digital creative.

1.26 “IT Users Organizations” includes companies in non-IT related sectors, which act as IT users. These sectors include manufacturing of non-IT products; electricity, gas and water; construction; wholesale / retail / import / export of non-IT products; catering and hotels; transport and storage services; financing, insurance, real estate and business services; medical and health care services; community, social and personal services; and government bureaux / departments.

### **Industry Coverage**

1.27 The survey covered the following major industry sectors that are classified under the Hong Kong Standard Industrial Classification (HSIC), except government bureaux / departments:

<u>Sector</u>	<u>Branch</u>	<u>Trade Description</u>
Manufacturing	1	Manufacture and repair of computers and peripheral equipment; Manufacture of electronic parts and components for computers and telecommunications equipment
	2	Other manufacturing (non-IT products)
	3	Other manufacturing of non-IT products with embedded software
Electricity, Gas and Water	4	Electricity, gas and water supply
Construction	5	Construction
Wholesale, Retail and Import/ Export Trades (WRIE), Catering and Hotels	6	Export trading, import for wholesale, wholesale and retail sale of computers, computer peripheral equipment and computer software packages
	7	Other import and export trades (except import and export trades of computers, computer peripherals and software packages)
	8	Other wholesale and retail (except wholesale and retail sale of computers, computer peripherals and software packages); Accommodation and food service activities
Transport and Storage Services	9	Airline companies
	10	Railway and cable transport; Public bus services; Licensed and franchised ferry services; Vehicular tunnel, bridge and highway operators
	11	Air cargo forwarding services
	12	Other transport and storage services
Communications Services	13	Internet access services
	14	Communications services (except internet access services)



<u>Sector</u>	<u>Branch</u>	<u>Trade Description</u>
Financing, Insurance, Real Estate and Business Services	15	Domestic banking units
	16	Real estate brokerage and agency
	17	Others (Financing, Insurance, Real Estate and Business Services)
IT Products and Services Suppliers	18	IT related products and services (including consultancy, software development, software products, software support and maintenance services; Data processing and tabulation services; Engineering and technical services of computer facilities management)
Medical and Health Care Services	19	Medical, dental, and other health care services (including Hospital Authority)
Community, Social and Personal Services	20	Universities and post-secondary colleges; Research and scientific institutes; Hong Kong Examinations and Assessment Authority
	21	Educational institutes other than universities, post-secondary colleges (excluding Hong Kong Examinations and Assessment Authority)
	22	Motion pictures and other entertainment services; and Television / Radio Stations & Studios
	23	Others (Community, Social and Personal Services); Hong Kong Productivity Council & Hong Kong Trade Development Council
Digital Creative	24	Digital creative
Government Bureaux / Departments	25	Government bureaux / departments

## **Acknowledgement**

1.28 The Committee wishes to thank the Census and Statistics Department for supervising the fieldwork, processing the survey data and providing the socio-economic data; the University Grants Committee (UGC) for providing figures on graduate employment survey; the UGC-funded institutions, The Open University of Hong Kong, and The HKU SPACE Community College for providing information on planned output of graduates from UGC / Government-funded and / or self-financed IT / computing programmes.

## SECTION II

### SUMMARY OF SURVEY FINDINGS

#### *Current Manpower Status*

#### **Number of IT Employees and Freelancers by Job Category by Type of Organization**

2.1 The survey reveals that in April 2016, a total of 87 794 persons were employed in the principal jobs of the IT sector in Hong Kong. The number of IT employees and freelancers by job category by type of organization is summed up in Table 2.1 and a comparison of the number of IT employees (including freelancers) and companies covered in the 2014 and 2016 surveys by type of organization is shown in Table 2.2. More detailed analyses of the findings by sector / branch by job category are presented in Appendix 5.

**Table 2.1 Number of IT Employees and Freelancers  
by Job Category by Type of Organization  
(As in April 2016)**

<u>Job Category</u>	<u>IT &amp; Communications Services Organizations<sup>(1)</sup></u>			<u>IT Users Organizations<sup>(2)</sup></u>			<u>Overall</u>		
	<u>EM</u>	<u>FL</u>	<u>Sub-total</u>	<u>EM</u>	<u>FL</u>	<u>Sub-total</u>	<u>EM</u>	<u>FL</u>	<u>Total</u>
General IT Management	448	-	448 (1.0)	1 029	-	1 029 (2.4)	1 477	-	1 477 (1.7)
IT/Software Development	16 224	57	16 281 (36.4)	17 304	37	17 341 (40.2)	33 528	94	33 622 (38.3)
Telecommunications & Networking	5 035	1	5 036 (11.3)	1 382	8	1 390 (3.2)	6 417	9	6 426 (7.3)
Technical Services <sup>+</sup>	10 298	185	10 483 (23.5)	5 215	2	5 217 (12.1)	15 513	187	15 700 (17.9)
Operation Services	4 787	454	5 241 (11.7)	13 362	1 062	14 424 (33.4)	18 149	1 516	19 665 (22.4)
IT Education & Training	158	-	158 (0.4)	3 527	42	3 569 (8.3)	3 685	42	3 727 (4.2)
IT Sales & Marketing	7 025	-	7 025 (15.7)	152	-	152 (0.4)	7 177	-	7 177 (8.2)
Total	43 975	697	44 672 (50.9) <sup>#</sup> (100.0)	41 971	1 151	43 122 (49.1) <sup>#</sup> (100.0)	85 946	1 848	87 794 (100.0) <sup>#</sup> (100.0)

EM Number of IT employees (excluding freelancers).

FL Number of freelancers.

+ Technical services include job categories IT security, database, systems programming and field support.

\* As a percentage of number of IT employees and freelancers by type of organization.

# As a percentage of number of IT employees and freelancers in the whole economy.

Notes: (1) "IT & Communications Services Organizations" includes Branches 1, 6, 13, 14, 18 & 24.

(2) "IT Users Organizations" includes Branches 2-5, 7-12, 15-17, 19-23 & 25.

**Table 2.2 Comparison of the Number of IT Employees (including Freelancers) and Companies Covered in the 2014 and 2016 Surveys by Type of Organization**

	IT & Communications Services Organizations <sup>(1)</sup>		IT Users Organizations <sup>(2)</sup>		Total	
	2014	2016	2014	2016	2014	2016
No. of Companies Covered by the Survey	5 869	6 231 (+6.2%)*	76 181	78 135 (+2.6%)*	82 050 (+11.2%)*	84 366 (+2.8%)*
No. of Employees Covered by the Survey	93 566 (+0.4%)*	101 347 (+8.3%)*	2 316 640 (+3.2%)*	2 384 598 (+2.9%)*	2 410 206 (+3.1%)*	2 485 945 (+3.1%)*
No. of IT Employees (including Freelancers)	40 954 (+3.8%)*	44 672 (+9.1%)*	42 019 (+7.1%)*	43 122 (+2.6%)*	82 973 (+5.4%)*	87 794 (+5.8%)*
- No. of IT Employees (excluding Freelancers)	40 461	43 975	40 325	41 971	80 786	85 946
- No. of Freelancers	493	697	1 694	1 151	2 187	1 848

\* Figures in brackets are percentage changes over the previous survey.

Notes: (1) "IT & Communications Services Organizations" includes Branches 1, 6, 13, 14, 18 & 24.

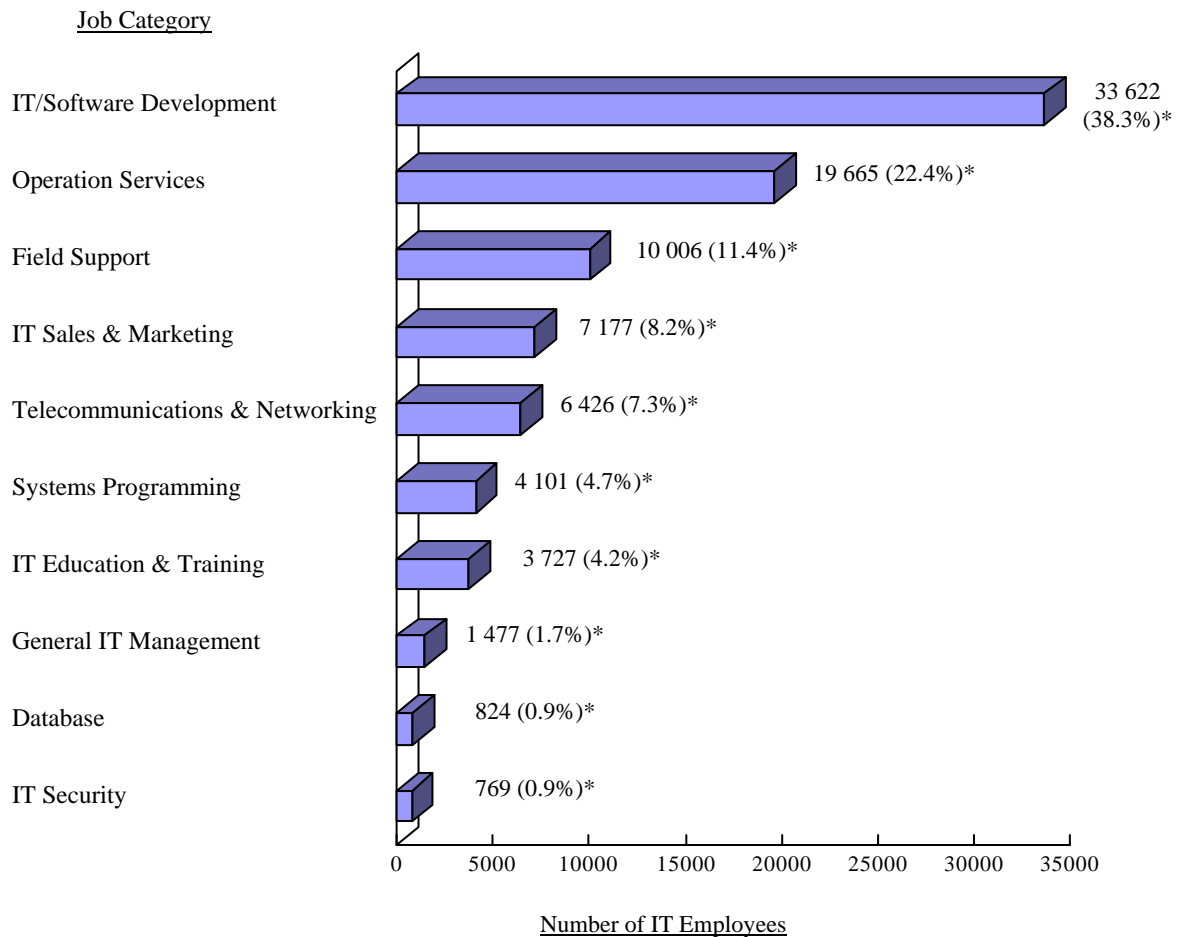
(2) "IT Users Organizations" includes Branches 2-5, 7-12, 15-17, 19-23 & 25.

2.2 As regards the number of freelancers (1 848) employed to perform various IT job duties by job category by type of organization shown in Table 2.1, the IT and communications services organizations recorded the number of freelancers (697) and the IT users organizations (1 151). Most of these freelancers in the IT sector are employed under the job categories of technical services and operation services. The Committee observes from Table 2.2 that the employment market is likely to be focused on permanent IT jobs, however fixed term contracts or working as freelancers will also be a key part of employment strategies when the companies are encountering difficulties in recruitment. In some cases, more IT companies would like to recruit self-employed staff in order to save remuneration cost and some retired IT employees would rejoin the companies as freelancers after retirement.

2.3 Figure 1 shows that of the 87 794 IT employees (including freelancers), 33 622 (38.3%) were in IT / software development, 19 665 (22.4%) in operation services, 10 006 (11.4%) in field support, 7 177 (8.2%) in IT sales and marketing, 6 426 (7.3%) in telecommunications and networking, 4 101 (4.7%) in systems programming, 3 727 (4.2%) in IT education and training, and the rest in general IT management, database and IT security.

**Figure 1 Manpower Structure by Job Category  
(As in April 2016)**

**Total 87 794 Persons**



\* As a percentage of total number of IT employees (including freelancers).

Notes: (1) IT security, database, systems programming and field support are grouped under the job category technical services.

(2) Figures in brackets may not add up to 100% due to rounding.

### Number of IT Employees (including Freelancers) by Sector

2.4 Table 2.3 shows that the WRIE, catering and hotels sector (41 593), which constituted about half of the total companies (84 366) in the IT sector, accounted for about 18.8% of the sector's total IT employment in 2016 (16 495 / 87 794). However, on a per company basis, they registered a small average employment size of 0.4 IT employees.

**Table 2.3 Comparison of the Number of IT Employees (including Freelancers) and Companies Covered in the 2014 and 2016 Surveys by Sector**

Sector	No. of Companies Covered by the Survey (1)		No. of Employees Covered by the Survey (2)		No. of IT Employees (including Freelancers) (3)				Average No. of IT Employees (including Freelancers) Per Company (3)/(1)		IT Employees (including Freelancers) as a Percentage of All Employees (3)/(2) x 100%	
	<u>2014</u>	<u>2016</u>	<u>2014</u>	<u>2016</u>	<u>2014</u>	<u>2016</u>	<u>2014</u>	<u>2016</u>	<u>2014</u>	<u>2016</u>	<u>2014</u>	<u>2016</u>
					(%)*	(%)*			%	%		
Manufacturing (Branches 1-3)	2 639	2 547	107 264	101 738	2 948	(3.6)	3 008	(3.4)	1.1	1.2	2.7	3.0
Electricity, Gas and Water (Branch 4)	7	7	7 871	7 936	378	(0.5)	390	(0.4)	54.0	55.7	4.8	4.9
Construction (Branch 5)	5 269	5 397	100 439	120 470	434	(0.5)	473	(0.5)	0.1	0.1	0.4	0.4
Wholesale, Retail and Import/Export Trades (WRIE), Catering and Hotels (Branches 6-8)	41 709	41 593	792 799	797 589	16 581	(20.0)	16 495	(18.8)	0.4	0.4	2.1	2.1
Transport and Storage Services (Branches 9-12)	6 515	5 902	210 111	196 833	1 959	(2.4)	1 990	(2.3)	0.3	0.3	0.9	1.0
Communications Services (Branches 13-14)	365	335	29 796	34 453	3 922	(4.7)	5 223	(5.9)	10.7	15.6	13.2	15.2
Financing, Insurance, Real Estate and Business Services (Branches 15-17)	9 350	10 459	444 194	474 526	15 165	(18.3)	15 726	(17.9)	1.6	1.5	3.4	3.3
IT Products and Services Suppliers (Branch 18)	4 439	4 809	43 316	47 222	27 522	(33.2)	30 013	(34.2)	6.2	6.2	63.5	63.6
Medical and Health Care Services (Branch 19)	1 984	2 183	96 150	105 570	931	(1.1)	1 077	(1.2)	0.5	0.5	1.0	1.0
Community, Social and Personal Services (Branches 20-23)	9 627	10 984	402 915	418 592	9 733	(11.7)	10 040	(11.4)	1.0	0.9	2.4	2.4
Digital Creative (Branch 24)	66	71	1 822	1 519	697	(0.8)	618	(0.7)	10.6	8.7	38.3	40.7
Government Bureaux/Departments (Branch 25)	80	79	173 529	179 497	2 703	(3.3)	2 741	(3.1)	33.8	34.7	1.6	1.5
<b>Total</b>	<b>82 050</b>	<b>84 366</b> (+2.8%) <sup>#</sup>	<b>2 410 206</b>	<b>2 485 945</b> (+3.1%) <sup>#</sup>	<b>82 973</b>	<b>(100.0)</b>	<b>87 794</b> (+5.8%) <sup>#</sup>	<b>(100.0)</b>	<b>1.0</b>	<b>1.0</b>	<b>3.4</b>	<b>3.5</b>

# Figures in brackets are percentage changes over the previous survey.

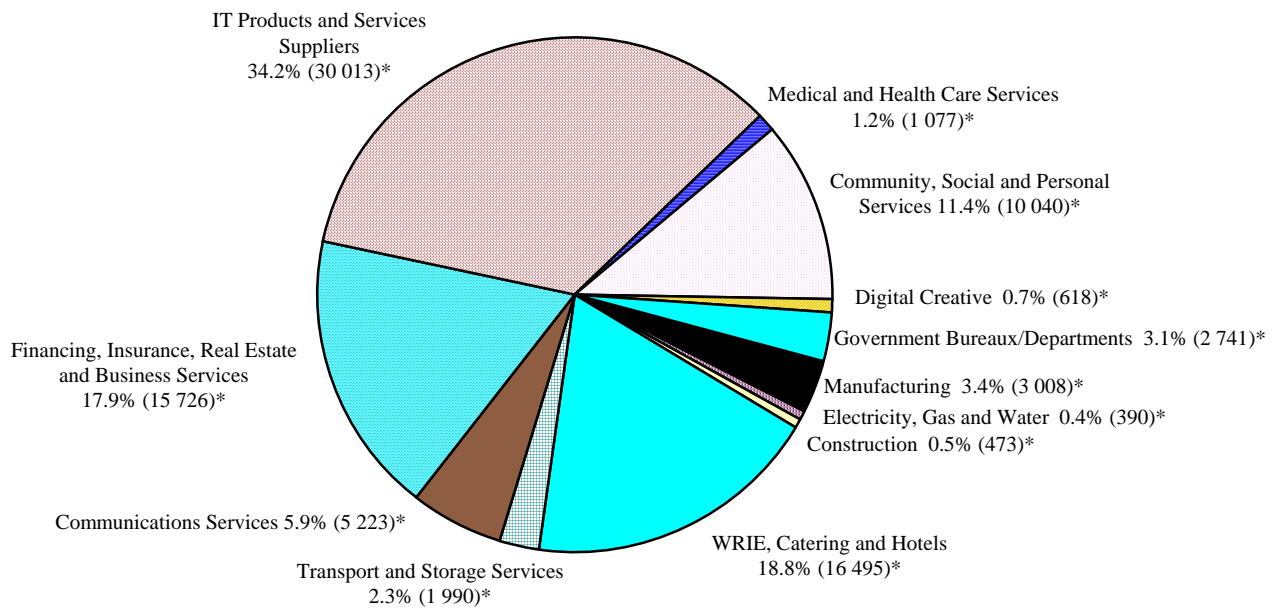
\* As a percentage of total number of IT employees (including freelancers) in companies covered in the respective survey.

Note: Figures may not add up to the total due to rounding.

2.5 The survey shows that IT products and services suppliers had 30 013 IT employees, accounting for 34.2% of the total IT manpower, followed by the WRIE, catering and hotels sector (16 495 or 18.8%) and the financing, insurance, real estate and business services sector (15 726 or 17.9%). The distribution of IT employees (including freelancers) by sector is shown in Figure 2.

**Figure 2 Distribution of IT Employees (including Freelancers) by Sector (As in April 2016)**

**Total 87 794 Persons**



\* Number of IT employees (including freelancers) in brackets.

Note: The distribution of IT employees (including freelancers) by sector may not add up to 100% due to rounding.

### **Number of IT Employees (including Freelancers) by Sector by Job Category**

2.6 The number of IT employees (including freelancers) by sector by job category is summed up in Table 2.4. More detailed analyses of data by job category / title by sector / branch and by employment size of company by sector are presented in Appendices 6 and 7.

**Table 2.4 Number of IT Employees (including Freelancers) by Sector by Job Category  
(As in April 2016)**

Sector	←----- Technical Services -----→											All
	General IT Management	IT/Software Development	Telecommunications & Networking	IT Security	Database	Systems Programming	Field Support	Operation Services	IT Education & Training	IT Sales & Marketing		
	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
Manufacturing (Branches 1-3)	58 (3.9)	1 067 (3.2)	138 (2.1)	17 (2.2)	0 (0.0)	190 (4.6)	617 (6.2)	871 (4.4)	0 (0.0)	50 (0.7)	3 008 (100.0)	(3.4)
Electricity, Gas and Water (Branch 4)	13 (0.9)	225 (0.7)	21 (0.3)	15 (2.0)	0 (0.0)	26 (0.6)	16 (0.2)	74 (0.4)	0 (0.0)	0 (0.0)	390 (100.0)	(0.4)
Construction (Branch 5)	20 (1.4)	135 (0.4)	48 (0.7)	2 (0.3)	10 (1.2)	21 (0.5)	64 (0.6)	173 (0.9)	0 (0.0)	0 (0.0)	473 (100.0)	(0.5)
WRIE, Catering and Hotels (Branches 6-8)	300 (20.3)	3 391 (10.1)	337 (5.2)	48 (6.2)	147 (17.8)	1 200 (29.3)	2 386 (23.8)	5 146 (26.2)	44 (1.2)	3 496 (48.7)	16 495 (100.0)	(18.8)
Transport and Storage Services (Branches 9-12)	58 (3.9)	1 036 (3.1)	43 (0.7)	8 (1.0)	4 (0.5)	152 (3.7)	17 (0.2)	669 (3.4)	3 (0.1)	0 (0.0)	1 990 (100.0)	(2.3)
Communications Services (Branches 13-14)	15 (1.0)	1 178 (3.5)	1 222 (19.0)	12 (1.6)	36 (4.4)	51 (1.2)	1 166 (11.7)	740 (3.8)	0 (0.0)	803 (11.2)	5 223 (100.0)	(5.9)
Financing, Insurance, Real Estate and Business Services (Branches 15-17)	285 (19.3)	8 420 (25.0)	525 (8.2)	306 (39.8)	366 (44.4)	1 322 (32.2)	425 (4.2)	4 073 (20.7)	1 (0.0)	3 (0.0)	15 726 (100.0)	(17.9)
IT Products and Services Suppliers (Branch 18)	412 (27.9)	13 393 (39.8)	3 696 (57.5)	238 (30.9)	233 (28.3)	872 (21.3)	4 861 (48.6)	3 431 (17.4)	114 (3.1)	2 763 (38.5)	30 013 (100.0)	(34.2)
Medical and Health Care Services (Branch 19)	18 (1.2)	855 (2.5)	12 (0.2)	1 (0.1)	2 (0.2)	19 (0.5)	32 (0.3)	138 (0.7)	0 (0.0)	0 (0.0)	1 077 (100.0)	(1.2)
Community, Social and Personal Services (Branches 20-23)	188 (12.7)	1 713 (5.1)	223 (3.5)	105 (13.7)	22 (2.7)	198 (4.8)	377 (3.8)	3 645 (18.5)	3 565 (95.7)	4 (0.1)	10 040 (100.0)	(11.4)
Digital Creative (Branch 24)	11 (0.7)	487 (1.4)	6 (0.1)	0 (0.0)	0 (0.0)	3 (0.1)	3 (0.0)	50 (0.3)	0 (0.0)	58 (0.8)	618 (100.0)	(0.7)
Government Bureaux/ Departments (Branch 25)	99 (6.7)	1 722 (5.1)	155 (2.4)	17 (2.2)	4 (0.5)	47 (1.1)	42 (0.4)	655 (3.3)	0 (0.0)	0 (0.0)	2 741 (100.0)	(3.1)
All	1 477 (1.7)	33 622 (38.3)	6 426 (7.3)	769 (0.9)	824 (0.9)	4 101 (4.7)	10 006 (11.4)	19 665 (22.4)	3 727 (4.2)	7 177 (8.2)	87 794 (100.0)	

\* As a percentage of number of IT employees (including freelancers) by sector.

# As a percentage of number of IT employees (including freelancers) in the whole economy.

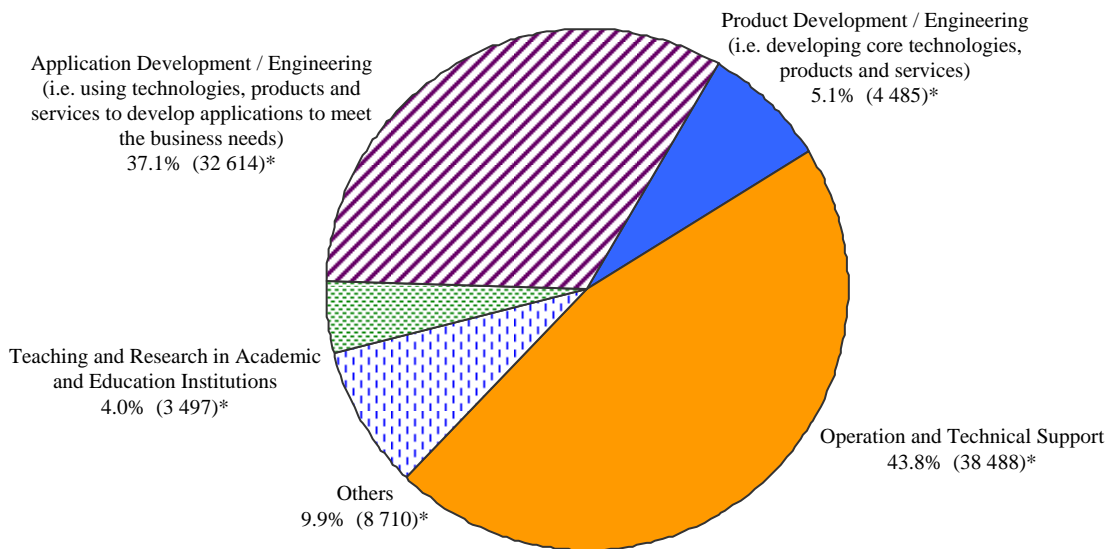
Note: Figures in brackets may not add up to 100% due to rounding.

**Distribution of IT Employees (including Freelancers) by Job Nature by Type of Organization**

2.7 Figure 3 and Table 2.5 show that majority (about 80.9%) of IT employees (including freelancers) have engaged in job nature related to application development / engineering (37.1%), and operation and technical support (43.8%). More detailed analyses of the findings by job nature by sector / branch are presented in Appendix 8.

**Figure 3 Distribution of IT Employees (including Freelancers) by Job Nature (As in April 2016)**

**Total 87 794 Persons**



\* Number of IT employees (including freelancers) in brackets.

Note: The distribution of IT employees (including freelancers) by job nature may not add up to 100% due to rounding.



**Table 2.5 Percentage Distribution of IT Employees (including Freelancers) by Job Nature by Type of Organization (As in April 2016)**

<u>Job Nature</u>	<u>IT &amp; Communications Services Organizations</u> <sup>(1)</sup> %	<u>IT Users Organizations</u> <sup>(2)</sup> %	<u>Overall</u> %
Teaching and Research in Academic and Education Institutions	-	8.1	4.0
Product Development / Engineering (i.e. developing core technologies, products and services)	6.6	3.6	5.1
Application Development / Engineering (i.e. using technologies, products and services to develop applications to meet the business needs)	41.3	32.8	37.1
Operation and Technical Support	35.9	52.0	43.8
Others (IT Sales and Marketing / IT Training and Management / IT Strategy Development and Planning)	16.1	3.5	9.9
<b>Total</b>	<hr/> 100.0 (44 672) <sup>#</sup>	<hr/> 100.0 (43 122) <sup>#</sup>	<hr/> 100.0 (87 794) <sup>#</sup>

# Number of IT employees (including freelancers) by type of organization.

Notes: (1) "IT & Communications Services Organizations" includes Branches 1, 6, 13, 14, 18 & 24.

(2) "IT Users Organizations" includes Branches 2-5, 7-12, 15-17, 19-23 & 25.

(3) Figures may not add up to 100% due to rounding.

## Distribution of IT Manpower Demand by Job Title

2.8 Table 2.6 shows that programmer recorded the highest percentage distribution of IT manpower demand (16.1%), followed by user support / co-ordinator (13.3%) and systems analyst (8.8%).

**Table 2.6 Percentage Distribution of IT Manpower Demand by Job Title  
(As in April 2016)**

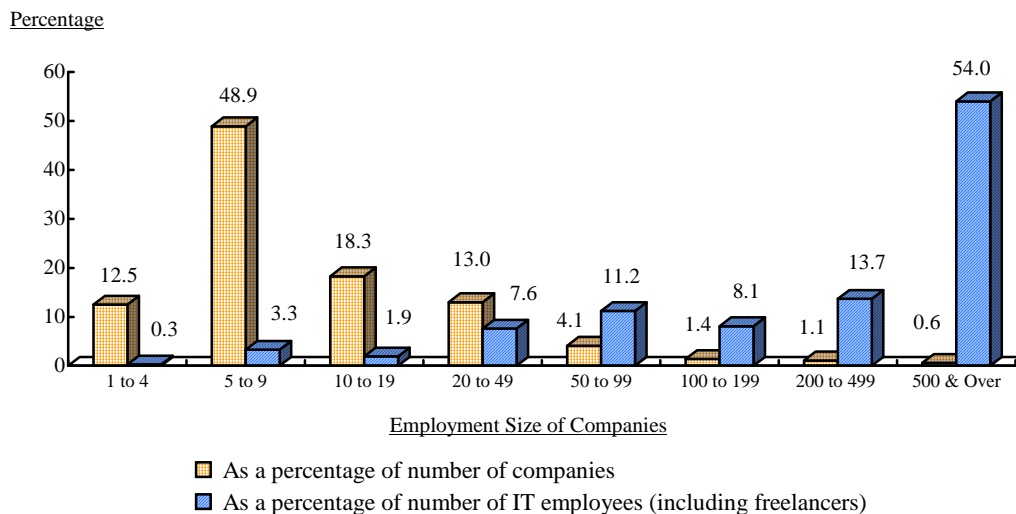
Job Title	IT Manpower Demand (including Freelancers)		
	Existing IT Employees %	IT Job Vacancies %	Total Demand %
IT Director	1.6	0.2	1.5
CTO	0.1	0.0	0.1
Systems Development Manager	1.9	0.4	1.8
IT Architect	1.6	1.1	1.6
Project Manager	4.5	2.7	4.5
Systems Analyst	8.7	10.8	8.8
Programmer	15.6	31.0	16.1
Web Designer/Developer	1.6	2.3	1.6
Quality Assurance Specialist	0.7	0.3	0.7
Research and Development Engineer	0.6	2.0	0.6
Software/Firmware Product Designer	1.6	2.9	1.7
Technical Writer	0.1	0.0	0.1
Computer Game Designer/Artist/Developer	1.4	1.2	1.4
Telecommunications Manager	0.6	0.4	0.6
Telecommunications Consultant	0.9	0.7	0.9
Telecommunications Engineer	2.9	1.7	2.9
Network Administrator	2.9	1.1	2.9
IT Security Specialist	0.9	0.7	0.9
Database Administrator	0.9	0.7	0.9
Systems Programmer (in-house/vendor environment)	4.7	2.4	4.6
Customer Engineering Manager	1.0	0.2	1.0
Customer Service Engineer	3.6	1.4	3.5
Field Technician	6.8	10.0	6.9
Computer Operations Manager	1.1	0.2	1.1
Help Desk Supervisor	0.5	0.2	0.5
Help Desk Representative	1.8	0.9	1.8
Computer Operations Supervisor	1.5	2.8	1.5
Computer Operator	4.2	2.5	4.2
User Support/Co-ordinator	13.3	14.1	13.3
Lecturer	2.5	0.1	2.4
IT Trainer	1.4	0.0	1.3
IT Researcher (in a tertiary educational institution)	0.4	0.0	0.4
Sales/Marketing Director	1.7	0.3	1.7
Sales/Marketing Representative	6.5	4.6	6.4
Total	100.0	100.0	100.0
Base	87 794	2 629	90 423

Note: Figures may not add up to the total due to rounding.

## Distribution of Companies and IT Employees by Employment Size of Company by Type of Organization

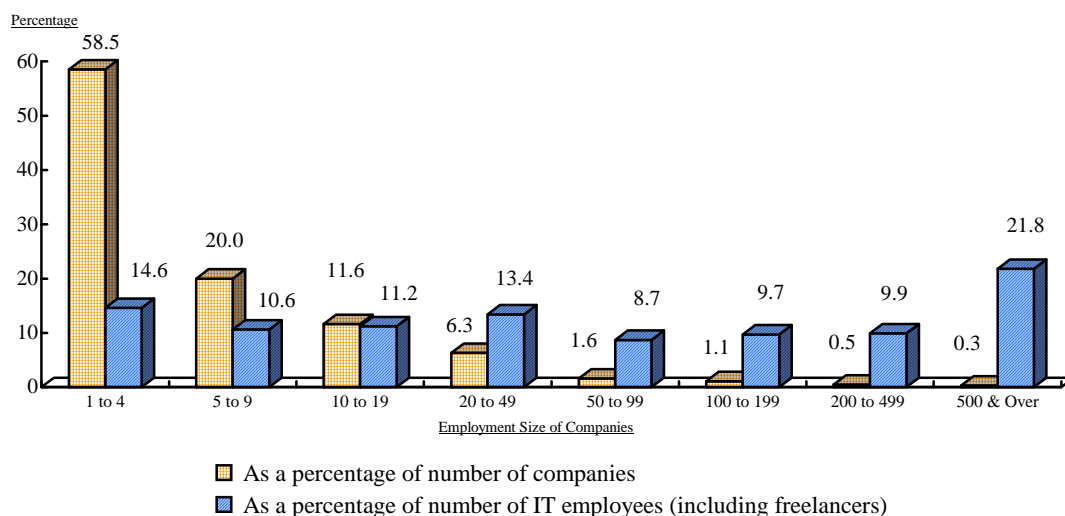
2.9 Companies that employed 50 or more employees engaged about 87.0% of the IT employees (including freelancers) in the IT users organizations as shown in Figure 4; nevertheless roughly 9 out of 10 companies (96.4%) in the IT and communications services organizations are small, employing fewer than 50 employees, engaged about 49.8% of the IT employees (including freelancers) as shown in Figure 5.

**Figure 4 Percentage Distribution of Companies and IT Employees (including Freelancers) in the IT Users Organizations <sup>(1)</sup> by Employment Size of Company (As in April 2016)**



Note: (1) "IT Users Organizations" includes Branches 2-5, 7-12, 15-17, 19-23 & 25.

**Figure 5 Percentage Distribution of Companies and IT Employees (including Freelancers) in the IT & Communications Services Organizations <sup>(2)</sup> by Employment Size of Company (As in April 2016)**



Note: (2) "IT & Communications Services Organizations" includes Branches 1, 6, 13, 14, 18 & 24.

## Gender Distribution

2.10 At the time of the survey, employers reported that 66 669 male IT employees and 12 564 female ones were engaged in the IT sector, and the rest of IT employees with unspecified gender. The number of male and female IT employees (including freelancers) by employment size of company by type of organization is summed up in Table 2.7. More detailed analyses of the findings by employment size of company by sector are presented in Appendix 9.

**Table 2.7 Number of Male and Female IT Employees (including Freelancers) by Employment Size of Company by Type of Organization (As in April 2016)**

Employment Size	IT & Communications Services Organizations <sup>(1)</sup>				IT Users Organizations <sup>(2)</sup>				Overall					
	M	F	U	Sub-total (%) <sup>*</sup>	M	F	U	Sub-total (%) <sup>*</sup>	M	F	U	Total (%) <sup>*</sup>		
1 - 4	5 389	1 127	-	6 516 (14.6)	116	2	-	118 (0.3)	5 505	1 129	-	6 634 (7.6)		
5 - 9	3 867	788	89	4 744 (10.6)	382	3	1 022	1 407 (3.3)	4 249	791	1 111	6 151 (7.0)		
10 - 19	4 126	683	192	5 001 (11.2)	817	-	-	817 (1.9)	4 943	683	192	5 818 (6.6)		
20 - 49	3 969	808	1 230	6 007 (13.4)	1 882	193	1 191	3 266 (7.6)	5 851	1 001	2 421	9 273 (10.6)		
50 - 99	2 968	620	303	3 891 (8.7)	3 414	702	725	4 841 (11.2)	6 382	1 322	1 028	8 732 (9.9)		
100 - 199	3 045	588	715	4 348 (9.7)	2 342	343	809	3 494 (8.1)	5 387	931	1 524	7 842 (8.9)		
200 - 499	3 544	626	243	4 413 (9.9)	5 391	382	136	5 909 (13.7)	8 935	1 008	379	10 322 (11.8)		
500 & Over	7 829	1 887	36	9 752 (21.8)	17 588	3 812	1 870	23 270 (54.0)	25 417	5 699	1 906	33 022 (37.6)		
Total	34 737	7 127	2 808	44 672 (100.0)	(50.9) <sup>#</sup>	31 932	5 437	5 753	43 122 (100.0)	(49.1) <sup>#</sup>	66 669	12 564	8 561	87 794 (100.0) <sup>#</sup>

M Number of male IT employees (including freelancers).

F Number of female IT employees (including freelancers).

U Unspecified.

\* As a percentage of number of IT employees (including freelancers) by type of organization.

# As a percentage of number of IT employees (including freelancers) in the whole economy.

Notes: (1) "IT & Communications Services Organizations" includes Branches 1, 6, 13, 14, 18 & 24.

(2) "IT Users Organizations" includes Branches 2-5, 7-12, 15-17, 19-23 & 25.

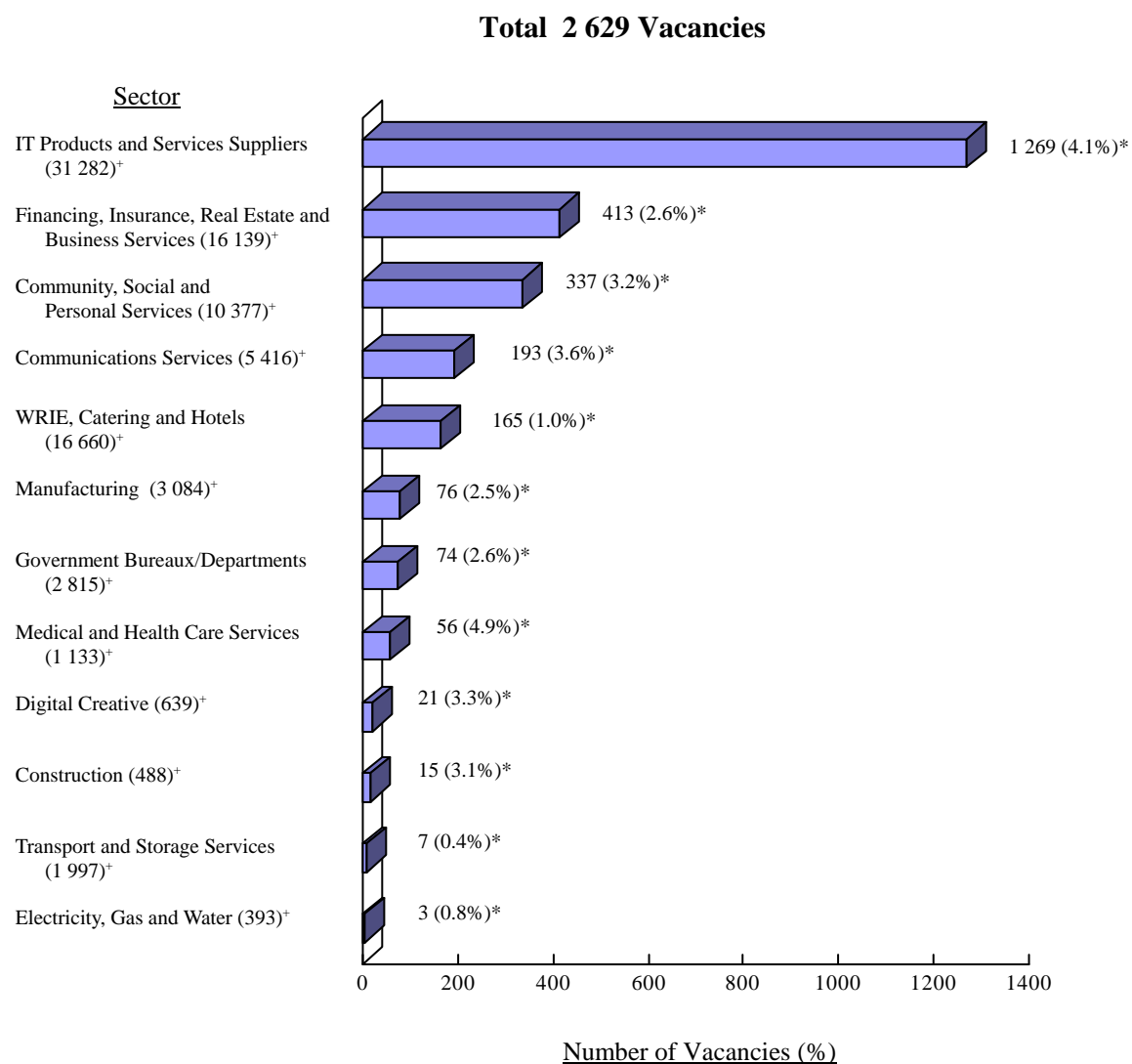
2.11 The Committee observes that, in the present survey, the number of male and female IT employees (including freelancers) was in a ratio of 5 to 1 (same ratio as in the 2014 survey). As compared with the employment figures (excluding foreign domestic helpers) of 1.93 million male employees and 1.88 million female employees in Hong Kong (Source: Quarterly Report on General Household Survey, April to June 2016, Census and Statistics Department), employers in the IT sector recruit a higher ratio of male employees to female ones to fill their existing IT posts as a result of the fact that there might be a higher ratio of male to female IT graduates at the moment.

## Existing Vacancies

### Number of Job Vacancies

2.12 At the time of the survey, employers reported 2 629 vacancies, or 2.9% of the existing 90 423 IT posts. As regards the percentage distribution of vacancies by job title shown in Table 2.6, programmer recorded the highest percentage of vacancies (31.0%), followed by user support / co-ordinator (14.1%) and system analyst (10.8%). Referring to the number of IT vacancies by sector shown in Figure 6, the IT products and services suppliers recorded the highest number of 1 269 vacancies, followed by the financing, insurance, real estate and business services sector with 413 vacancies, and the community, social and personal services sector with 337 vacancies. The number of existing IT vacancies by sector by job category is shown in Table 2.8. More detailed analyses of the findings by sector / branch by job category are presented in Appendix 10.

**Figure 6 Number of IT Vacancies by Sector  
(As in April 2016)**



\* As a percentage of number of IT posts by sector.

+ Total number of IT posts by sector.

**Table 2.8 Number of Existing IT Vacancies by Sector by Job Category  
(As in April 2016)**

Sector	←----- Technical Services -----→							Operation Services	IT Education & Training	IT Sales & Marketing	All (%)#
	General IT Management	IT/Software Development	Telecommunications & Networking	IT Security	Database	Systems Programming	Field Support				
	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
Manufacturing (Branches 1-3) (3 084) <sup>+</sup>	- (-)	37 (3.4)	- (-)	- (-)	- (-)	14 (6.9)	13 (2.1)	1 (0.1)	- (-)	11 (18.0)	76 (2.5)
Electricity, Gas and Water (Branch 4) (393) <sup>+</sup>	- (-)	3 (1.3)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	3 (0.8)
Construction (Branch 5) (488) <sup>+</sup>	- (-)	3 (2.2)	- (-)	- (-)	- (-)	- (-)	1 (1.5)	11 (6.0)	- (-)	- (-)	15 (3.1)
WRIE, Catering and Hotels (Branches 6-8) (16 660) <sup>+</sup>	2 (0.7)	98 (2.8)	- (-)	- (-)	- (-)	- (-)	22 (0.9)	36 (0.7)	- (-)	7 (0.2)	165 (1.0)
Transport and Storage Services (Branches 9-12) (1 997) <sup>+</sup>	- (-)	3 (0.3)	- (-)	- (-)	- (-)	2 (1.3)	- (-)	2 (0.3)	- (-)	- (-)	7 (0.4)
Communications Services (Branches 13-14) (5 416) <sup>+</sup>	- (-)	62 (5)	40 (3.2)	- (-)	2 (5.3)	- (-)	71 (5.7)	3 (0.4)	- (-)	15 (1.8)	193 (3.6)
Financing, Insurance, Real Estate and Business Services (Branches 15-17) (16 139) <sup>+</sup>	- (-)	186 (2.2)	21 (3.8)	7 (2.2)	7 (1.9)	30 (2.2)	1 (0.2)	161 (3.8)	- (-)	- (-)	413 (2.6)
IT Products and Services Suppliers (Branch 18) (31 282) <sup>+</sup>	1 (0.2)	881 (6.2)	36 (1.0)	7 (2.9)	9 (3.7)	12 (1.4)	188 (3.7)	40 (1.2)	1 (0.9)	94 (3.3)	1 269 (4.1)
Medical and Health Care Services (Branch 19) (1 133) <sup>+</sup>	- (-)	37 (4.1)	4 (2.5)	- (-)	- (-)	2 (9.5)	- (-)	13 (8.6)	- (-)	- (-)	56 (4.9)
Community, Social and Personal Services (Branches 20-23) (10 377) <sup>+</sup>	- (-)	50 (2.8)	3 (1.3)	4 (3.7)	- (-)	3 (1.5)	7 (1.8)	267 (6.8)	3 (0.1)	- (-)	337 (3.3)
Digital Creative (Branch 24) (639) <sup>+</sup>	- (-)	18 (3.6)	- (-)	- (-)	- (-)	- (-)	- (-)	1 (2.0)	- (-)	2 (3.3)	21 (3.3)
Government Bureaux/Departments (Branch 25) (2 815) <sup>+</sup>	1 (1)	62 (3.5)	2 (1.3)	- (-)	- (-)	- (-)	- (-)	9 (1.4)	- (-)	- (-)	74 (2.6)
<b>Total (90 423)<sup>+</sup></b>	<b>4 (0.3)</b>	<b>1 440 (4.1)</b>	<b>106 (1.6)</b>	<b>18 (2.3)</b>	<b>18 (2.1)</b>	<b>63 (1.5)</b>	<b>303 (2.9)</b>	<b>544 (2.7)</b>	<b>4 (0.1)</b>	<b>129 (1.8)</b>	<b>2 629 (2.9)</b>

\* As a percentage of number of IT posts by sector by job category.

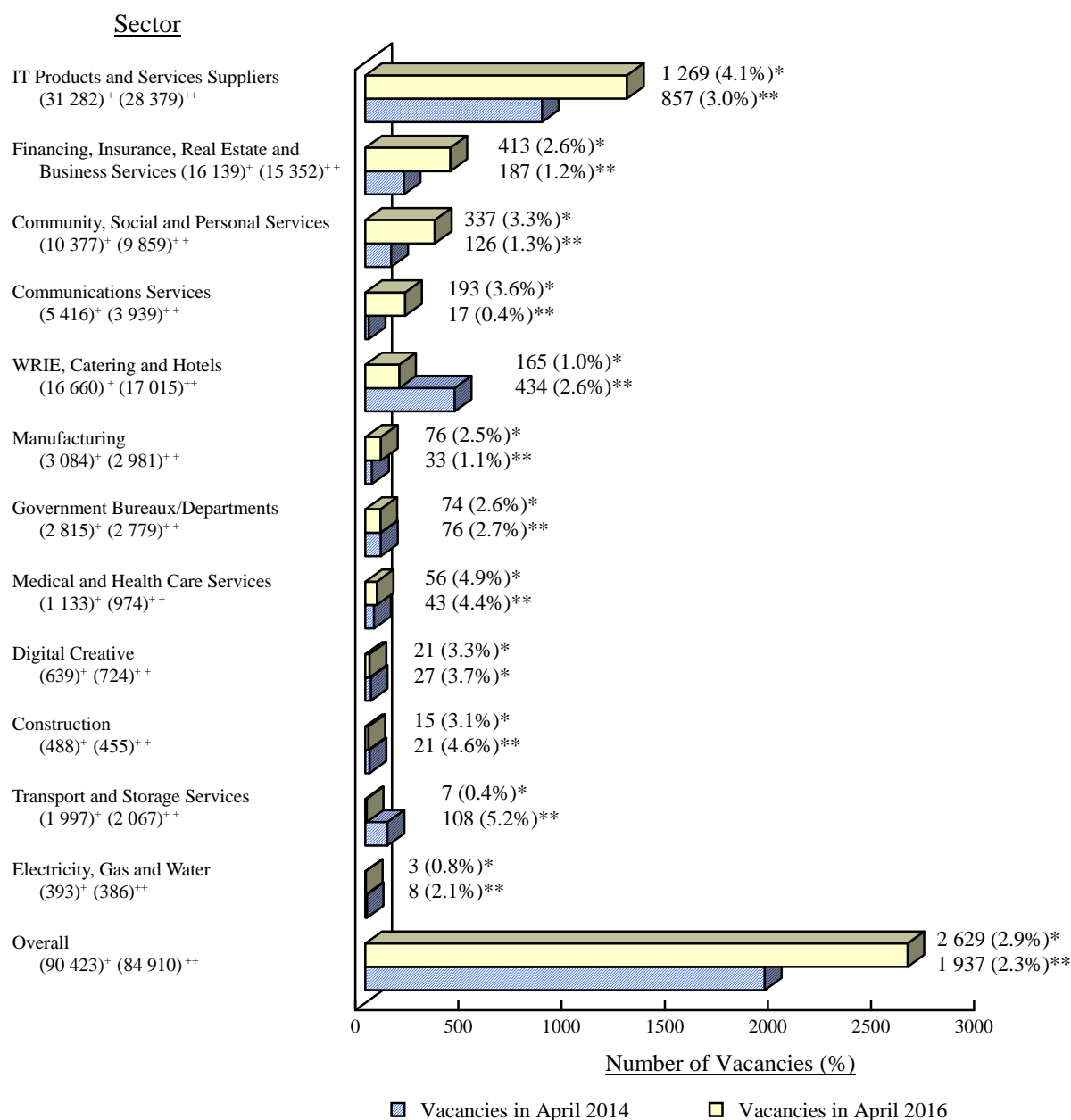
# As a percentage of number of IT posts by sector.

+ Total number of IT posts by sector.

## Vacancy Rates

2.13 While companies remain cautious about the overall economy, all industry sectors still view Hong Kong as a key component of their growth strategy and have continued to fill the existing IT vacancies to enhance their competitiveness. As compared with the 2014 survey findings, the vacancy rate has increased slightly from 2.3% (1 937) to 2.9% (2 629) of the respective total numbers of IT posts in 2014 and 2016 (the total number of posts being the sum of total employees and total vacancies). The greatest vacancy rate (4.9%) was in the medical and health care services sector. A comparison of the IT vacancies by sector over the two-year period is shown in Figure 7. The distribution of IT job vacancies by type of organization from May 2008 to April 2016 is shown in Figure 8.

**Figure 7 Comparison of the IT Vacancies by Sector Between 2014 and 2016**



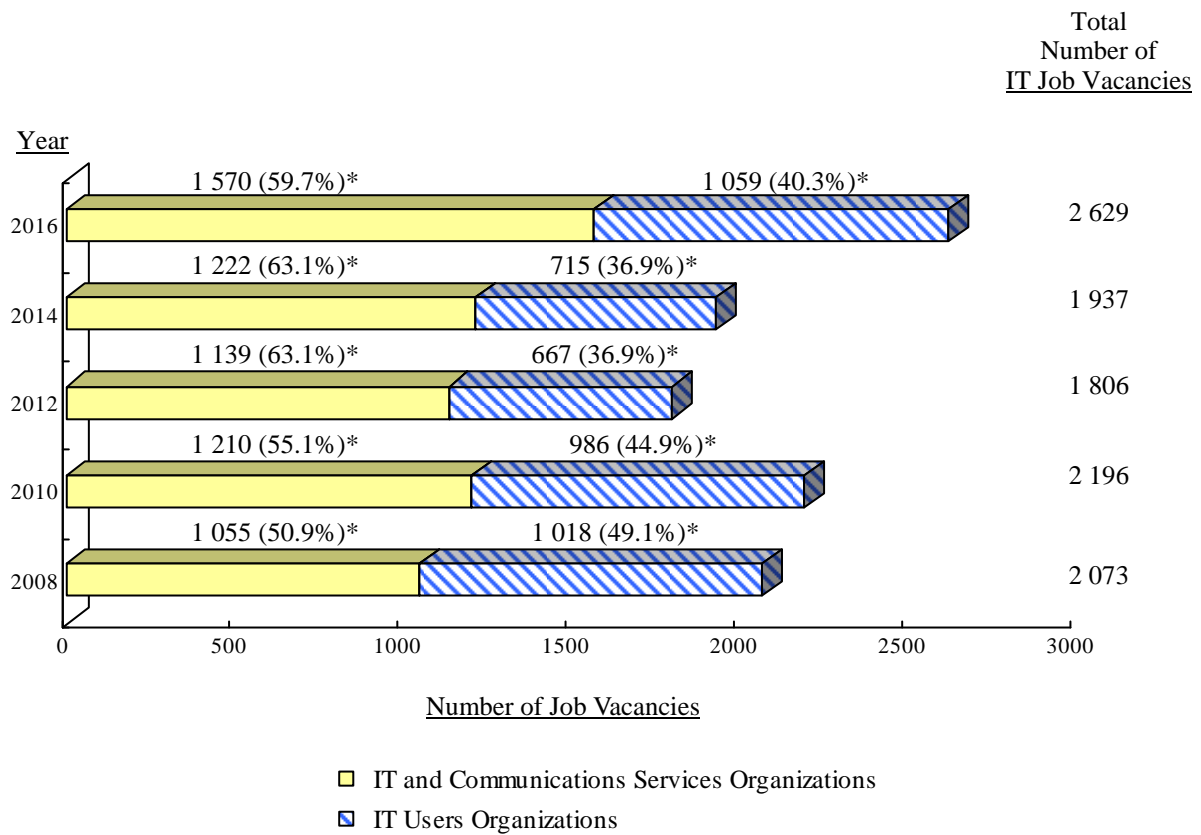
\* As a percentage of number of IT posts in 2016 by sector.

\*\* As a percentage of number of IT posts in 2014 by sector.

+ Total number of IT posts in 2016 by sector.

++ Total number of IT posts in 2014 by sector.

**Figure 8 Distribution of IT Job Vacancies by Type of Organization  
(May 2008 – April 2016)**



\* As a percentage of total number of IT job vacancies in the respective survey.

## Staff Turnover

### IT Employees Leaving in the Past 12 Months

2.14 Employers reported that 7 074 IT employees (including freelancers) (or 7.8% of total IT posts) had left their companies in the 12 months preceding the survey (2014 survey: 5 817 IT employees or 6.9% of total IT posts). Of these IT employees, 41.4% changed employment within the IT field, 3.2% took up employment in other fields, and 2.3% emigrated or left for other reasons (such as retirement or further studies). The remaining left with whereabouts unknown. By sector, IT products and services suppliers were the hardest hit with the largest number of IT employees (2 579) leaving in the past 12 months. Employers also revealed that 230 IT employees (or 0.3% of total IT posts) had left the companies due to retrenchment. The analyses of the findings by sector by whereabouts are summarized in Table 2.9. Details of the findings by employment size of company by sector are shown in Appendix 11.



**Table 2.9 Number of IT Employees (including Freelancers) Leaving in the Past 12 Months by Sector by Whereabouts (As in April 2016)**

Sector	Employees' Whereabouts After Leaving the Company					Employer's Decision	
	Taking Up an IT Position (including Starting Own IT Business)	Taking Up a Non-IT Position (including Starting Own Non-IT Business)	Emigration, Retirement or Further Studies	Not Known	Total	Retrenchment	
	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
Manufacturing (3 084) <sup>+</sup>	47 ( 1.5)	1 (-)	- (-)	107 ( 3.5)	155 ( 5.0)	24 ( 0.8)	
Electricity, Gas and Water (393) <sup>+</sup>	2 ( 0.5)	- (-)	- (-)	4 ( 1.0)	6 ( 1.5)	- (-)	
Construction (488) <sup>+</sup>	57 ( 11.7)	1 ( 0.2)	- (-)	2 ( 0.4)	60 ( 12.3)	- (-)	
WRIE, Catering and Hotels (16 660) <sup>+</sup>	449 ( 2.7)	57 ( 0.3)	26 ( 0.2)	606 ( 3.6)	1 138 ( 6.8)	43 ( 0.3)	
Transport and Storage Services (1 997) <sup>+</sup>	79 ( 4.0)	2 ( 0.1)	2 ( 0.1)	17 ( 0.9)	100 ( 5.0)	1 ( 0.1)	
Communications Services (5 416) <sup>+</sup>	39 ( 0.7)	- (-)	- (-)	455 ( 8.4)	494 ( 9.1)	- (-)	
Financing, Insurance, Real Estate and Business Services (16 139) <sup>+</sup>	982 ( 6.1)	12 ( 0.1)	7 (-)	213 ( 1.3)	1 214 ( 7.5)	26 ( 0.2)	
IT Products and Services Suppliers (31 282) <sup>+</sup>	1 023 ( 3.3)	95 ( 0.3)	13 (-)	1 448 ( 4.6)	2 579 ( 8.2)	74 ( 0.2)	
Medical and Health Care Services (1 133) <sup>+</sup>	27 ( 2.4)	1 ( 0.1)	1 ( 0.1)	28 ( 2.5)	57 ( 5.0)	- (-)	
Community, Social and Personal Services (10 377) <sup>+</sup>	157 ( 1.5)	51 ( 0.5)	96 ( 0.9)	731 ( 7.0)	1 035 ( 10.0)	8 ( 0.1)	
Digital Creative (639) <sup>+</sup>	10 ( 1.6)	1 ( 0.2)	- (-)	60 ( 9.4)	71 ( 11.1)	54 ( 8.5)	
Government Bureaux/Departments (2 815) <sup>+</sup>	57 ( 2.0)	7 ( 0.2)	16 ( 0.6)	85 ( 3.0)	165 ( 5.9)	- (-)	
Total (90 423) <sup>+</sup>	2 929 ( 3.2)	228 ( 0.3)	161 ( 0.2)	3 756 ( 4.2)	7 074 ( 7.8)	230 ( 0.3)	(3.3) <sup>#</sup>

\* As a percentage of number of IT posts by sector.

+ Total number of IT posts by sector.

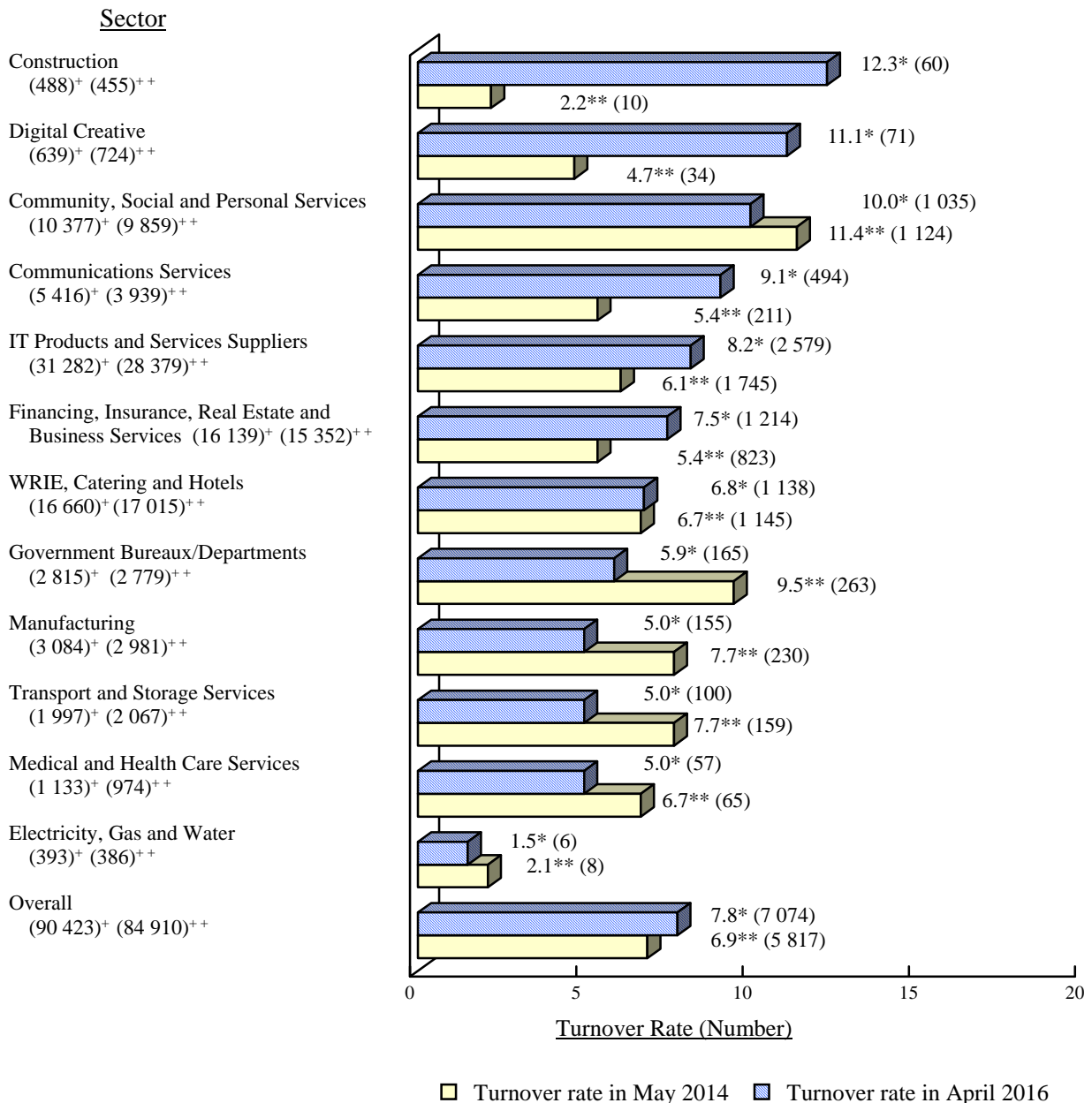
# As a percentage of number of IT employees (including freelancers) leaving in the past 12 months.

Note: Figures may not add up to the total due to rounding.

## Staff Turnover Rates

2.15 The Committee observes that the turnover rate as a percentage of number of IT posts in the industry sectors has increased from 6.9% (5 817) in April 2014 to 7.8% (7 074) in April 2016. The Committee considers that this might attribute to the slight recovery of the IT industry. A comparison of the turnover rates by sector over the two-year period is shown in Figure 9.

**Figure 9 Comparison of the Turnover Rates by Sector Between 2014 and 2016**



\* As a percentage of number of IT posts in 2016 by sector.

\*\* As a percentage of number of IT posts in 2014 by sector.

+ Total number of IT posts in 2016 by sector.

++ Total number of IT posts in 2014 by sector.

2.16 The Committee observes that the Construction sector recorded the highest turnover rate (12.3%), followed by the Digital Creative (11.1%) and the Community, Social and Personal Services sector (10.0%). The Committee also observes that IT employees continue to be cautious in changing jobs because they are concerned that global economic uncertainty will affect Asia Pacific as a growth market. In general, they only moved for a perceived more stable environment, job satisfaction and a higher salary.

### **Internal Promotion in the Past 12 Months**

2.17 The survey reveals that 1 401 IT employees (or 1.6% of total IT employees) had been promoted from within the company. Of those promoted, 490 (3.0%) were engaged in WRIE, catering and hotels sector, and 437 (2.8) in the financing, insurance, real estate and business services sector. Summary of the internal promotion pattern by sector are given in Table 2.10.

2.18 The survey also reveals that the number of internal promotion in respect of new or existing posts has increased from 1 171 in 2014 to 1 401 in 2016. The Committee observes that employers in the IT sector were willing to give reasonable promotion opportunities to their IT employees in order to retain their own talent. The Committee encourages the practice of internal promotion and suggests that employers should provide more training to their IT employees to prepare them for career progression and lifelong learning.

### **Sources of Recruitment of IT Employees in the Past 12 Months**

2.19 The survey reveals that 8 199 IT employees (or 9.3% of total IT employees) were recruited in 2015/16, including 6 314 (7.2%) experienced persons and 1 152 (1.3%) fresh graduates from Hong Kong, and 429 (0.5%) experienced persons and 304 (0.3%) fresh graduates outside Hong Kong (2014 survey: 5 802 IT employees or 7.0% of total IT employees). A summary of the IT recruitment pattern by sector is shown in Table 2.10.

2.20 The Committee observes that, in the present survey, the recruitment of non-locally trained and locally trained fresh graduates was in a ratio of 1 to 4 (as compared with a ratio of 1 to 8 in the 2014 survey) and the recruitment of non-locally and locally experienced persons was in a ratio of 1 to 15 (as compared with a ratio of 1 to 23 in the 2014 survey). It appears that employers in the industry tended to recruit an appropriate ratio of local fresh graduates and experienced persons to non-local ones to fill vacancies over the two-year period to meet the tight labour market.

2.21 Although the IT market has improved, recruitment activity has yet to return to pre-global financial crisis levels. Employers took a more cautious stance with regards to recruitment, and raised the bar on the quality of candidates they were looking for.

**Table 2.10 Internal Promotion and Recruitment Pattern of IT Employees in the Past 12 Months by Sector  
(As in April 2016)**

<u>Sector</u>	<u>Promotion</u>		<u>Sources of Recruitment</u>									
	<u>Internal Promotion</u> (%)*		<u>Fresh Graduate of a Hong Kong Institution</u> (%)*		<u>Fresh Graduate of a Non-HK Institution</u> (%)*		<u>Experienced Person Recruited from Hong Kong</u> (%)*		<u>Experienced Person Recruited Outside Hong Kong</u> (%)*		<u>Total Recruitment</u> (%)*	
Manufacturing (3 008) <sup>#</sup>	-	(-)	114	(3.8)	-	(-)	78	(2.6)	-	(-)	192	(6.4)
Electricity, Gas and Water (390) <sup>#</sup>	-	(-)	-	(-)	-	(-)	6	(1.5)	-	(-)	6	(1.5)
Construction (473) <sup>#</sup>	2	(0.4)	1	(0.2)	-	(-)	48	(10.1)	-	(-)	49	(10.4)
WRIE, Catering and Hotels (16 495) <sup>#</sup>	490	(3.0)	174	(1.1)	21	(0.1)	725	(4.4)	240	(1.5)	1 160	(7.0)
Transport and Storage Services (1 990) <sup>#</sup>	25	(1.3)	15	(0.8)	-	(-)	86	(4.3)	-	(-)	101	(5.1)
Communications Services (5 223) <sup>#</sup>	10	(0.2)	67	(1.3)	-	(-)	971	(18.6)	-	(-)	1 038	(19.9)
Financing, Insurance, Real Estate and Business Services (15 726) <sup>#</sup>	437	(2.8)	70	(0.4)	48	(0.3)	1 517	(9.6)	40	(0.3)	1 675	(10.7)
IT Products and Services Suppliers (30 013) <sup>#</sup>	252	(0.8)	452	(1.5)	65	(0.2)	1 748	(5.8)	48	(0.2)	2 313	(7.7)
Medical and Health Care Services (1 077) <sup>#</sup>	43	(4.0)	5	(0.5)	-	(-)	101	(9.4)	-	(-)	106	(9.8)
Community, Social and Personal Services (10 040) <sup>#</sup>	102	(1.0)	248	(2.5)	168	(1.7)	738	(7.4)	101	(1.0)	1 255	(12.5)
Digital Creative (618) <sup>#</sup>	1	(0.2)	4	(0.6)	-	(-)	13	(2.1)	-	(-)	17	(2.8)
Government Bureaux/Departments (2 741) <sup>#</sup>	39	(1.4)	2	(0.1)	2	(0.1)	283	(10.3)	-	(-)	287	(10.5)
<b>Total (87 794)<sup>#</sup></b>	<b>1 401</b>	<b>(1.6)</b>	<b>1 152</b>	<b>(1.3)</b>	<b>304</b>	<b>(0.3)</b>	<b>6 314</b>	<b>(7.2)</b>	<b>429</b>	<b>(0.5)</b>	<b>8 199</b>	<b>(9.3)</b>

\* As a percentage of number of IT employees (including freelancers) by sector.

# Total number of IT employees (including freelancers) by sector.

Note: Figures may not add up to the total due to rounding.

## Major Difficulties Encountered in Recruitment of IT Employees in the Past 12 Months

2.22 In the survey, employers who had recruited or tried to recruit IT employees in the past 12 months were asked to give the major difficulties encountered in recruitment. Table 2.11 shows that 1.6% (1 369) of the existing 84 366 companies covered by the survey had encountered difficulties in recruitment of IT employees.

**Table 2.11 Number of Companies Whether Having Recruited/Tried to Recruit IT Employees and Encountered Difficulties in the Past 12 Months by Sector (As in April 2016)**

<u>Sector</u>	<u>No. of Companies Whether Having Recruited/Tried to Recruit IT Employees in the Past 12 Months</u>						
	<u>Yes</u>				<u>No</u>	<u>Unspecified</u>	<u>Total</u>
	<u>No. of Companies Whether Having Encountered Difficulties</u>						
	<u>Yes</u>		<u>No</u>	<u>Sub-total</u>			
	(%)*						
Manufacturing	32	(1.3)	68	100	2 426	21	2 547
Electricity, Gas and Water	1	(14.3)	-	1	4	2	7
Construction	25	(0.5)	3	28	5 368	1	5 397
WRIE, Catering and Hotels	72	(0.2)	358	483	40 974	136	41 593
Transport and Storage Services	22	(0.4)	11	33	5 869	-	5 902
Communications Services	11	(3.3)	22	33	293	9	335
Financing, Insurance, Real Estate and Business Services	185	(1.8)	124	309	9 779	371	10 459
IT Products and Services Suppliers	648	(13.5)	295	943	3 815	51	4 809
Medical and Health Care Services	7	(0.3)	3	10	2 172	1	2 183
Community, Social and Personal Services	340	(3.1)	499	839	9 962	183	10 984
Digital Creative	11	(15.5)	6	17	53	1	71
Government Bureaux/ Departments	15	(19.0)	25	41	34	4	79
Whole Economy	1 369	(1.6)	1 414	2 837	80 749	780	84 366

\* As a percentage of number of companies by sector.

2.23 The Committee observes that keen competition in the IT job market has created recruitment difficulties in the past 12 months, even fresh IT graduates are rapidly recruited by the large corporations. A comparison of the percentage of companies having encountered difficulties in recruitment of IT employees covered in the 2014 and 2016 surveys is given in Table 2.12.

**Table 2.12 Comparison of the Percentage of Companies having Encountered Difficulties in Recruitment of IT Employees Between 2014 and 2016**

<u>Major Difficulties Encountered in Recruitment of IT Employees</u> (Respondents may choose up to three options)	<u>Whole Economy</u>	
	<u>2014</u> %	<u>2016</u> %
Candidates lacked the relevant experience	19.0	33.8
Few candidates applied for the existing vacancies	40.0	23.8
Candidates lacked the relevant skills / expertise	22.6	19.8
Candidates found the remuneration package not attractive	23.4	16.5
Candidates were unwilling to work on shift for long hours	2.3	3.4
Candidates lacked the relevant academic qualification and credential	7.4	3.1
Candidates' character / attitude was undesirable	14.4	2.4
Candidates' language skills (including Putonghua) were not up to expectation	3.7	0.8
Candidates lacked the relevant management / supervisory skills	3.5	0.3
Candidates found the location of the office not attractive	2.4	0.3

2.24 The survey reveals that 33.8% of employers had difficulties in attracting experienced candidates to apply for the existing vacancies and 23.8% had difficulties in attracting candidates to apply for the existing vacancies during their recruitment exercises in 2015/16 (2014 survey: 19.0% and 40.0%). More detailed analyses of the findings by employment size of company and by sector are shown in Appendices 12 and 13.

## Overall Labour Market Situation in the IT Sector

### IT Manpower, Vacancy and Forecast Growth

2.25 It was found that in April 2016, 87 794 IT employees (including freelancers) (or 3.5% of about 2.5 million <sup>(1)</sup> employees covered by the survey) were engaged in the IT sector (Table 2.3). Employers in general anticipate their IT manpower situation in April 2017 to be similar to that in 2016, while a small number of companies anticipate contraction in their manpower needs. The IT post will increase slightly (0.1%) with the forecast number of IT posts to reach 90 544 in 2017. The findings on IT manpower, vacancy and forecast growth by job category are summarised in Table 2.13. The percentage share of IT employees in the labour force between March 2004 and April 2016 is shown in Figure 10.

**Table 2.13 IT Manpower, Vacancy and Forecast Growth by Job Category  
(As in April 2016)**

<u>Job Category</u>	<u>No. of IT Employees (including Freelancers) in April 2016</u>	<u>No. of Vacancies in April 2016</u>		<u>Employers' Forecast Manpower Growth by April 2017</u>		<u>Forecast No. of IT Posts by April 2017</u>
			(%)*		(%)*	
General IT Management (1 481) <sup>+</sup>	1 477	4	(0.3)	-	(-)	1 481
IT/Software Development (35 062) <sup>+</sup>	33 622	1 440	(4.1)	65	(0.2)	35 127
Telecommunications & Networking (6 532) <sup>+</sup>	6 426	106	(1.6)	- 6	(-0.1)	6 526
IT Security (787) <sup>+</sup>	769	18	(2.3)	-	(-)	787
Database (842) <sup>+</sup>	824	18	(2.1)	-	(-)	842
Systems Programming (4 164) <sup>+</sup>	4 101	63	(1.5)	40	(1.0)	4 204
Field Support (10 309) <sup>+</sup>	10 006	303	(2.9)	45	(0.4)	10 354
Operation Services (20 209) <sup>+</sup>	19 665	544	(2.7)	2	(-)	20 211
IT Education & Training (3 731) <sup>+</sup>	3 727	4	(0.1)	- 10	(-0.3)	3 721
IT Sales & Marketing (7 306) <sup>+</sup>	7 177	129	(1.8)	- 15	(-0.2)	7 291
<b>Total (90 423)<sup>+</sup></b>	<b>87 794</b>	<b>2 629</b>	<b>(2.9)</b>	<b>121</b>	<b>(0.1)</b>	<b>90 544</b>

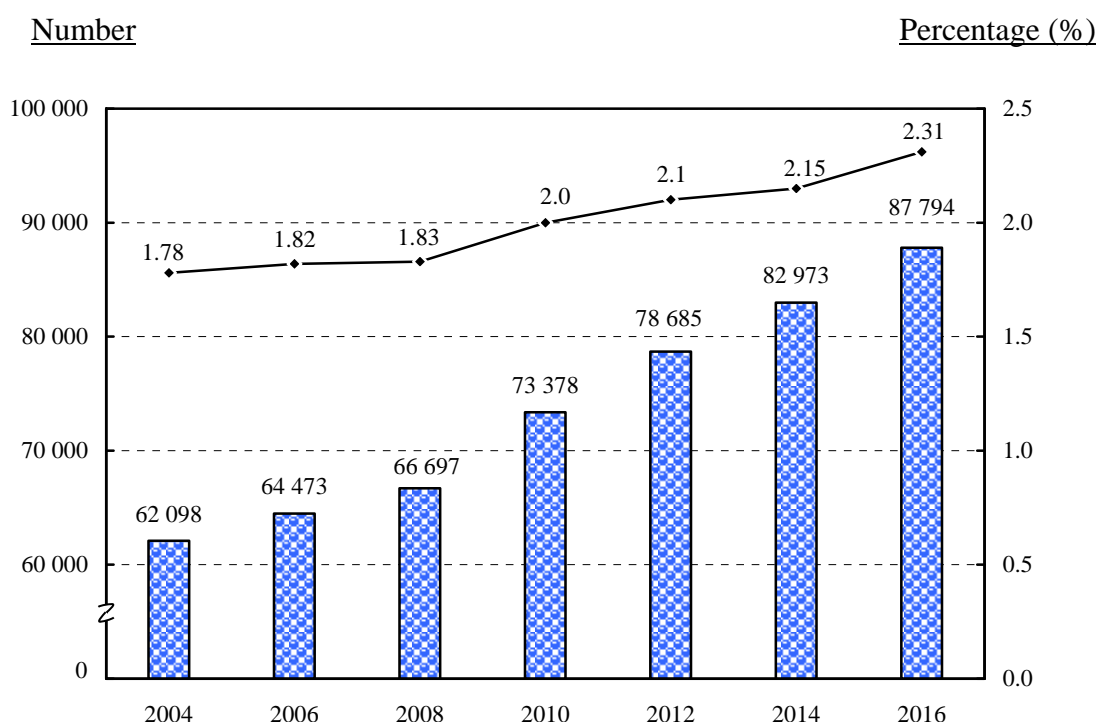
+ Total number of IT posts by job category.

\* As a percentage of number of IT posts in the same job category in April 2016.

Notes: (1) The total number of employees in the HKSAR in the second quarter of 2016 was around 3.81 million.

(2) The companies may not have the projection plan of the IT manpower for the next 12 months at the time of the survey.

**Figure 10 Percentage Share of IT Employees (including Freelancers) in the Labour Force (March 2004 – April 2016)**



	March 2004	April 2006	May 2008	May 2010	May 2012	April 2014	April 2016
Labour Force # ('000)	3 495.6	3 550.2	3 654.3	3 664.0	3 796.9	3 861.5	3 807.1
No. of IT Employees <sup>(1)</sup>	62 098 (-1.6)*	64 473 (3.8)*	66 697 (3.4)*	73 378 (10.0)*	78 685 (7.2)*	82 973 (5.4)*	87 794 (5.8)*
- IT and Communications Services Organizations	26 238	27 438	32 549	34 764	39 466	40 954	44 672
- IT Users Organizations	35 860	37 035	34 148	38 614	39 219	42 019	43 122
% Share of IT Employees in the Labour Force	1.78	1.82	1.83	2.00	2.10	2.15	2.31

 IT Employees
  Percentage share of IT employees in the labour force

# Source: Census and Statistics Department.

\* Figures in brackets are percentage changes over the previous survey.

Note: (1) Number of IT employees including freelancers.

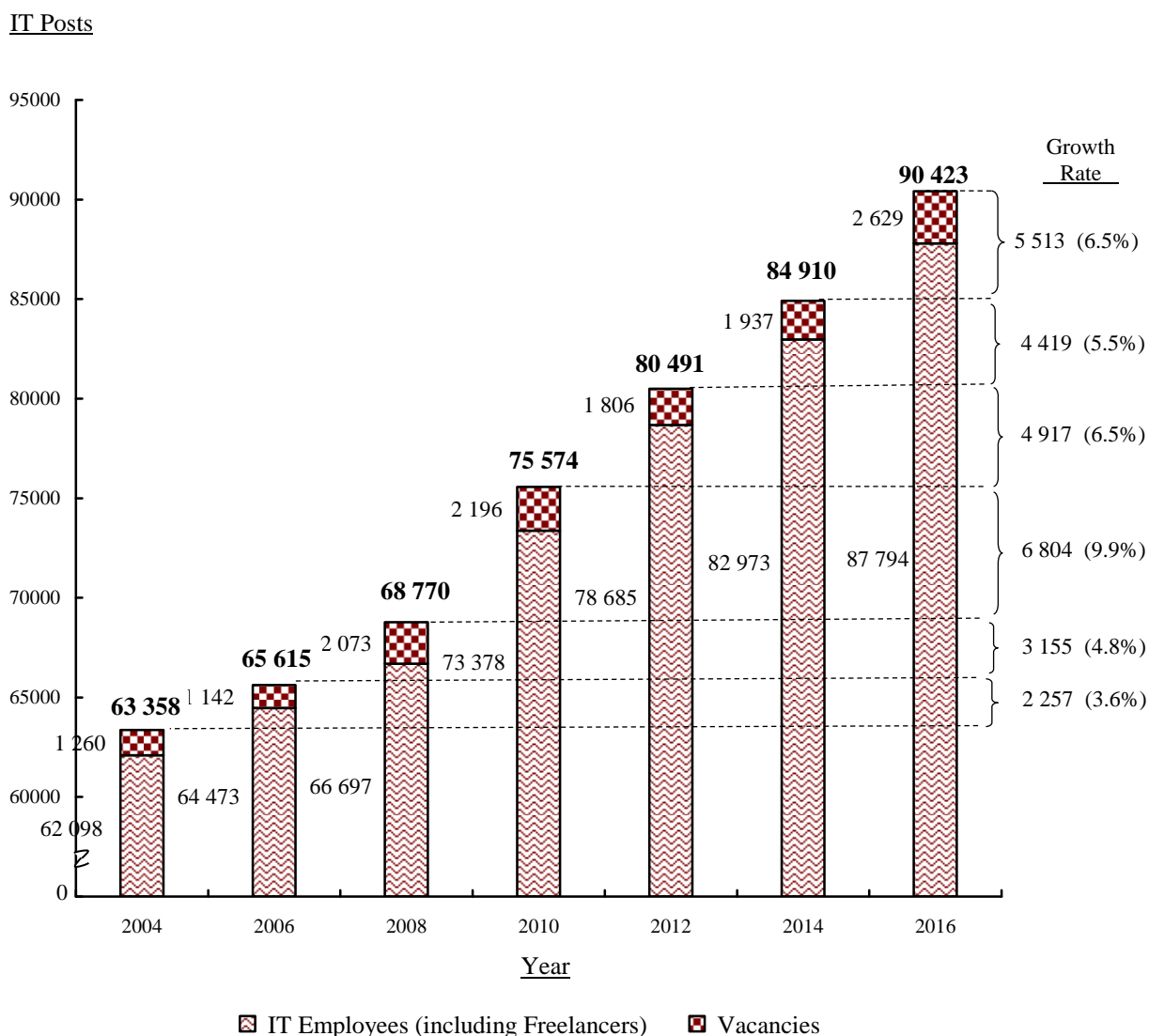
2.26 The labour market in the IT sector keeps steady growth in April 2016 with total IT employment rose to 87 794 IT employees (including freelancers), representing an increase of 5.8% over May 2014 (82 973 IT employees) and 41.4% over March 2004 (62 098 IT employees). However, owing to a slight increase in the total labour force, the percentage share of IT employees (including freelancers) in the labour force grew marginally from 2.15% in April 2014 to 2.31% in April 2016.



## Total IT Posts

2.27 Sustained economic expansion has continued to underpin job creation in the IT sector between 2004 and 2016. Overall, there is a 6.5% (5 513) growth in IT posts between April 2014 (84 910) and April 2016 (90 423), after taking into account employment and vacancies as shown in Figure 11. As compared with 5.5% (4 419) growth in IT posts between 2012 (80 491) and 2014 (84 910), it is observed that Hong Kong employers may become a bit optimistic but still cautious in planning their new IT posts which aligns with the uncertainty in the global economy.

**Figure 11 Total IT Posts, Employed and Vacancies  
(March 2004 – April 2016)**

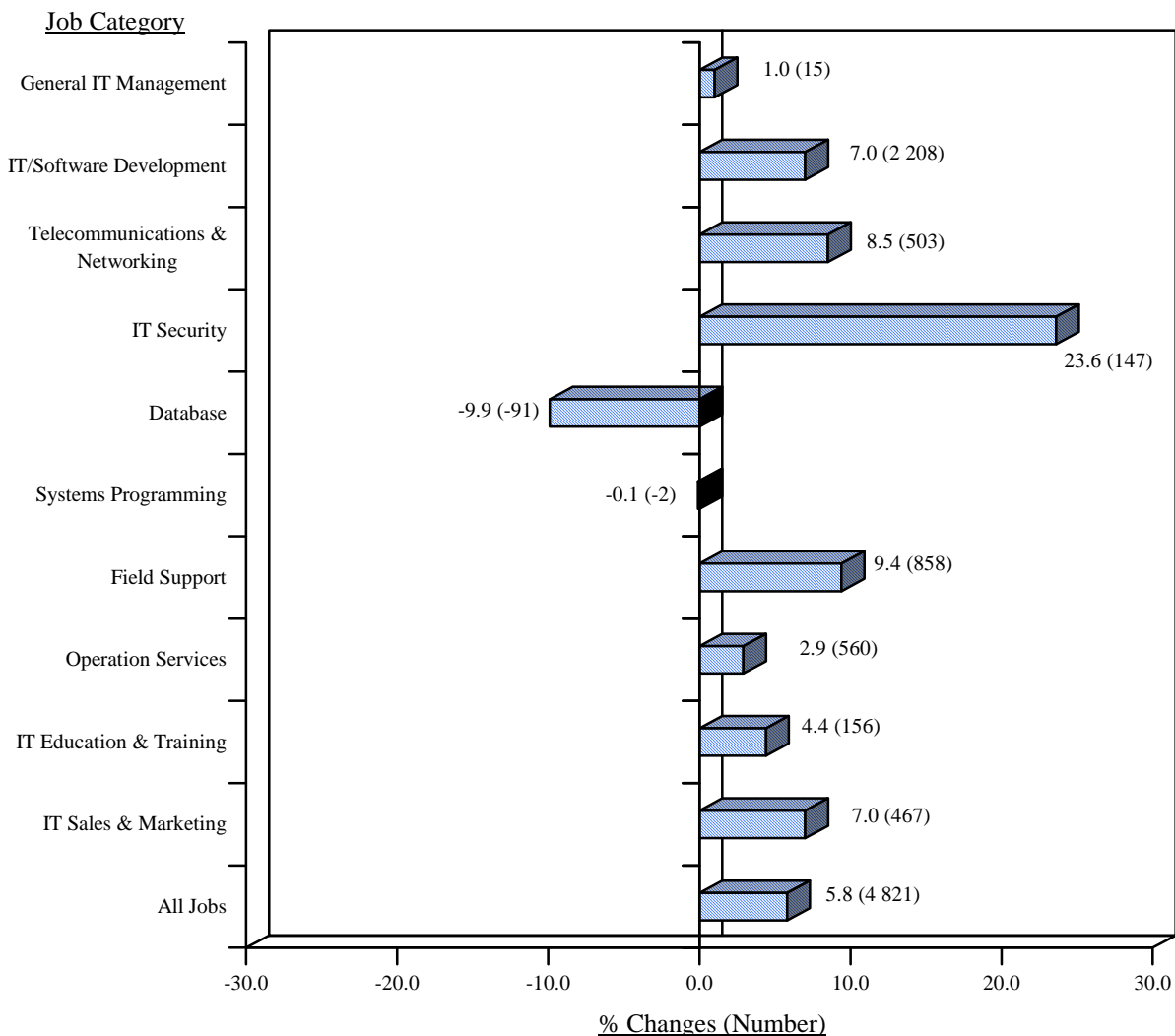


## Manpower Changes by Job Category

2.28 The total manpower in the IT sector, excluding data entry operators, has increased from 82 973 in April 2014 to 87 794 in April 2016 (a growth of 5.8% or 4 821 IT employees over the two-year period). The Committee observes that the increase in number of IT employees (including freelancers) is mainly attributed to the job categories of IT / software development (with a growth of 2 208 IT employees); field support (858) and operation services (560). Table 2.14 shows the changes in the number of IT employees (including freelancers) by job category by type of organization over the two-year period.

2.29 Figure 12 shows the percentage changes of IT manpower by job category over the two-year period.

**Figure 12 Manpower Changes by Job Category Between 2014 and 2016**



2.30 As compared with the overall growth of 5.4% (4 288) in the number of IT employees (including freelancers) from May 2012 (78 685) to April 2014 (82 973), the Committee considers that the labour market in the IT sector was shown signs of mild growth over the past two years. With the uncertain prospects of the global economy, the demand for IT talents remains stable and companies are willing to allocate resources to IT to ensure their business and investments are managed properly.

2.31 The Committee observes that the increase in number of IT employees in the IT and Communication Services organisations (Table 2.14) is found mainly in job categories of IT/ software development (1 950 or 13.6%) and field support (948 or 12.2%). The Committee believes that in general the increase is attributed to the significant growth of IT/ software development employees (such as programmers) and field support employees (such as field technician) in IT products and services suppliers and communications services (Branch 13 & 14).

2.32 The Committee observes that the increase of IT security employees from 622 in April 2014 to 769 in April 2016 (+23.6%) might be attributed to the increasing demand in internet security management especially in the banking and financial sectors.

2.33 The Committee also observes that the number of database employees has decreased from 915 in April 2014 to 824 in April 2016 (-9.9%), as a result of changes in technology trend of the domestic banking units (Branch 15) and other manufacturing (non-IT products) companies (Branch 2) using big data analytics, cloud computing, virtualization and outsourcing to empower their business.

2.34 The Committee observes that the increase of IT sales and marketing employees in the IT users organizations from 108 in April 2014 to 152 in April 2016 (+40.7%) as a result of enhanced promotion of IT packages/products over the past two years.

**Table 2.14 Changes in the Number of IT Employees (including Freelancers) by Job Category by Type of Organization Between 2014 and 2016**

<u>Job Category</u>	<u>IT &amp; Communications Services Organizations<sup>(1)</sup></u>			<u>IT Users Organizations<sup>(2)</sup></u>			<u>All Types of Organization</u>		
	<u>May 2014</u>	<u>April 2016</u>	<u>Increase / Decrease (%)*</u>	<u>May 2014</u>	<u>April 2016</u>	<u>Increase / Decrease (%)*</u>	<u>May 2014</u>	<u>April 2016</u>	<u>Increase / Decrease (%)*</u>
General IT Management	448	448	- (-)	1 014	1 029	15 (1.5)	1 462	1 477	15 (1.0)
IT/Software Development	14 331	16 281	1 950 (13.6)	17 083	17 341	258 (1.5)	31 414	33 622	2 208 (7.0)
Telecommunications and Networking	4 635	5 036	401 (8.7)	1 288	1 390	102 (7.9)	5 923	6 426	503 (8.5)
IT Security	228	274	46 (20.2)	394	495	101 (25.6)	622	769	147 (23.6)
Database	302	306	4 (1.3)	613	518	- 95 (-15.5)	915	824	- 91 (-9.9)
Systems Programming	1 374	1 211	- 163 (-11.9)	2 729	2 890	161 (5.9)	4 103	4 101	- 2 (-)
Field Support	7 744	8 692	948 (12.2)	1 404	1 314	- 90 (-6.4)	9 148	10 006	858 (9.4)
Operation Services	5 162	5 241	79 (1.5)	13 943	14 424	481 (3.4)	19 105	19 665	560 (2.9)
IT Education and Training	128	158	30 (23.4)	3 443	3 569	126 (3.7)	3 571	3 727	156 (4.4)
IT Sales and Marketing	6 602	7 025	423 (6.4)	108	152	44 (40.7)	6 710	7 177	467 (7.0)
<b>Total</b>	<b>40 954</b>	<b>44 672</b>	<b>3 718 (9.1)</b>	<b>42 019</b>	<b>43 122</b>	<b>1 103 (2.6)</b>	<b>82 973</b>	<b>87 794</b>	<b>4 821 (5.8)</b>

\* Growth rate as percentage of number of IT employees (including freelancers) in the same job category and type of organization in May 2012.

Notes: (1) "IT & Communications Services Organizations" includes Branches 1, 6, 13, 14, 18 & 24.

(2) "IT Users Organizations" includes Branches 2-5, 7-12, 15-17, 19-23 & 25.

2.35 The distribution of IT employees (including Freelancers) by job category from 2004 to 2016 is shown in Table 2.15.

**Table 2.15 Distribution of IT Employees (including Freelancers) by Job Category (2004 – 2016)**

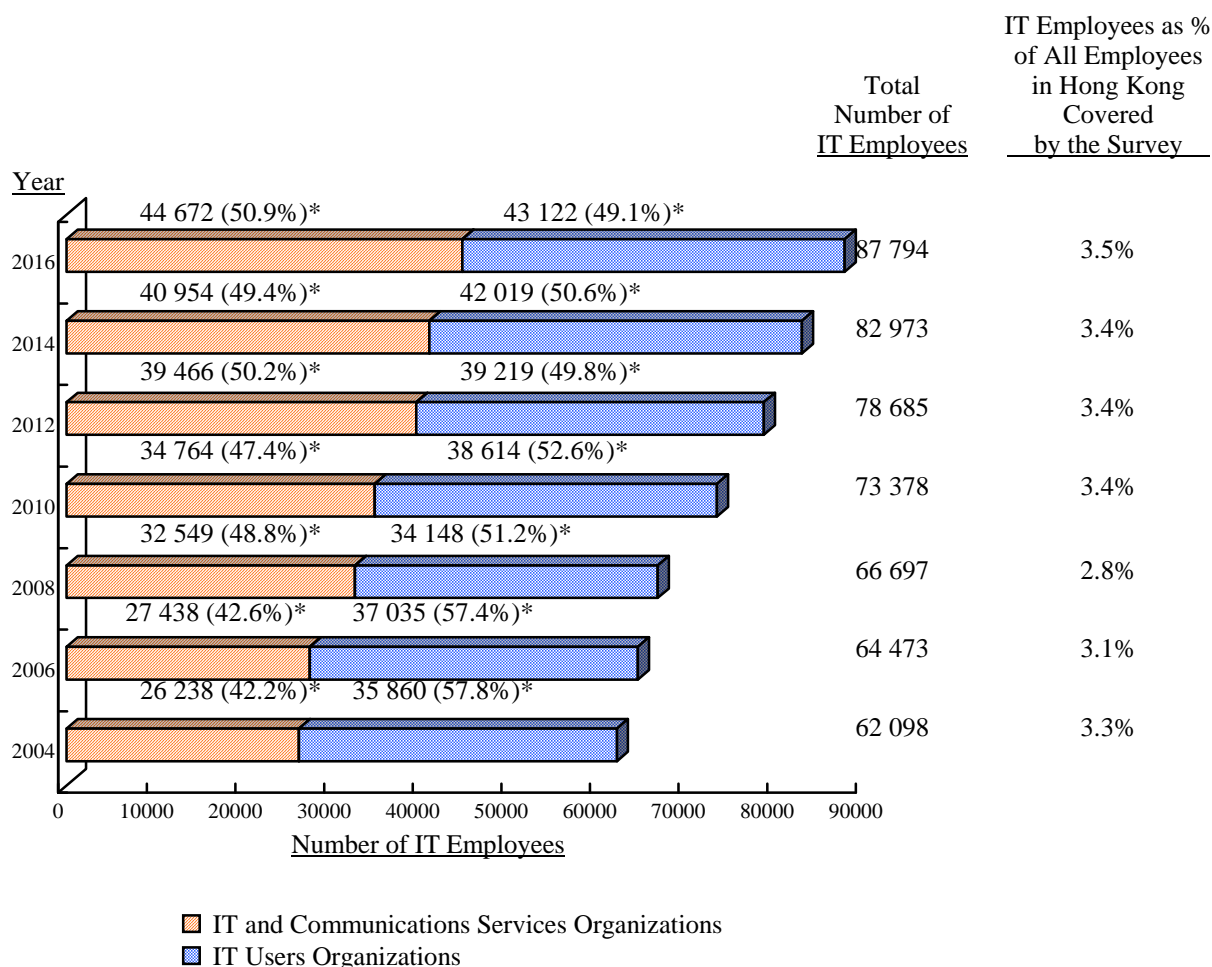
<u>Job Category</u>	<u>Year</u>						
	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>	<u>2016</u>
IT/Software Development	28 733	28 916	24 206	26 340	29 085	31 414	33 622
Operation Services	8 609	12 756	16 235	15 950	17 305	19 105	19 665
Technical Services <sup>(1)</sup>							
Field Support <sup>(2)</sup>	10 642	5 340	6 277	7 970	9 171	9 148	10 006
Systems Programming <sup>(2)</sup>	4 314	3 732	3 988	3 764	3 705	4 103	4 101
Database	897	837	525	753	1 042	915	824
IT Security	391	424	361	509	577	622	769
Telecommunications and Networking	4 265	3 749	6 153	5 948	6 007	5 923	6 426
IT Sales and Marketing <sup>(2)(3)</sup>	-	4 517	4 531	5 741	6 705	6 710	7 177
IT Education and Training	2 494	2 575	3 302	5 161	3 650	3 571	3 727
General IT Management <sup>(4)</sup>	1 753	1 627	1 119	1 242	1 438	1 462	1 477
<b>Total</b>	<b>62 098</b>	<b>64 473</b>	<b>66 697</b>	<b>73 378</b>	<b>78 685</b>	<b>82 973</b>	<b>87 794</b>

- Notes: (1) The corresponding job category for 2004 was “Technical Support”.  
(2) Hardware and software sales employees with technical knowledge of IT products and services who were grouped under the job categories “Field Support” and “Systems Programming” respectively in 2004 round were classified under the job category “IT Sales” in 2006-2008 rounds and “IT Sales and Marketing” starting from 2010 round.  
(3) The corresponding job category for 2006-2008 was “IT Sales”.  
(4) The corresponding job category for 2004 was “IT Management”.

## Manpower Changes by Sector

2.36 The changes in the number of IT employees (including freelancers) from March 2004 to April 2016 by type of organizations are shown in Figure 13.

**Figure 13 Changes in the Number of IT Employees (including Freelancers) from 2004 to 2016 by Type of Organization**

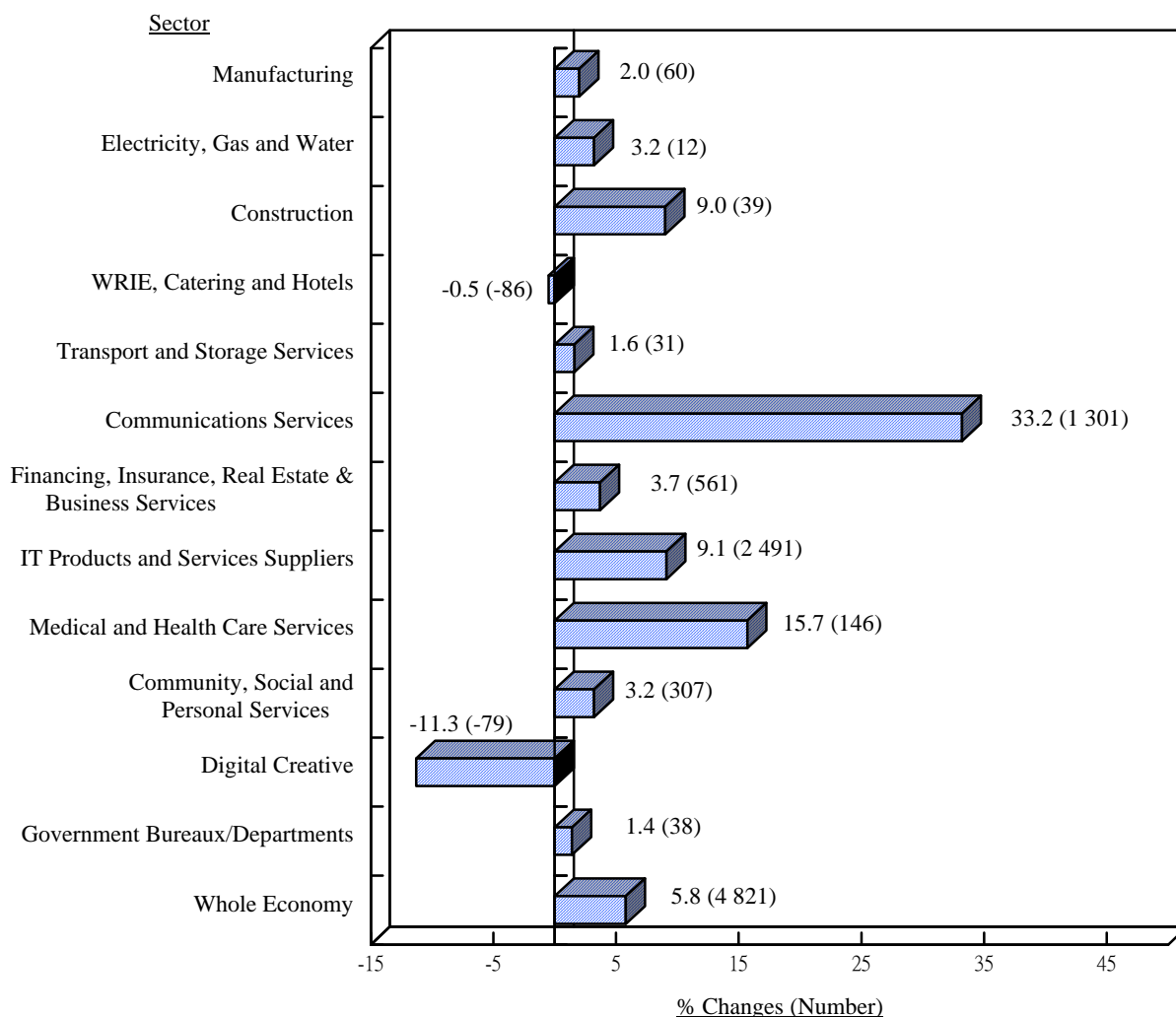


2.37 The Committee observes that the IT & communications services organizations had a greater percentage increase in IT manpower (9.1%) between 2014 and 2016 when compared with the IT users organizations (2.6%) (Table 2.14 and Figure 13). It might be due to the factor that IT & communications services organizations have continually recruiting more IT employees to meet the increasing demand for IT / software development, IT security, field support and IT education and training. On the other hand, the transformation of cloud computing in IT sector has an impact on the IT manpower requirement. The manpower of those in-house IT personnel involved in technical support and application development would be reduced and some of them would undergo further training and deploy to take up duties in other IT areas such as data mining and analytics, etc. Hence, it contributed to

the slowdown of manpower growth in the IT user organizations.

2.38 Figure 14 shows the percentage changes in the number of IT employees by sector over the two-year period.

**Figure 14 Manpower Changes by Sector Between 2014 and 2016**



2.39 Among the sectors (as shown in Figure 14), the increase in number of IT employees is mainly attributed to the sectors of IT products and services suppliers (2 491); and communications services (1 301). The Committee considers that the significant percentage increase of IT employees in the communications services (33.2%) might be due to the development of relevant enhanced services for internet access and communications services, such as 4G & 4.5G services.

2.40 The distribution of IT employees (including Freelancers) by sector from 2004 to 2016 is shown in Table 2.16.

**Table 2.16 Distribution of IT Employees (including Freelancers) by Sector (2004 – 2016)**

Sector	Year						
	2004	2006	2008	2010	2012	2014	2016
IT Products and Services Suppliers <sup>(1)</sup> (Branch 18)	16 802	18 465	17 737	23 356	26 563	27 522	30 013
Digital Creative <sup>(2)</sup> (Branch 24)				631	680	697	618
WRIE, Catering and Hotels (Branches 6 - 8)	13 749	15 050	14 459	15 742	15 940	16 581	16 495
Financing, Insurance, Real Estate and Business Services (Branches 15 - 17)	13 575	12 508	16 566	13 413	13 536	15 165	15 726
Community, Social and Personal Services (excluding hospitals) <sup>(3)</sup> (Branches 20 - 23)	8 688	8 934	7 961	9 159	9 497	9 733	10 040
Medical and Health Care Services (Branch 19)			423	556	750	931	1 077
Communications Services (Branches 13 - 14)	4 486	3 014	2 680	3 014	3 747	3 922	5 223
Transport and Storage Services (Branches 9 - 12)		1 803	1 762	1 771	1 837	1 959	1 990
Manufacturing (Branches 1 - 3)	2 029	2 076	2 389	2 600	2 867	2 948	3 008
Government Bureaux/Departments (Branch 25)	2 271	2 134	2 161	2 497	2 470	2 703	2 741
Electricity, Gas and Water (Branch 4)	326	333	333	332	374	378	390
Construction (Branch 5)	172	156	226	307	424	434	473
<b>Total</b>	<b>62 098</b>	<b>64 473</b>	<b>66 697</b>	<b>73 378</b>	<b>78 685</b>	<b>82 973</b>	<b>87 794</b>

- Notes: (1) The corresponding sector in 2004 round was "Software Vendors".  
(2) "Digital Creative" sector was grouped under "IT Products and Services Suppliers" in 2004-2008 rounds.  
(3) The corresponding sector in 2004-2006 rounds included hospitals.



## Manpower Changes by Type of Organization by Branch

2.41 Tables 2.17 and 2.18 show the changes in the number of IT employees in the IT and communications services organization and the IT users organization over the two-year period.

**Table 2.17 Changes in the Number of IT Employees in the IT & Communications Services Organization by Branch Between 2014 and 2016**

<u>Branch</u>	<u>Trade Description</u>	<u>No. of IT Employees (incl. Freelancers)</u>		<u>Increase/ Decrease</u>	<u>% Changes</u>
		<u>April 2014</u>	<u>April 2016</u>		
1	Manufacture and repair of computers and peripheral equipment; Manufacture of electronic parts and components for computer and telecommunications equipment	1 258	1 318	60	4.8
6	Export trading, import for wholesale, wholesale and retail sale of computers, computer peripheral equipment and computer software packages	7 555	7 500	-55	-0.7
13	Internet access services	600	665	65	10.8
14	Communications services (except internet access services)	3 322	4 558	1 236	37.2
18	IT related products and services (including consultancy, software development, software products, software support and maintenance services; data processing and tabulation services; engineering and technical services of computer facilities management)	27 522	30 013	2 491	9.1
24	Digital creative	697	618	-79	-11.3
	Overall	40 954	44 672	3 718	9.1

Note: Figures may not add up to their totals due to rounding.

**Table 2.18 Changes in the Number of IT Employees in the IT Users Organization by Branch Between 2014 and 2016**

<u>Branch</u>	<u>Trade Description</u>	<u>No. of IT Employees (incl. Freelancers)</u>		<u>Increase/ Decrease</u>	<u>% Changes</u>
		<u>April 2014</u>	<u>April 2016</u>		
2	Other manufacturing (non-IT products)	1 527	1 501	- 26	-1.7
3	Other manufacturing of non-IT products with embedded software	163	189	26	16.0
4	Electricity, gas and water supply	378	390	12	3.2
5	Construction	434	473	39	9.0
7	Other import and export trades (except import and export trades of computers, computer peripherals and software packages)	6 019	5 987	- 32	-0.5
8	Other wholesale and retail (except wholesale and retail sale of computers, computer peripherals and software packages); Accommodation and food service activities	3 007	3 008	1	0.0
9	Airline companies	449	456	7	1.6
10	Railway and cable transport; Public bus services; Licensed and franchised ferry services; Vehicular tunnel, bridge and highway operators	238	241	3	1.3
11	Air cargo forwarding services	269	317	48	17.8
12	Other transport and storage services	1 003	976	- 27	-2.7
15	Domestic banking units	7 360	7 787	427	5.8
16	Real estate brokerage and agency	248	248	0	0.0
17	Others (Financing, Insurance, Real Estate and Business Services)	7 557	7 691	134	1.8
19	Medical, dental, and other health care services (including Hospital Authority)	931	1 077	146	15.7
20	Universities and post-secondary colleges; Research and scientific institutes; Hong Kong Examinations and Assessment Authority	3 169	3 358	189	6.0
21	Educational Institutes other than universities, post-secondary colleges (excluding Hong Kong Examinations and Assessment Authority)	4 859	4 887	28	0.6
22	Motion pictures and other entertainment services; and Television / Radio Stations & Studios	580	608	28	4.8
23	Others (Community, Social and Personal Services); Hong Kong Productivity Council & Hong Kong Trade Development Council	1 125	1 187	62	5.5
25	Government Bureaux/Departments	2 703	2 741	38	1.4
	Overall	42 019	43 122	1 103	2.6

Note: Figures may not add up to their totals due to rounding.

2.42 Among the branches, the significant percentage increase of IT employees in the Communications Services (except internet access services) (Branch 14) from 3 322 in April 2014 to 4 558 in April 2016 (1 236 or 37.2%) might be due to increasing demand for field technician and craftsman services engineer to cope with the enhanced communications services. Due to the demand of IT personal to handle the air cargo forwarding services (Branch 11), the relevant employees increased by 17.8%. With the development of core infrastructure of the territory-wide Electronic Health Record Sharing System and its complementary components, companies engaged in the medical, dental, and other health care services (including Hospital Authority) (Branch 19) have recruited more IT employees from 931 in April 2014 to 1 077 in April 2016 (146 or 15.7%) to cope with the advances in medical technology.

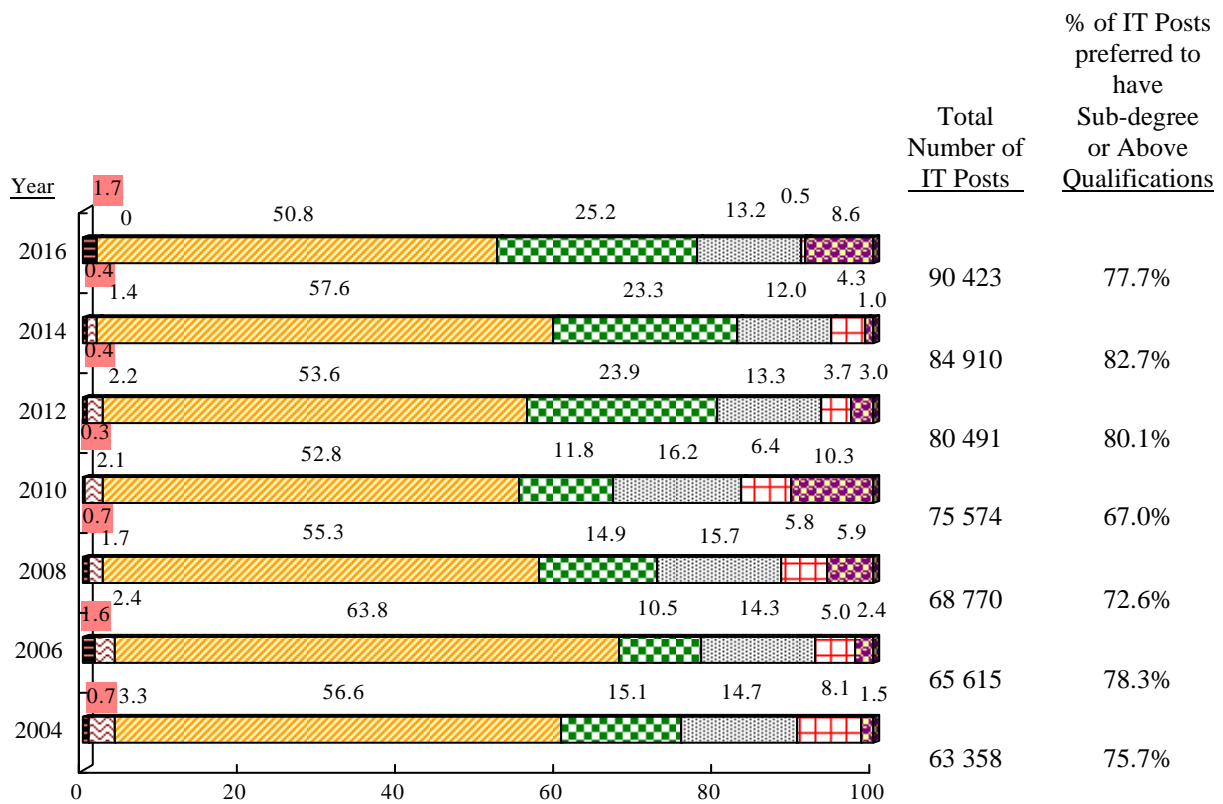
### ***Employers' Requirements / Expectations of Employees' Competencies and the Average Annual Remuneration Package of their IT Employees***

#### **Employers' Preferred Academic Qualification of IT Employees**

2.43 Over the past two years, the profile of IT manpower by preferred academic qualification has not varied significantly. 52.5% of IT posts were preferred to have first degree or above qualifications and 25.2% to have sub-degree qualification in 2016 (2014 survey: 59.4% and 23.3%). These percentages were significantly higher than the percentages of employed persons (excluding foreign domestic helpers) in the labour force aged 15 years and above with tertiary qualifications in Q2 2016 (i.e. 30.6% at post-secondary degree level and 9.4% at post-secondary non-degree level). (Source: Labour force figures from the Quarterly Report on General Household Survey – April to June 2016 published by the Census and Statistics Department).

2.44 The Committee considers that the IT industry is one of the most knowledge-intensive sectors and therefore employers generally preferred their IT employees to have job-related experience with tertiary level qualifications for most of the IT jobs. A comparison of the profile of IT manpower by preferred academic qualification from 2004 to 2016 is shown in Figure 15. Detailed findings on the preferred academic qualification of IT posts by job title are given in Appendix 14.

**Figure 15 Profile of IT Manpower by Preferred Academic Qualification (March 2004 – April 2016)**



Percentage Distribution of IT Posts

- Doctorate Degree
- ▣ Master Degree/Postgraduate Diploma
- ▤ Bachelor Degree
- ▥ Associate Degree/Higher Diploma
- ▦ Diploma/Higher Certificate/Certificate, Secondary 7/6, Diploma of Secondary Education
- ▧ Secondary 5 and Below
- ▨ Unspecified

**Employers’ Preferred Relevant Years of IT Experience**

2.45 The Committee observes that employers generally preferred their IT employees to have substantial relevant experience in the industry. For instance, 60.4% of the IT posts for systems analysts require having 5 to 10 years’ IT experience and 22.1% of them require having 2 to 5 years’ IT experience in 2016 (2014 survey: 60.4% and 19.1%). Details showing the employers’ preferred relevant years of IT experience of IT posts by job title are given in Appendix 15.

## Income Range Distribution of IT Employees (Excluding Freelancers)

2.46 The term “annual remuneration package” used in the survey includes basic salary, bonus / commission, housing allowance / benefit, and other regular allowance. Appendix 16 shows that the majority of employers offered an average annual remuneration package from over HK\$360,000 to HK\$1,080,000 or above for general IT management job, and over HK\$100,000 to HK\$360,000 for jobs related to telecommunications & networking, technical services, and operation services. These figures offer insights into hiring trends within the IT sector. As this was not a wage survey, the information obtained was for reference purpose only.

2.47 Table 2.19 shows that employment income has been rising steadily in the IT sector over the two-year period. The shortage of talent and Hong Kong’s high cost of living have seen employers offer competitive wages to secure and retain highly-skilled IT professionals.

**Table 2.19 Average Annual Income Range Distribution of IT Employees (Excluding Freelancers) Between 2014 and 2016**

Year	Average Annual Income Range						All (No. of IT Employees) (%)*	
	\$1,080,001 or More (%)*	\$600,001 - \$1,080,000 (%)*	\$360,001 - \$600,000 (%)*	\$100,001 - \$360,000 (%)*		\$100,000 or Below (%)*		Unspecified (%)*
2014	549 (0.7)	7 329 (9.1)	18 629 (23.1)	41 317 (51.1)		957 (1.2)	12 005 (14.9)	80 786 # (100.0)
				\$240,001 - \$360,000* (%)*	\$100,001 - \$240,000* (%)*			
2016	1 263 (1.5)	8 446 (9.8)	19 579 (22.8)	23 416 (27.2)	17 760 (20.7)	309 (0.4)	15 173 (17.7)	85 946 100.0

\* As a percentage of number of IT employees (excluding freelancers) in the respective year.

+ Total number of IT employees (excluding freelancers) in April 2014.

# Total number of IT employees (excluding freelancers) in April 2016.

2.48 Recent data from the Quarterly Report of Wage and Payroll Statistics (June 2016) of the Census and Statistics Department indicated that for the nominal wage indices, year-on-year increases were observed in all selected industry sectors, ranging from 2.8% to 5.8%. The Committee observes that the average annual income range of IT employees is in general on the steady uptrend between April 2014 and April 2016. This has been supported by the increasing demand for IT professionals both within the IT & communications services organizations and the IT users organizations, coupled a renewed focus on retaining top talent to support business growth. However, due to the differences in demand and supply conditions, the average annual income range of IT employees by job title varied across different industry sectors.

## ***Manpower Training and Development Plan***

### **Training Needs of Existing IT Employees**

2.49 Appendix 17 shows that 58.2% of the government bureaux / departments reported their IT employees to have training needs in the next 12 months, followed by the IT products and services suppliers (19.3%), and the electricity, gas and water (14.3%). (The corresponding figures in the 2014 survey were 55.0%, 21.9% and 28.6% of the respective organizations.)

2.50 The survey reveals that 49 934 IT employees (in terms of man-times) were reported by employers (Appendices 18 and 19) to have training needs in 2016/17 (2014 survey: 64 859 IT employees). The Committee observes that some companies are unwilling to invest in staff training, in particular on programmers (2014 survey: 9 858 man-times and 2016 survey: 8 239 man-times) due to high turnover of IT staff. To cater for the development of a knowledge-based and technology-driven economy, the Committee considers that employers will normally be prepared to invest in training existing IT employees in any new technology that is critical to their operations so that employees can reasonably expect a lifetime of technical challenge to stimulate them in the ever-changing world of IT. A comparison of the top ten essential skills / knowledge in 2014 and 2016 (ranked in descending order of popularity) reported by employers to have training needs for IT employees is shown in Table 2.20.

**Table 2.20 Comparison of the Top Ten Essential Skills / Knowledge Between 2014 and 2016 (Ranked in Descending Order of Popularity)**

<u>Type of Skills / Knowledge</u>	<u>April 2016</u>		<u>May 2014</u>	
	<u>Rank</u>	<u>No. of IT Employees*</u>	<u>Rank</u>	<u>No. of IT Employees*</u>
Information and System Security	1	5 988	1	7 795
Virtualization and Cloud Computing	2	4 279	6	3 865
Networking / Data Communications	3	3 714	3	5 791
IT Applications in Customer Relationship Management (e-Marketing, e-Service)	4	3 589	10	2 307
Internet / Intranet / Web Development	5	3 390	7	3 610
Data Science and Data Analytics	6	3 080	-	-
e-Learning Technology and Development	7	2 575	-	-
Windows Platform Technology	8	2 371	4	4 440
Other IT-related Training (Sales and Marketing Skills of IT Products / Services, Big Data, Business Process Management, and Server / Computer Maintenance)	9	2 080	5	4 426
Application Development Tools/Languages	10	1 829	9	2 402

\* Number of IT employees in terms of man-times.

2.51 The Committee observes that the top five essential skills / knowledge in April 2014 and April 2016 are quite similar. The emergence of “Data Science and Data Analytics” and “e-Learning Technology and Development” on the top of essential skills / knowledge has reflected the situation that systems analysts, IT architects, user support / co-ordinators, and lecturers engaged in the WRIE, catering and hotels sector and community, social and personal services and encouraged to develop e-learning platform to enhance the knowledge and skills whilst the programmers, customer service engineers and sales/marketing representatives engaged in the WIRE, catering and hotels sector and IT products and services suppliers sector are more conscious of developing data analytics tools to enhance their competitiveness in the market places. Demand for “Information and System Security” is the top essential skill priority among companies in 2014 and 2016, even in tough economic times.

2.52 The Committee considers that efforts by employers to reinvest in staff training and development, and talent retention through skills upgrading amid the improved economy bodes well for the continued growth of individual companies / organizations and the overall IT sector. The analyses of the findings by training type by job category are summarized in Table 2.21. More detailed analyses of the findings by training type by sector / branch and by job category / title by type of training code are presented in Appendices 18 and 19.

### **Equivalent IT Staff from Contractor Companies**

2.53 At the time of the survey, employers reported that there were 4 606 seconded IT staff from contractor companies (1 241 and 3 365 from IT & Communications Services Organisations and IT Users Organisations respectively). The Committee observes that, in the present survey, regarding the ratio of IT seconded staff to IT employees, a majority of the seconded staff were found in the sectors of Government Bureau/Departments (55.8%), Medical and Health Care Services (47.4%), and WIRE of Computer Products and Software Packages (14.0%). More detailed analyses of the number of IT staff seconded from contractor companies by sector are presented in Table 2.22.

**Table 2.21 Distribution of Training Needs of Existing IT Employees (with Top 3 Priorities) in the Next 12 Months by Training Type by Job Category (As in April 2016)**

Code	Type of Training	Number of IT Employees (in Terms of Man-Times)										Total
		General IT Management	IT/Software Development	Telecommunications & Networking	←----- Technical Services -----→			Field Support	Operation Services	IT Education & Training	IT Sales & Marketing	
					IT Security	Database	Systems Programming					
01	Basic Office IT Skills	-	56	67	-	-	11	232	410	-	1	777
02	Applied Basic IT Tools for Business Processes	5	195	5	-	-	203	244	562	7	409	1 630
03	Java and Object-Oriented Technology	5	1 524	12	-	-	34	51	37	-	3	1 666
04	Linux/Unix & Open Source	-	1 015	5	-	3	8	67	178	-	-	1 276
05	.NET Development	5	537	3	1	-	2	87	92	-	-	727
06	Windows Platform Technology	8	682	23	-	-	144	923	563	28	-	2 371
07	Service-Oriented Architecture (SOA), Web Services and XML Development	2	1 149	56	-	2	51	27	-	-	-	1 287
08	Multimedia and Computer Graphics	-	527	-	-	-	-	8	138	7	-	680
09	Interactive Game Design/Development	-	245	-	1	-	-	-	2	5	-	253
10	Internet/Intranet/Web Development	90	2 156	106	19	1	290	273	384	12	59	3 390
11	IT Applications in Customer Relationship Management (e-Marketing, e-Service)	93	1 495	75	44	15	70	581	517	-	699	3 589
12	Information and System Security	254	2 204	287	267	89	185	920	1 608	55	119	5 988
13	Database Technology	32	595	19	6	138	49	179	412	-	16	1 446
14	Networking/Data Communications	46	1 080	553	98	57	124	424	1 109	172	51	3 714
15	Application Development Tools/Languages	113	1 246	8	-	7	155	98	201	1	-	1 829



Number of IT Employees (in Terms of Man-Times)

Code	Type of Training	General IT Management	IT/Software Development	Telecommunications & Networking	←----- Technical Services -----→				Operation Services	IT Education & Training	IT Sales & Marketing	Total
					IT Security	Database	Systems Programming	Field Support				
16	Web 2.0 Tools and Related Applications	5	455	2	1	-	-	24	272	-	3	762
17	Mobile Computing	19	1 294	105	42	-	3	141	148	30	2	1 784
18	IT Infrastructure Library	11	224	37	4	2	85	93	433	12	-	901
19	Radio Frequency Identification (RFID) Technologies	-	-	-	-	-	-	20	2	-	-	22
20	IT Applications in Supply Chain Management (e-Logistics, e-Procurement)	-	126	-	8	-	70	118	58	8	6	394
21	IT Applications in Product Design	-	139	23	-	-	2	8	96	8	68	344
22	e-Learning Technology and Development	10	796	16	40	-	3	105	257	1 348	-	2 575
23	Project Management and Design	79	1 280	71	14	1	29	142	193	12	2	1 823
24	Software Quality (CMMI)	5	537	3	-	4	5	-	51	-	377	982
25	Understanding IT Practice in the Mainland China	70	27	1	44	-	-	2	14	-	8	166
26	Virtualization and Cloud Computing	62	1 234	269	66	-	102	765	440	413	928	4 279
27	Data Science and Data Analytics	15	668	81	1	30	25	625	392	304	939	3 080
28	3D printing	-	13	-	-	-	-	4	102	-	-	119
29	Other IT-related Training*	22	144	66	1	2	84	591	237	-	933	2 080
	Total	951	21 643	1 893	657	351	1 734	6 752	8 908	2 422	4 623	49 934

\* Other IT-related Training includes Sales and Marketing Skills of IT Products / Services, Big Data, Business Process Management, and Server / Computer Maintenance.

**Table 2.22 Number of IT Staff Seconded from Contractor Company(ies) and Number of Companies with IT staff Seconded from Contractor Company(ies)**

<u>Sector</u>	No. of IT Staff Seconded from Contractor Company	No. of IT Employees Whose Companies with Seconded IT Staff	No. of IT Employees	% Ratio of Seconded IT Staff to IT Employees by Branch	% of IT Employees Whose Companies with Seconded IT Staff to IT Employees by Branch	No. of Companies with IT Staff Seconded from Contractor Company	No. of Companies Covered by the Survey	% of Companies with Seconded IT Staff to Companies Covered by the Survey by Branch
	(a)	(b)	(c)	(d)=(a)/(c)x100	(e)=(b)/(c)x100	(f)	(g)	(h)=(f)/(g)x100
<u>IT &amp; Communications Services Organisations</u>								
Manufacturing	110	12	1 318	8.3	0.9	1	446	0.2
Wholesale, Retail and Import/Export Trades of the Computer Products and Software Packages	1 050	2 419	7 500	14.0	32.3	3	570	0.5
IT Products and Services Suppliers	62	469	30 013	0.2	1.6	19	4 809	0.4
Digital Creative	18	7	618	2.9	1.1	1	71	1.4
Communications Services	1	1	5 223	-	-	1	335	0.3
<b>Sub-total</b>	<b>1 241</b>	<b>2 908</b>	<b>44 672</b>	<b>2.8</b>	<b>6.5</b>	<b>25</b>	<b>6 231</b>	<b>0.4</b>
<u>IT Users Organisations</u>								
Other Manufacturing	20	-	1 690	1.2	-	10	2 101	0.5
Electricity, Gas and Water	-	-	390	-	-	-	7	-
Construction	16	1	473	3.4	0.2	3	5 397	0.1
Wholesale, Retail and Import/ Export Trades, Catering and Hotels	150	171	8 995	1.7	1.9	81	41 023	0.2
Transport and Storage Services	150	180	1 990	7.5	9.0	29	5 902	0.5
Financing, Insurance, Real Estate and Business Services	378	2 750	15 726	2.4	17.5	65	10 459	0.6
Medical and Health Care Services	511	887	1 077	47.4	82.4	14	2 183	0.6
Community, Social and Personal Services	611	1 835	10 040	6.1	18.3	134	10 984	1.2
Government Bureaux/Departments	1 529	1 470	2 741	55.8	53.6	43	79	54.4
<b>Sub-total</b>	<b>3 365</b>	<b>7 294</b>	<b>43 122</b>	<b>7.8</b>	<b>16.9</b>	<b>379</b>	<b>78 135</b>	<b>0.5</b>
<b>Overall</b>	<b>4 606</b>	<b>10 202</b>	<b>87 794</b>	<b>5.2</b>	<b>11.6</b>	<b>404</b>	<b>84 366</b>	<b>0.5</b>

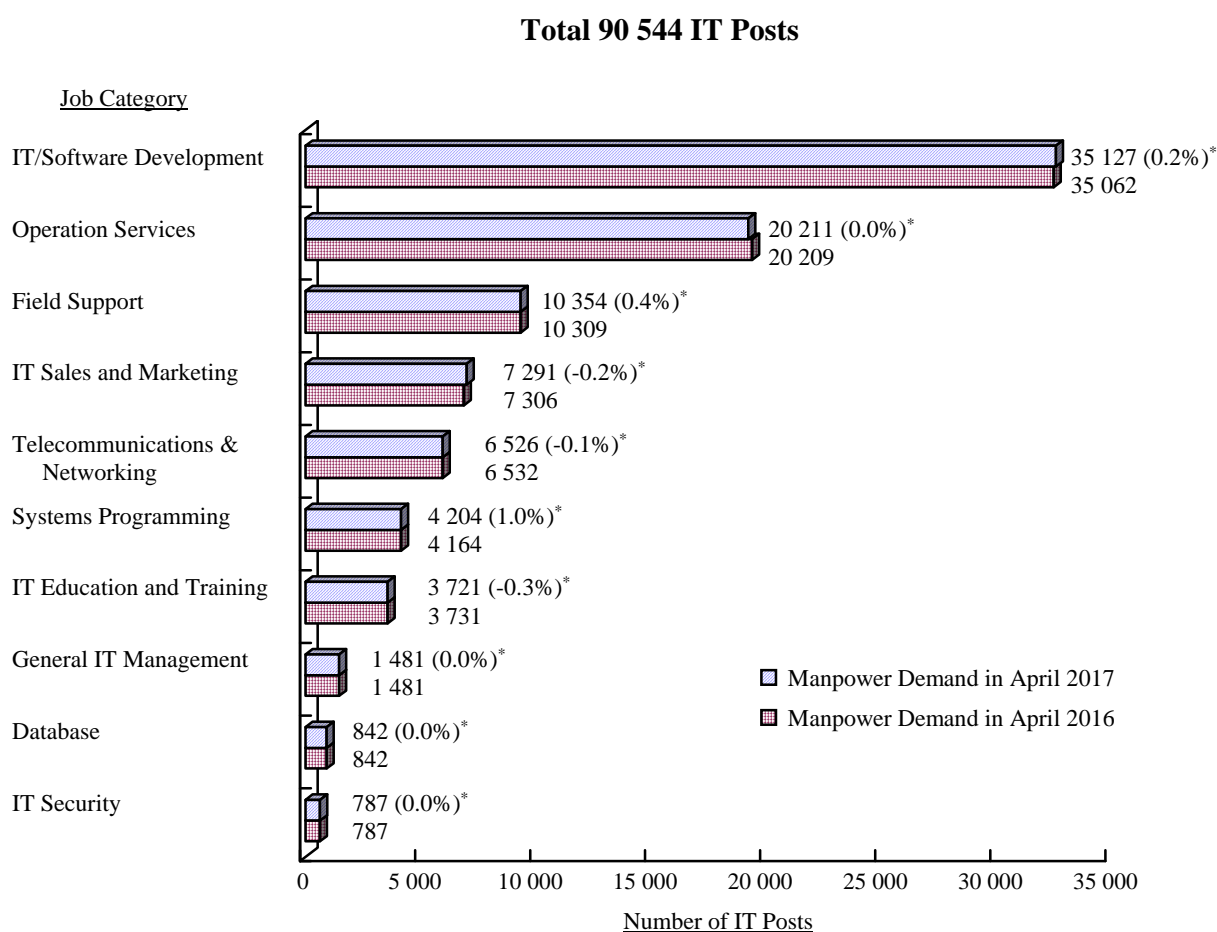
## Manpower Growth and Forecast

### Employers' Forecast of IT Manpower Demand by April 2017

2.54 The findings of the survey reflect the manpower situation of the IT sector in April 2016. However, the current uncertainty in global financial markets might have an effect on the IT manpower demand. The manpower data and forecast in the report should therefore be read in this context.

2.55 Employers forecast that there would be 90 544 IT posts by April 2017, an increase of 0.1% (121) <sup>(1)</sup> over the number of existing IT posts (90 423). Among the job categories, system programming recorded the highest growth rate of 1.0%, followed by field support (0.4%) and IT / software development (0.2%). Employers' forecast of IT manpower demand by April 2017 by job category is shown in Figure 16 and by sector in Table 2.23.

**Figure 16 Employers' Forecast of IT Manpower Demand <sup>(2)</sup> by April 2017 by Job Category (As in April 2016)**



\* Growth rate as percentage of number of IT posts in the same job category in April 2016.

Notes: (1) The companies may not have the projection plan of the IT manpower for the next 12 months at the time of the survey.

(2) Manpower demand includes the number of existing employees (including freelancers) and vacancies.

**Table 2.23 Employers' Forecast of IT Manpower Demand by April 2017 by Sector  
(As in April 2016)**

<u>Sector</u>	<u>Manpower Demand <sup>(1)</sup> in April 2015</u>	<u>Manpower Growth by April 2016 (%)<sup>#</sup></u>	<u>Manpower Demand <sup>(1)</sup> in April 2016</u>	<u>April 2017 Forecast Manpower Growth (%)<sup>*</sup></u>	<u>April 2017 Forecast Manpower Demand <sup>(1)</sup></u>
Manufacturing	3 017	67 (2.2)	3 084	16 (0.5)	3 100
Electricity, Gas and Water	394	- 1 (-0.3)	393	- 2 (-0.5)	391
Construction	487	1 (0.2)	488	- (-)	488
WRIE, Catering and Hotels	16 494	166 (1.0)	16 660	36 (0.2)	16 696
Transport and Storage Services	1 987	10 (0.5)	1 997	- 2 (-0.1)	1 995
Communications Services	5 078	338 (6.7)	5 416	22 (0.4)	5 438
Financing, Insurance, Real Estate and Business Services	15 648	491 (3.1)	16 139	3 (-)	16 142
IT Products and Services Suppliers	30 179	1 103 (3.7)	31 282	14 (-)	31 296
Medical and Health Care Services	1 062	71 (6.7)	1 133	22 (1.9)	1 155
Community, Social and Personal Services	9 784	593 (6.1)	10 377	2 (-)	10 379
Digital Creative	677	- 38 (-5.6)	639	5 (0.8)	644
Government Bureaux/Departments	2 720	95 (3.5)	2 815	5 (0.2)	2 820
<b>Total</b>	<b>87 527</b>	<b>2 896 (3.3)</b>	<b>90 423</b>	<b>121 (0.1)</b>	<b>90 544</b>

# Growth rate as percentage of number of IT posts in April 2015 by sector.

\* Growth rate as percentage of number of IT posts in April 2016 by sector.

Notes: (1) Manpower demand includes the number of existing employees (including freelancers) and vacancies.

(2) The companies may not have the projection plan of the IT manpower for the next 12 months at the time of the survey.

(3) Figure may not add up to the total due to rounding.

2.56 As compared with the annual increase of about 3.3% (2 896) in the number of IT posts between April 2015 (87 527) and April 2016 (90 423) (Table 2.23), the employers' forecast of IT manpower growth by April 2017 (121<sup>(4)</sup> or 0.1%) was somewhat conservative given the current and the foreseeable economic environment in the next couple of years. Employers' forecast of IT manpower demand by April 2017 by type of organization is shown in Table 2.24. More detailed analyses of the findings by sector / branch by job category and by job category / title by sector are presented in Appendices 20 and 21.

**Table 2.24 Employers' Forecast of IT Manpower Demand by April 2017 by Type of Organization (As in April 2016)**

Type of Organization	No. of IT Employees in April 2016		No. of Vacancies in April 2016	IT Manpower Demand <sup>(1)</sup> in April 2016	April 2017 Forecast IT Manpower Growth	April 2017 Forecast IT Manpower Demand <sup>(1)</sup>
	EM	FL	(%)#		(%)*	
IT & Communications Services Organization <sup>(2)</sup>	43 975	697	1 570 (3.4)	46 242	54 (0.1)	46 296
IT Users Organization <sup>(3)</sup>	41 971	1 151	1 059 (2.4)	44 181	67 (0.2)	44 248
<b>Total</b>	<b>85 946</b>	<b>1 848</b>	<b>2 629 (2.9)</b>	<b>90 423</b>	<b>121 (0.1)</b>	<b>90 544</b>

EM Number of IT employees (excluding freelancers)

FL Number of freelancers

# As a percentage of number of IT posts by type of organization.

\* Growth rate as a percentage of number of IT post in April 2014 by type of organization.

Notes: (1) Manpower demand includes the number of existing employees (including freelancers) and vacancies.

(2) "IT & Communications Services Organizations" includes Branches 1, 6, 13, 14, 18 & 24.

(3) "IT Users Organizations" includes Branches 2-5, 7-12, 15-17, 19-23 & 25.

(4) The companies may not have the projection plan of the IT manpower for the next 12 months at the time of the survey.

## Additional Manpower Requirement by April 2017

2.57 On the basis of employers' forecast of manpower growth by April 2017 and the annual wastage rates calculated by the proposed formula in paragraph 1.22, the Committee has worked out the additional manpower requirement by April 2017 by sector as shown in Table 2.25.

**Table 2.25 Additional Manpower Requirement by April 2017 by Sector  
(As in April 2016)**

<u>Sector</u>	<u>No. of Employees (including Freelancers) in April 2016</u>	<u>Employers' Forecast of Manpower Growth by April 2017</u>	<u>No. of Employees (including Freelancers) to Replenish Wastage (%)</u> *	<u>Total No. of Additional Employees by April 2017</u>
Manufacturing	3 008	16	3 (0.1)	19
Electricity, Gas and Water	390	- 2	0 (-)	- 2
Construction	473	0	1 (0.2)	1
WRIE, Catering and Hotels	16 495	36	178 (1.1)	214
Transport and Storage Services	1 990	- 2	5 (0.3)	3
Communications Services	5 223	22	0 (-)	22
Financing, Insurance, Real Estate and Business Services	15 726	3	23 (0.1)	26
IT Products and Services Suppliers	30 013	14	246 (0.8)	260
Medical and Health Care Services	1 077	22	4 (0.4)	26
Community, Social and Personal Services	10 040	2	500 (5.0)	502
Digital Creative	618	5	6 (1.0)	11
Government Bureaux / Departments	2 741	5	47 (1.7)	52
<b>Total</b>	<b>87 794</b>	<b>121<sup>(2)</sup></b>	<b>1 013 (1.2)</b>	<b>1 134</b>

\* Annual wastage rate<sup>(1)</sup> by sector.

Note: (1) "Wastage rate" is defined as the percentage of IT employees leaving their current IT jobs and taking up non-IT positions, emigrating and for other reasons, out of the total number of IT employees.

(2) The companies may not have the projection plan of the IT manpower for the next 12 months at the time of the survey.

## **Projected Annual Additional Manpower Requirement for 2017/20**

2.58 The projection of IT manpower requirement must be related to labour market needs and respond to rapid economic and social changes. Assessment of future manpower demand is not easy and involves the exercise of judgement based upon certain assumptions and economic analysis. The basic assumptions for projecting manpower requirement of the IT sector are shown as follows:

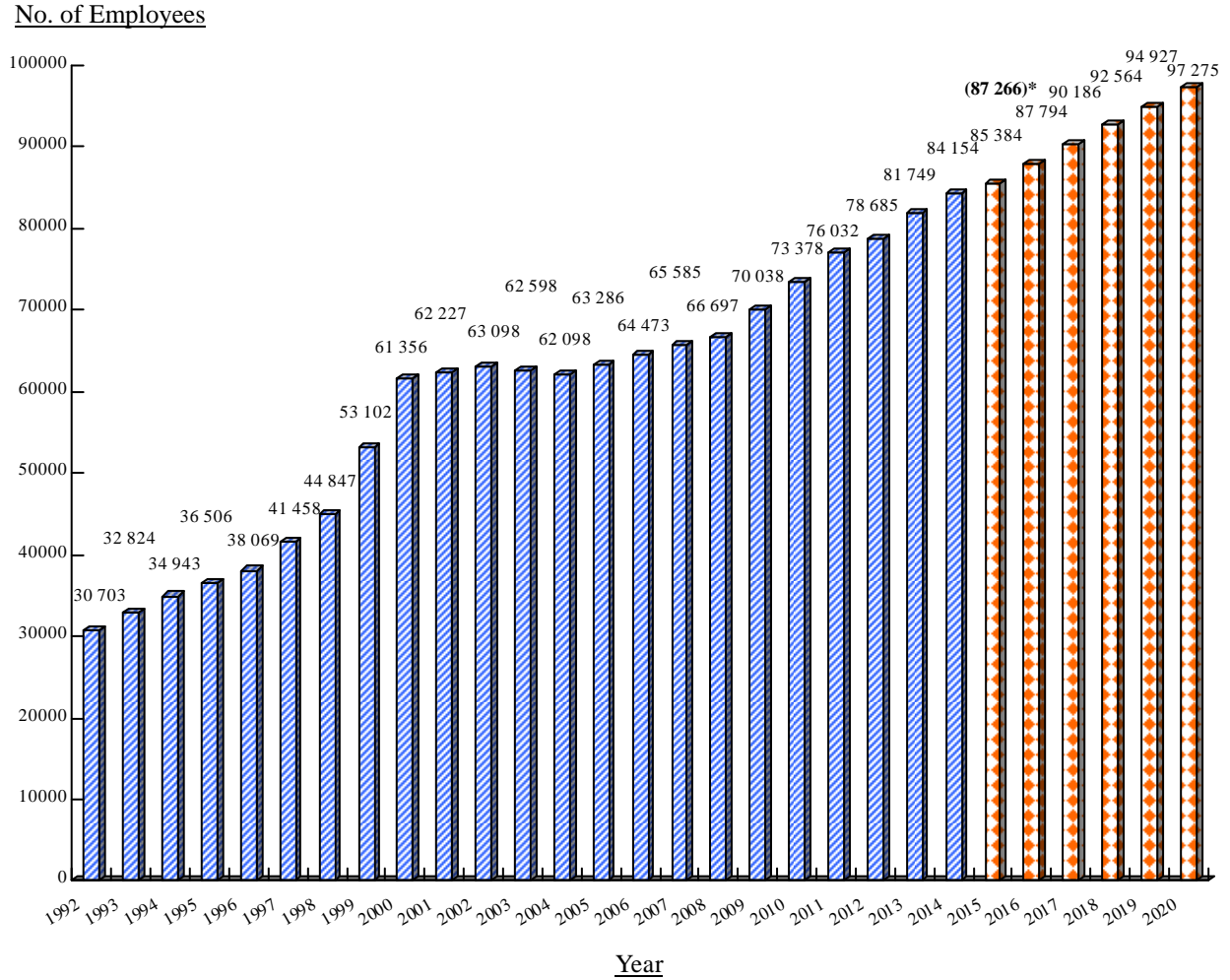
- (i) A continuation of the relatively high levels of economic activities and employment.
- (ii) A continuation of scientific and technological advances, affecting the industrial methods of production, educational services and stimulating consumption patterns.
- (iii) The absence of war or any other cataclysmic events which would substantially alter the rate of economic growth.

2.59 As IT is a rapidly changing and developing sector, an accurate manpower projection method is required for educational planning purposes. Since it takes a number of years to educate and train people for IT jobs, industry needs must be anticipated sufficiently far in advance to allow time for training. Failure to anticipate the needs and to develop the required high-level IT manpower may seriously impede economic progress.

2.60 An adaptive filtering method is used to project the annual manpower requirement of the IT sector from 2017 to 2020 (Figure 17). This method produces projections based on past and present survey data (with heavier weight given to the more recent data). The Committee selects the most appropriate projection by taking into consideration the socio-economic prospects and overall trend of the sector, employers' one-year forecast, and the annual wastage rate. Manpower projections of the IT sector are then translated into annual additional manpower requirement from 2017 to 2020 by job category as shown in Table 2.26.

2.61 The Committee observes from Figure 17 that the actual outturn of IT manpower requirement in April 2016 (87 794) almost fall in line with IT manpower projection (87 266) in the 2014 survey with absolute percentage error of 0.6%. The Committee believes that as the pace of globalization continues to accelerate, supported by domestic consumption as well as CEPA, the IT manpower requirement will follow a growing trend in the long run.

**Figure 17 Manpower Projection of the IT Sector from 2017 to 2020  
(By using Adaptive Filtering Method)**



\* Figure in bracket denotes the IT manpower projection for 2016 in the 2014 survey.



**Table 2.26 Projected Annual Additional Manpower Requirement from 2017 to 2020 by Job Category**

<u>Job Category</u>	<u>Projected Average Annual Manpower Requirement</u> (A)	<u>Projected Average Annual Manpower Growth</u> (B)	<u>No. of Employees to Replenish Wastage*</u> (C) = (A) x 0.03	<u>Projected Annual Additional Manpower Requirement</u> (D) = (B) + (C)
IT Management <sup>(1)</sup>	7 474	244	224	468
IT / Software Development	45 077	1 154	1 352	2 506
Telecommunications & Networking				
IT Security				
Database				
Systems Programming				
Field Support	17 967	664	539	1 203
IT Sales & Marketing				
IT Education & Training	3 879	58	116	174
Sub-total	74 397	2 120	2 231	4 351
Operation Services	19 342	250	580	830
Grand Total	93 739	2 370	2 811	5 181

\* Annual wastage rate <sup>(2)</sup> of 3.0% at each job category is assumed.

- Notes: (1) IT management job titles under various job categories in the 2016 survey were all grouped under the IT management job category with a view to maintaining the historical trend for use in manpower projection of the IT sector.
- (2) "Wastage rate" is defined as the percentage of IT employees leaving their current IT jobs and taking up non-IT positions, emigrating and for other reasons, out of the total number of IT employees.
- (3) Figures may not add up to their totals due to rounding.

## Distribution of Projected Annual Additional Manpower Requirement from 2015 to 2018 by Preferred Academic Qualification by Job Category

2.62 By adopting employers' preferred academic qualification of IT employees in paragraph 2.44 and Appendix 14, the Committee estimates the distribution of projected annual additional manpower requirement from 2017 to 2020 by preferred academic qualification by job category in Table 2.27.

**Table 2.27 Distribution of Projected Annual Additional Manpower Requirement from 2017 to 2020 by Preferred Academic Qualification by Job Category**

<u>Job Category</u>	<u>Postgraduate (Higher degrees or equivalent)/ First Degree (First degree or equivalent)</u>	<u>Sub-Degree (Associate Degree, Higher Diploma, Professional Diploma, or equivalent)</u>	<u>Senior Secondary (Secondary 4-6, Diploma, HKDSE or equivalent)</u>	<u>Junior Secondary (Secondary 1-3 or equivalent)</u>	<u>Projected Annual Additional Manpower Requirement</u>
IT Management <sup>(1)</sup>	426	33	8	1	468
IT / Software Development	2 403	1 059	393	28	3 883
Telecommunications & Networking					
IT Security					
Database					
Systems Programming					
Field Support					
IT Sales & Marketing					
IT Education & Training					
Sub-total	2 829	1 092	401	29	4 351
Operation Services	222	295	278	35	830
Grand Total	3 051	1 387	679	64	5 181

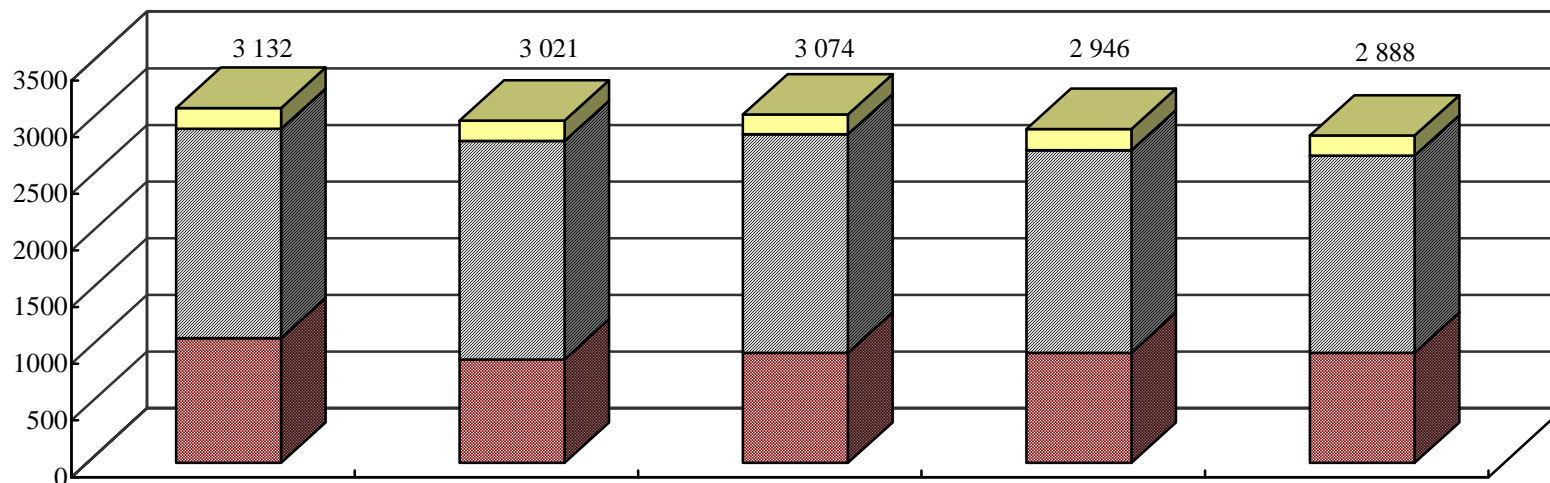
- Notes: (1) IT management job titles under various job categories in the 2016 survey were all grouped under the IT management job category.  
(2) Figures may not add up to their totals due to rounding.




## Estimated Supply of IT or Computing Graduates from Local Educational Institutions

2.63 Based on the information provided by the UGC-funded institutions, The Open University of Hong Kong, The HKU SPACE Community College, and the Vocational Training Council, Figures 18 & 19, and Appendices 22 & 23 show the existing planned output of their graduates from UGC / Government-funded and self-financed IT or computing programmes from 2016 to 2020.

**Figure 18 Planned Output of Graduates from UGC/Government-Funded IT or Computing Programmes from 2016 to 2020 by Educational Level**

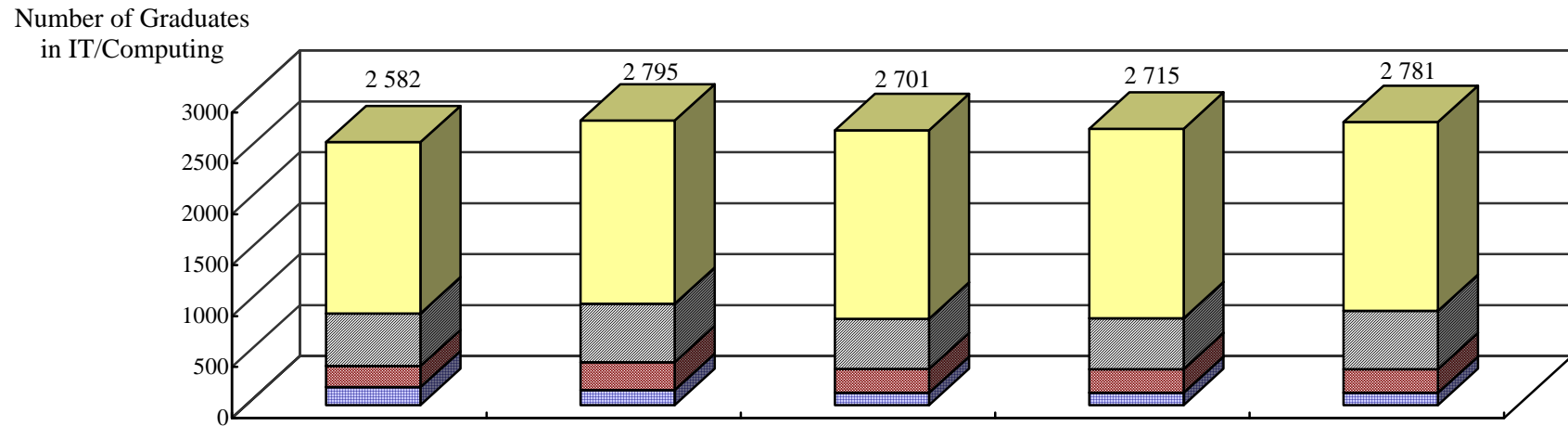
Number of Graduates  
in IT/Computing







Year \ Educational level	2016	2017	2018	2019	2020
Postgraduate 	185	181	175	188	176
Degree 	1 846	1 927	1 926	1 785	1 739
Sub-degree 	1 101	913	973	973	973
<b>Total</b>	<b>3 132</b>	<b>3 021</b>	<b>3 074</b>	<b>2 946</b>	<b>2 888</b>

Sources: UGC-funded institutions and the Vocational Training Council.

**Figure 19 Planned Output of Graduates from Self-Financed IT or Computing Programmes from 2016 to 2020 by Educational Level**



65

		Year				
Educational level		2016	2017	2018	2019	2020
Postgraduate		1 681	1 799	1 852	1 863	1 855
Degree		518	574	495	499	573
Sub-degree		207	274	234	233	233
Senior Secondary		176	148	120	120	120
Total		2 582	2 795	2 701	2 715	2 781

Sources: UGC-funded institutions, The Open University of Hong Kong, The HKU SPACE Community College, and the Vocational Training Council.

2.64 Supply of graduates including those existing IT employees who take upgrading courses is related to participation rate, which is the percentage of graduates in IT or computing programmes who will actually join the IT sector. After studying the Employment Surveys of Full-time UGC-funded Institutions Graduates in Academic Year (AY) 2014/15 in Figure 20, the Committee concludes that the successful participation rates for full-time first-degree graduates would not be less than 75% and for full-time sub-degree graduates would not be less than 60.0%. Accordingly, the average annual supply of graduates in IT or computing programmes joining the IT sector from local educational institutions from 2016 to 2020 is estimated in Table 2.28.

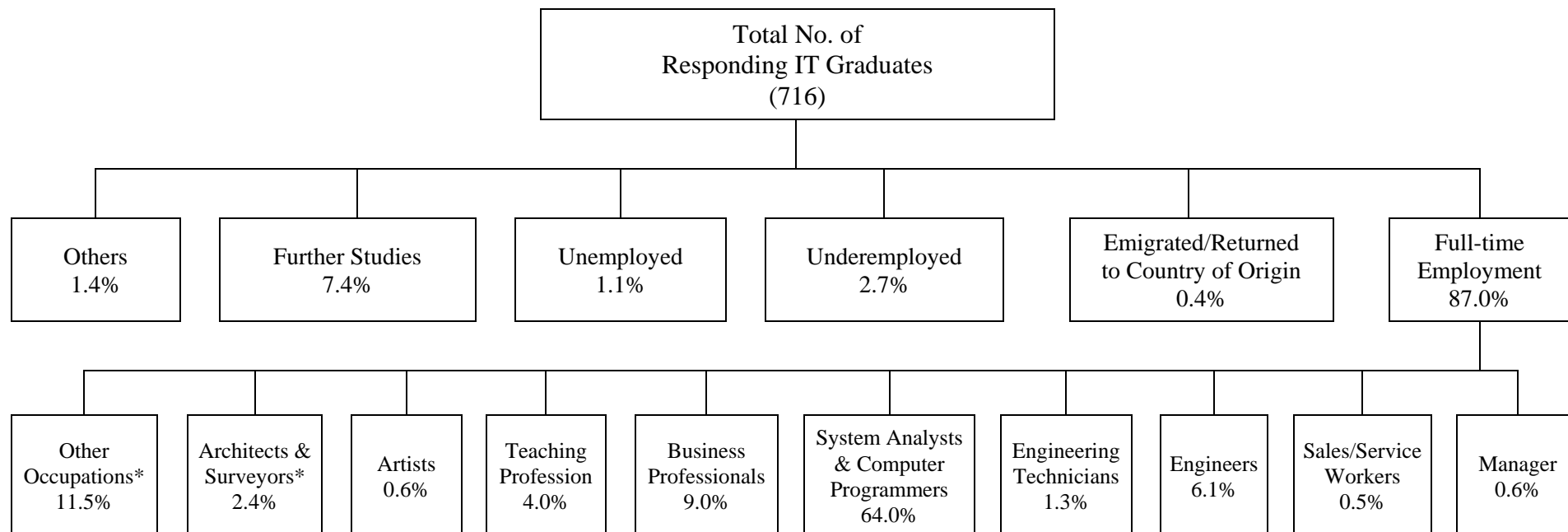
**Table 2.28 Estimated Average Annual Supply of Graduates in IT or Computing Programmes from 2016 to 2020 by Educational Level**

Educational Level	Mode	Average Annual No. of Graduates		Average* Successful Participation Rate	Average Annual Supply		
		<u>GF</u>	<u>SF</u>		<u>GF</u>	<u>SF</u>	<u>Total</u>
<b>Degree</b>							
Research Postgraduate Degree (MPhil/PhD) <sup>(1)</sup>	FT/PT	161	18	0.60	97	11	108
Taught Postgraduate Degree/Diploma/Certificate (MSc/MA) <sup>(1)</sup>	FT/PT	20	1 774	0.77	15	1 366	1 381
Postgraduate Degree/Certificate <sup>(3)</sup>	DL	-	18	0.77	-	14	14
First Degree <sup>(1)</sup>	FT/PT	1 845	120	0.75	1 384	90	1 474
First Degree <sup>(3)</sup>	FT F2F	-	182	0.77	-	140	140
First Degree <sup>(5)</sup>	DL	-	194	0.77	-	149	149
First Degree <sup>(4)</sup>	FT	-	36	0.75	-	27	27
<i>Sub-total</i>		<u>2 026</u>	<u>2 342</u>		<u>1 496</u>	<u>1 797</u>	<u>3 293</u>
<b>Sub-degree</b>							
Higher Diploma/Associate Degree <sup>(1)</sup>	FT	117	133	0.60	70	80	150
Higher Diploma/Associate Degree <sup>(2)</sup>	FT	-	170	0.60	-	102	102
Higher Diploma <sup>(4)</sup>	FT/PTE	870	67	0.67	583	45	628
Higher Diploma/Associate Degree <sup>(3)</sup>	DL/F2F	-	3	0.77	-	2	2
<i>Sub-total</i>		<u>987</u>	<u>373</u>		<u>653</u>	<u>229</u>	<u>882</u>
<b>Total</b>		<b><u>3 013</u></b>	<b><u>2 715</u></b>		<b><u>2 149</u></b>	<b><u>2 026</u></b>	<b><u>4 175</u></b>

\* Based on the Employment Surveys of Full-time UGC-funded Institutions, The Open University of Hong Kong, and the Vocational Training Council Graduates, 2014/15.

Remarks: FT = Full-time                      GF = UGC/Government-funded                      DL = Distance Learning  
PT = Part-time                              SF = Self-financed                              F2F = Face to Face  
PTE = Part-time Evening  
(1) Courses offered by the UGC-funded institutions  
(2) Courses offered by the HKU SPACE Community College  
(3) Courses offered by The Open University of Hong Kong  
(4) Courses offered by the Vocational Training Council

**Figure 20 Initial Destinations of Full-time First-degree Graduates from UGC-funded IT or Computer Science Programmes**



\* Occupations not relevant to participation rate were excluded. As a result, the successful participation rate calculated was 75.0% (i.e. 87.0% x 86.1%) for full-time first-degree UGC-funded graduates.

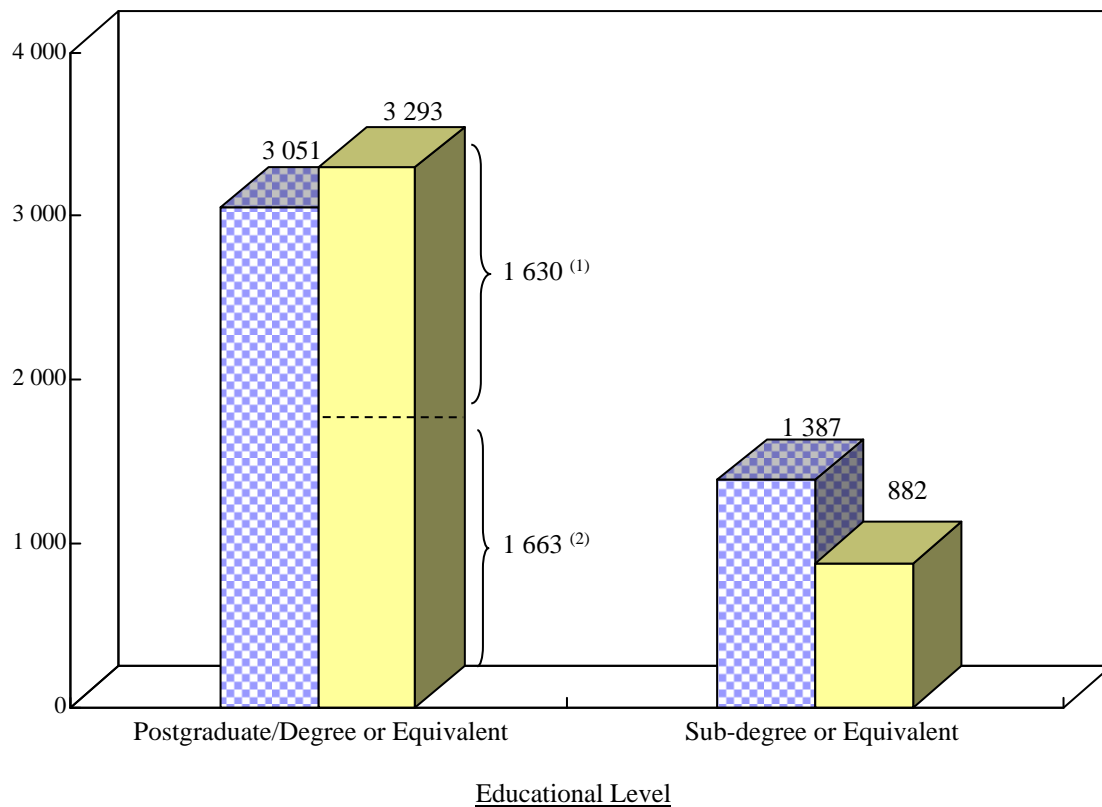
Source: Employment Survey of the Graduates from Full-time UGC-funded Programmes in Academic Year 2014/15.

## Manpower Demand and Supply Analysis

2.65 The primary objective of the analysis is to assess the annual additional manpower demand and supply situation of the IT sector from 2017 to 2020 by educational level as shown in Figure 21.

**Figure 21 Annual Additional Manpower Demand and Supply Situation from 2017 to 2020 by Educational Level**

IT Manpower



- Annual Additional Manpower Requirement
- Annual Manpower Supply from Local IT or computing Programmes

Notes : (1) Annual manpower supply from local IT or computing programmes includes those existing IT employees who take self-financed upgrading courses in part-time or distance learning mode.  
 (2) Annual manpower supply from local IT or computing programmes includes those who take full-time courses.

2.66 From Tables 2.26, 2.27 and Figure 21, it can be concluded that the average annual supply of 3 293 local degree graduates from IT or computing programmes would be able to meet the forecast annual additional manpower demand for 3 051 IT employees with such qualification. A recruitment pattern of systems analysts / computer programmers by educational level by academic programme category (other than IT / computer science) is shown in Figure 22.

2.67 The Committee observes, as shown in Table 2.26, that the annual additional manpower requirement above the “operation services” category is 4 351, and 2 829 (or 65.0%) of them should have a degree, postgraduate diploma or professional qualification. It appears, as shown in Table 2.10, that most IT staff in various industry sectors are either promoted internally or experienced persons recruited from Hong Kong. This would create further vacancies at various IT jobs to be filled by fresh university graduates.

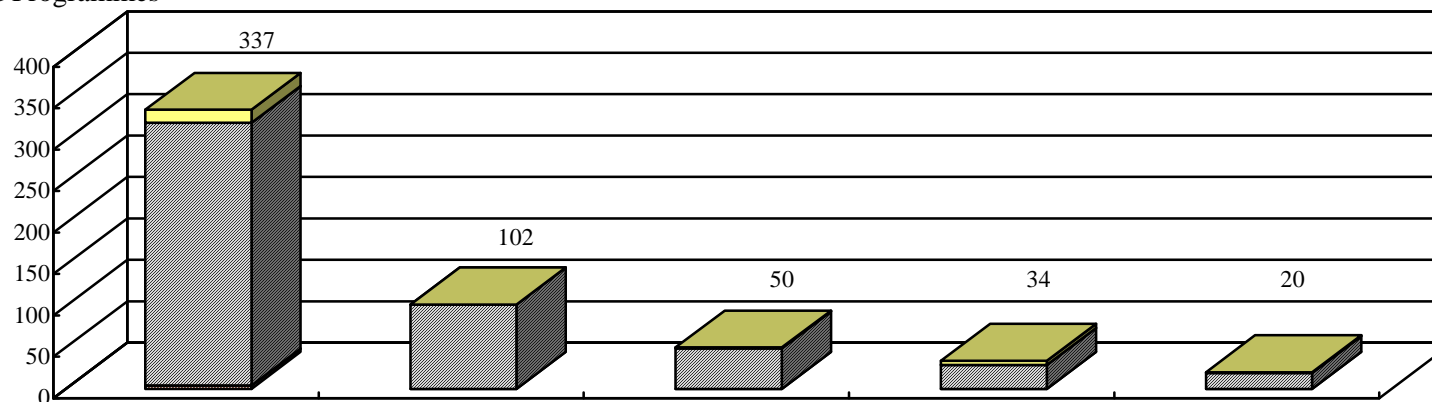
2.68 At the sub-degree level, the forecast annual additional manpower demand for 1 387 IT employees would not be able to meet by the average annual supply of 882 IT or computing graduates with such qualification. The forecast annual shortfall of 505 additional IT employees could be met in general by IT or computing graduates returning from overseas and non-IT / computing graduates who have received in-depth conversion IT training. Many local graduates pursuing non-IT or non-computing related courses are willing to attend various IT courses offered by local educational institutions and subsequently take up IT jobs.

2.69 For the other academic qualifications level, the IT sector will need to recruit annually 743 people for various IT jobs (Table 2.27). Such demand can be met from the supply of Senior Secondary or below school leavers. Most of these people should need relevant skill training before they are capable of performing the IT jobs effectively. Local educational and training institutions and employers will provide basic skills training to meet their needs.



**Figure 22 Recruitment Pattern of System Analysts/Computer Programmers by Educational Level by Academic Programme Category (APC) (Other Than IT/Computer Science)**

Number of Graduates from Full-time UGC-funded Programmes



Educational level	Academic Programme Category					Total
	Engineering & Technology	Business & Management Studies	Mathematical Sciences/Social Sciences	Arts, Design & Performing Arts/Physical Sciences	Others <sup>(1)</sup>	
Postgraduate	16	-	1	5	1	23
Degree	317	102	49	29	19	516
Sub-degree	4	-	-	-	-	4
<b>Total</b>	<b>337</b>	<b>102</b>	<b>50</b>	<b>34</b>	<b>20</b>	<b>543</b>

Notes : (1) Other APCs include biological sciences, mass communication & documentation, languages & related studies, law, medicine, and education.

(2) As some programmes of the UGC-funded institutions are mapped to more than one APC, students on these programmes are counted across the APCs concerned on a pro rata basis. Thus the student numbers of some APCs are decimal figures. In the above table, the relevant figures are rounded to the nearest whole number.

Source : Employment Survey of the Graduates from Full-time UGC-funded Programmes in Academic Year 2014/15.

## ***Business Outlook in the IT Sector***

### **Employment Trend**

2.70 The IT sector grew steadily throughout the 2000s, with an average compound annual growth rate of 3.4% in the number of IT employees (including freelancers) from 2004 (62 098) to 2016 (87 794) shown in Table 2.29.

**Table 2.29 Average Compound Annual Growth Rate of IT Employees  
(March 2004 to April 2016)**

	Number of Persons Engaged							Average Compound Annual Growth Rate		
	March 2004	April 2006	May 2008	May 2010	May 2012	April 2014	April 2016	2004-2008 %	2010-2014 %	2004-2016 %
IT Employees <sup>(1)</sup>	62 098 (-1.6)	64 473 (3.8)	66 697 (3.4)	73 378 (10.0)	78 685 (7.2)	82 973 (5.4)	87 794 (5.8)	1.8	3.1	3.4

Notes: (1) Number of IT Employees including freelancers.  
(2) Figures in brackets are percentage changes over the previous survey.

2.71 The local economy appears robust and has led to an active employment market, with employees remaining optimistic. As a result, the seasonally adjusted unemployment rate fell to 3.4% in Q2 2016, which was higher than the 3.3% in both Q4 2015 and Q1 2015. The underemployment rate also fell to 1.4% in Q1 2016, higher than the 1.3% in Q4 2015 (Source: Census and Statistics Department). Amid a tight labour market and with the additional boost of statutory minimum wage (SMW) implementation since May 2011, wages and earnings saw further notable growth. The employment situation in the IT sector going forward continues to hinge crucially on the overall economic growth and the pace of job creation. In this regard, uncertainties in the external environment, in particular due to the slowdown in China's economic growth, the prospects for an anticipated US Federal Reserve rate hike and the negative development in the euro-zone banking sector, remain a cause of concern.

### **Impact of New Technology and Global Trend**

2.72 The Committee believed that with the impact of new technologies such as big data, data science and analytics, artificial intelligence, the IT practitioners should continue to acquire the knowledge and skills of these technologies such that they would follow the global trend to provide the optimal services and products to meet the growing customers' expectation.

2.73 According to the findings of the survey, IT / software development, operation services, and field support skills remain in strong demand, particular for IT architects, systems analysts, programmers, web designers / developers, field technicians, computer / systems operators, help desk representatives and user support / co-ordinators, and sales / marketing representatives who offer a blend of deep technical expertise with solid customer-service abilities. However, the factors that might affect the growth rate of the IT sector for the years ahead include industry consolidation, the introduction of new technologies, greater use of services outside the sector, and competition from different emerging media platforms. In this respect, every branch in the IT sector is looking to empower their people, reduce costs, improve their customer connections (via digital / social media) and create new opportunities through their technology investments.

2.74 The Committee observes in Figure 13 that the percentage distribution of IT employees engaged in the IT and communication services organizations will continue to grow steadily for the years ahead to meet technology advances, regulatory changes and mobile lifestyles that have significantly reshaped their services delivery landscape. The increasing number of mergers and acquisitions will further boost the market for the IT sector that specializes in integrating existing networks.

2.75 New growth areas will continue to arise as a result of rapidly evolving technologies and business forces. The increasing convergence of telecommunications, broadcasting and IT has created a demand for a wide variety of new products and services, including mobile television services, network design services, creation of new digital and multimedia contents, and manufacturing of new consumer products. The development of the Lok Ma Chau Loop into the Hong Kong / Shenzhen Innovation and Technology Park (HK/SZ I&T Park), will help shape the future of Hong Kong's information and technology development. The planned new park is about four times the current size of the Hong Kong Science Park. It will provide land for the long-term development of innovation and technology, thereby enhancing Hong Kong's attraction to the Mainland and overseas technology enterprises and research institutions. The HKSAR Government has also committed to fostering Hong Kong as the prime location for data centres in Asia Pacific. Besides, the HKSAR Government will also establish a framework for Information and Communications Technology (ICT) professional recognition in Hong Kong, with reference to international practices and frameworks of other economies, so as to raise the professional profile of local IT professionals. In addition, the new development of the expansion three runway system in the Airport will certainly boost up the demand for IT talents to enhance the communication and air cargo building systems.

## **Enhanced Collaboration with Mainland China**

2.76 The Mainland recorded an economic growth of 6.5% in 2016, showing a slower economic growth and is moving towards a more sustainable growing path under the National 13th Five-Year Plan for 2016-2020. It is noted that the Government will continue to forge closer economic ties with the Mainland through CEPA and other regional co-operation platforms, in particular, the Mainland's "Belt and Road" Initiative, which encompasses over 60 economies (including many emerging market economies in Southeast and Central Asia, Central and Eastern Europe, as well as Africa), will bring forth extensive business opportunities stemming from infrastructural investments, deepening of financing linkages, trade expansion and people-to-people connectivity.

2.77 To meet the opportunities and challenges ahead including closer integration of Hong Kong's economy with that of the Mainland, the Committee recommends that there could be more sharing of professional experience and service know-how of the IT sector between the Hong Kong and Mainland professionals via regular industrial visits across the border. The IT practitioners should be familiarized with working and doing business in the Mainland, strengthening business networks with Mainland counterparts, speeding up with China's economic and technology policies so as to keep abreast of the development of Mainland's technology industries and companies.

## **Demand and Supply of IT**

2.78 The growth of mobile devices, big data and social media is a key economic driver in many developed countries, fuelling the continuous innovation of consumer products, corporate services, and social interactions at the national and global level for more than half a century. On the demand side of IT, Hong Kong ranks 12<sup>th</sup> out of 139 countries / economies in the Networked Readiness Index of The Global Information Technology Report 2016 produced by the World Economic Forum (2015 rank: 14<sup>th</sup> out of 143 countries / economies). However, there is little research on the supply side of IT and its impact on the economic growth of Hong Kong. As sustainable economic development depends on both the supply and demand of IT, it is therefore imperative to understand the impact of IT on different industry sectors and to develop a strategy to ensure a continuous pipeline of IT talent.

## SECTION III

### RECOMMENDATIONS

#### Annual Additional Training Requirement

3.1 The findings of the survey reflect the manpower situation of the IT sector at the time of the survey. However, the current uncertainty in global financial markets might have an effect on the IT manpower demand. The manpower data and forecast in the report should therefore be read in this context.

3.2 Based on projected average annual manpower growth, estimated wastage rate (as shown in Table 2.26 of paragraph 2.60), recent development of the IT sector and industry members' experience, the Committee estimates the annual additional training requirement for IT employees from 2017 and 2020 by job category as shown in Table 3.1.

**Table 3.1 Estimated Annual Additional Training Requirement for IT Employees from 2017 and 2020 by Job Category**

<u>Job Category</u>	<u>Estimated Annual Additional Training Requirement</u>
IT Management <sup>(1)</sup>	421 – 515
IT/Software Development	} 3 495 – 4 271
Telecommunications & Networking	
IT Security	
Database	
Systems Programming	
Field Support	
IT Sales & Marketing	
IT Education & Training	
Operation Services	747 – 913
Total	4 663 – 5 699

- Notes: (1) IT management job titles under various job categories in the 2016 survey were all grouped under the IT management job category.  
 (2) Figures may not add up to their totals due to rounding.

## **Skills Needed to Cope with the New Technology and Global Trend**

### Data Science, Big Data and Data Analytics

3.3 Dealing with unstructured and structured data, Data Science is a field that comprises of everything that related to data cleaning, preparation, and analysis. It is the combination of statistics, mathematics, programming, problem solving, capturing data in ingenious ways, the ability to look at things differently, and the activity of cleansing, preparing, and aligning the data. In simple terms, it is the umbrella of techniques used when trying to extract insights and information from data. Big Data refers to humongous volumes of data that cannot be processed effectively with the traditional applications that exist. The processing of Big Data begins with the raw data that is not aggregated and is most often impossible to store in the memory of a single computer. It is something that can be used to analyse insights which can lead to better decision and strategic business moves. The definition of Big Data, given by Gartner is, “Big data is high-velocity and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation”. Data Analytics is the science of examining raw data with the purpose of drawing conclusions about that information and it involves applying an algorithmic or mechanical process to derive insights. For example, running through a number of data sets to look for meaningful correlations between each other. It is used in a number of industries to allow the organizations and companies to make better decisions as well as verify and disprove existing theories or models. The focus of Data Analytics lies in inference which is the process of deriving conclusions that are solely based on what the researcher already knows.

### Internet and Cyber Security

3.4 Internet security is a branch of computer security specifically related to the Internet, often involving browser security but also network security on a more general level as it applies to other applications or operating systems on a whole. Its objective is to establish rules and measures to use against attacks over the Internet. The Internet represents an insecure channel for exchanging information leading to a high risk of intrusion or fraud, such as phishing. Different methods have been used to protect the transfer of data, including encryption and from-the-ground-up engineering.

3.5 Whereas, cybersecurity is the protection of computer systems from the theft or damage to the hardware, software or the information on them, as well as from disruption or misdirection of the services they provide. It includes controlling physical access to the hardware, as well as protecting against harm that may come via network access, data and code injection, and due to malpractice by operators, whether intentional, accidental, or due to them being tricked into deviating from secure procedures. The field is of growing importance due to the increasing reliance on computer systems and the Internet in most societies, wireless networks such as Bluetooth and Wi-Fi and the growth of “smart” devices, including smartphones, televisions and tiny devices as part of the Internet of Things.

## Social Media Communication Skills

3.6 Fused into people's everyday life, mobile applications are rapidly developing the global mobile market. This powerful platform, when integrated with the highly interactive social media, further enables brands to engage customers deeper, anytime, anywhere. With the rise in social media accesses through mobile phones, the Committee recommends that IT practitioners should capitalize on the opportunities and upgrade themselves by getting more training and gaining more experience with the latest trend of digital / new media (such as social networking platform, web searching, apps development, mobile security, web / big data analytics, and cloud computing platform) and build awareness of services and products through m-commerce offering to reach the global market. The combination of IT Skills with entertainment tools is a new trend in social media to arouse the interest of potential or existing customers to be engaged in their services or products.

## FinTech

3.7 FinTech can enhance operational efficiency and help foster new modes of development for the financial service industry. As an international financial centre with a highly developed information and communication technology sector, Hong Kong is an ideal place for developing FinTech. In its broadest usage, FinTech refers to the application of IT within financial services, above all, the rise of the internet as a means of lowering barriers both to entry and costs within the industry. New development in FinTech includes Financing, Payments & Infrastructure, Operations & Risk Management, Data Security Monetisation and Customer Interface. The demand for FinTech talents has been on the rise in recent years. To support Hong Kong's growth into a global FinTech hub, the local regulatory authority, banks and universities have rolled out different initiatives to nurture FinTech talents. In addition, The Hong Kong Monetary Authority (HKMA) and the Applied Science and Technology Research Institute (ASTRI) launched the FinTech Accelerator Scheme (FCAS) last December. The scheme provides up to one-year internship for undergraduate and postgraduate students in designated disciplines in 10 universities to take part in the FinTech projects of 12 banks and HKMA. The types of FinTech projects offered by the participating banks include cybersecurity, distributed ledger technology, big data analytics, artificial intelligence, biometric authentication, mobile app development etc. It is no doubt that FinTech is growing to be one of the major development in IT sector.

## Business Skills for IT Professionals

3.8 As technology increasingly intertwines with business operations, IT professionals can no longer rely on deep technical knowledge to progress their careers, but will have to understand how to translate IT into dollars, according to new research. With IT becoming an integral part of driving innovation and progress in almost every sector, the role of the IT professional has changed significantly in recent years. IT departments have traditionally operated as enclaves in a business, with IT staff rarely venturing beyond their role of caring for the core tech needs of businesses and workers. But IT workers need to think more broadly about how IT can work for their businesses. The architecture of IT as the embodiment of the business model, should be the information, the applications, and infrastructural support for the business. IT professionals in a corporation should have an understanding of what the business wants to achieve and think of how technology implementations can support those goals. In a world of functional interdependencies, live and online communication, internal and external customer service expectations, and business outsourcing, interpersonal skills are affecting individual and team performance more than ever. Research has demonstrated clearly that technical skills alone do not distinguish standout employees. Competencies such as initiative, business awareness, leadership, collaboration and communication also play an important role. The Business Skills for IT Professionals are essential specifically to equip technical professionals with the inter-personal skills and business knowledge required to succeed in today's demanding business environment.

## Skills Needed

3.9 The development of new communication technology, globalisation, the advent of a knowledge-based economy, the enforcement of CEPA and the rapid economic development of the Mainland provide tremendous scope for IT development. The changing role of IT employees today requires them to acquire the relevant skills / knowledge (such as information and system security, virtualization and cloud computing, networking / data communications, IT applications in customer relationship management, Internet / Intranet / web development, and Data Science and Data Analytics and e-learning Technology and Development, of which the training demand would increase substantially (as shown in Table 2.20 of paragraph 2.50).

## **The Role of Educational and Training Service Providers**

### Local Educational Institutions

3.10 The Committee observes that IT graduates are expected to have in-depth training with emphasis on specific IT skills (such as information & systems security, mobile computing, networking / data communications, and virtualization & cloud computing), China related knowledge (such as understanding of IT practice specific in the Mainland of China, and generic skills (such as liberal sense, creative/design thinking, critical thinking, business mind sets, professional ethics, and communication skills) for building up their professionalism in the IT sector.



3.11 The Committee recommends that the local educational institutions could offer more degree and sub-degree courses in the IT Discipline so that more secondary school graduates could be encouraged to study IT related programmes when they attend tertiary education and to adopt IT as a career, whereby 77.7% of IT posts are preferred to have sub-degree or above qualifications (as shown in Figure 15 of paragraph 2.44). In addition, the availability of Internship opportunities to support problem or project-based economy is encouraged.

3.12 The Committee also recommends that the secondary schools should have strengthened coverage on Mathematics, programming and technologies to let the students appreciate the subjects and also to prepare them for related studies in the future. Besides, the students and IT practitioners should understand the Hong Kong Qualifications Framework which enables them to pursue their goals according to their own roadmaps.

### STEM Education

3.13 The promotion of STEM education aligns with the worldwide education trend of equipping students to meet the changes and challenges in our society and around the world with rapid economic, scientific and technological developments. Along this line, the Student Education Fair on Science, Technology and Mathematics 2016, jointly organised by the Education Bureau and the Hong Kong Science & Technology Parks Corporation, aimed to showcase and celebrate a wide range of student achievements on Science, Technology, Engineering and Mathematics (STEM) related areas. This signature event will provide quality learning experiences for students to enhance their interests in learning, creativity and innovation as well as to strengthen their ability in integrating and applying cross-disciplinary knowledge and skills. In addition, students are encouraged to visit the STEM Education Centers in various campuses in the VTC to keep abreast of the latest development in the related areas.

### Enhanced Collaboration with Mainland China

3.14 The Mainland recorded an economic growth of 6.5% in 2016, showing a slower economic growth and is moving towards a more sustainable growing path under the National 13th Five-Year Plan for 2016-2020. It is noted that the Government will continue to forge closer economic ties with the Mainland through CEPA and other regional co-operation platforms, in particular, the Mainland's "Belt and Road" Initiative, which encompasses over 60 economies (including many emerging market economies in Southeast and Central Asia, Central and Eastern Europe, as well as Africa), will bring forth extensive business opportunities stemming from infrastructural investments, deepening of financing linkages, trade expansion and people-to-people connectivity.

3.15 The IT practitioners should be familiarized with working and doing business in the Mainland, strengthening business networks with Mainland counterparts, speeding up with China's economic and technology policies so as to keep abreast of the development of Mainland's technology industries and companies. They are encouraged to keep abreast of the development of "Internet Plus" which referred to the application of the Internet and other information technology in conventional industries and initiatives such as "Industry 4.0" and "Made in China 2025", referring to the application of the tools of information technology to production which are the key initiatives to upgrade the manufacturing industries in China.

#### Internship Programmes for Students

3.16 Internship programmes in collaboration with education institutions with funding sources from government or employers could be explored to equip the IT students with the necessary skills and capabilities to enhance their employability upon graduation. These programmes would resolve the major difficulties encountered by employers in the recruitment of IT employees where they find candidates lack the relevant experience and skills / expertise.

#### Strengthening the Technical know-how of IT Workforce

3.17 To strengthening the technical know-how of IT Workforce, the Committee recommends that VTC enhance the collaboration with prominent IT companies, trade associations and professional bodies to offer courses for those IT practitioners to keep abreast of the advanced technologies related to IT sector.

#### New Technology Training Scheme

3.18 The Sub-Committee on Training in New Technologies of the Committee on Technologist Training of the VTC is responsible for the implementation and administration of the New Technology Training Scheme (NTTS). In the context of the Scheme, new technologies are those which are not widely applied in Hong Kong and the absorption and application of which will significantly benefit Hong Kong. The Scheme provides financial assistance to companies that wish to have their staff trained in a new technology including IT that would be useful to their businesses, and the financial assistance is given in the form of a training grant which may be up to a maximum of 50% of the total training cost incurred. Any employers in Hong Kong wishing to acquire a new technology for industrial and commercial application may apply for a training grant under the Scheme.

#### Engineering Graduate Training Scheme (EGTS)

3.19 To bring about more well-structured practical training opportunities in local industries for engineering graduates, the Committee on Technologist Training of the Vocational Training Council is operating a subsidized training scheme to provide engineering graduates with 18 months practical training of a standard acceptable for corporate membership of the Hong Kong Institution of Engineers. Each graduate receiving training under the scheme is granted a subsidy through his employer as part of his salary and the training progress is monitored by the Committee.

## **Future Surveys**

3.20 As the IT sector is changing rapidly and is affected by the development of new technologies, products and services, the Committee considers that the current practice of conducting manpower survey should be continued to assess future manpower requirement in the IT sector.

## **Membership List**

### **Committee on Information Technology Training and Development** **(As in October 2016)**

Chairman:

Ir LEE Wai-kwong, Sunny, JP (nominated by the IT management field)

Members:

Ms CHAN Fung-kwan, Donna (representing the Government Chief Information Officer)

Mr CHENG Chung-ngam, Rocky (ad personam)

Mr CHENG Siu-hong, Raymond (nominated by the financing, insurance, real estate and business services sector)

Ms CHIU Cheuk-mun, Barbara (nominated by the transport, storage and communication sector)

Dr FOK Ting-yeung, James (nominated by the electronic design sector)

Dr HUNG Kim-fung, Measure (nominated by the wholesale/retail and import/export trades)

Dr KAI Sze-fai, Alex (nominated by the community, social and personal services sector)

Mr LEE Chun-keung, Dennis (nominated by a software vendor/developer)

Dr LEUNG Hing-pong, Joseph (representing the Executive Director of the Vocational Training Council)

Mr LO Siu-chung, Gordon (nominated by the Hong Kong Productivity Council)

Prof MENG Mei-ling, Helen (nominated by the IT education and training field)

Mr PANG Tsz-kit, Gabriel (nominated by the digital creative industry)

Mr TAI Chark-tong, Tony (nominated by the software development and support field)

Prof TAM Kar-yan	(ad personam)
Dr WONG Chung-kiu, MH	(nominated by the application programming field)
Mr YEUNG Chun-lam, Cedric	(nominated by the IT sales and marketing field)

In Attendance:

Dr LAI Shui-yu, Andy	(Technological and Higher Education Institute of Hong Kong)
Mr LI Yat-chuen	(Institute of Professional Education And Knowledge)
Dr ONG Lay-lian	(Hong Kong Institute of Vocational Education)

Secretary:

Mr LEUNG Wing-kwan, Freddy	(Vocational Training Council)
----------------------------	-------------------------------

**Membership List**  
**Working Party on 2016 Manpower**  
**Survey of the Information Technology Sector**  
**(As in October 2016)**

Convener:

Prof MENG Mei-ling, Helen (The Chinese University of Hong Kong)

Members:

Ms CHAN Fung-kwan, Donna (Office of the Government Chief Information Officer)

Mr CHENG Siu-hong, Raymond (The Hongkong and Shanghai Banking Corporation Limited)

Ms CHIU Cheuk-mun, Barbara (Cisco Systems (HK) Limited)

Dr FOK Ting-yeung, James (GS Solutions Limited)

Dr KAI Sze-fai, Alex (Shun Tak Fraternal Association Yung Yau College)

Mr LEE Chun-keung, Dennis (Wisage Technology Limited)

Dr LEUNG Hing-pong, Joseph (Vocational Training Council)

Mr LI Yat-chuen (Institute of Professional Education And Knowledge)

Dr ONG Lay-lian (Hong Kong Institute of Vocational Education)

Mr PANG Tsz-kit, Gabriel (Firedog Creative Company Limited)

Prof TAM Kar-yan (Hong Kong University of Science and Technology)

Dr WONG Chung-kiu, MH (iASPEC Services Limited)

Mr YEUNG Chun-lam, Cedric (Armitage Technologies Ltd.)

Co-opted Member:

Mrs MAK TANG Pik-ye, Agnes, MH, JP (Hong Kong Productivity Council)

Mr TAM Kwok-kiu, Edwin (InfoTech Services (Hong Kong) Limited)

In Attendance:

Mr FUNG Yan-kin, Kenneth

(Census and Statistics Department)

Mr KWOK Ming-lok, Eddie

(Census and Statistics Department)

Secretary:

Mr LEUNG Wing-kwan, Freddy

(Vocational Training Council)

## **Terms of Reference**

### **Committee on Information Technology Training and Development**

1. To determine the total manpower and training needs of all sectors of the economy for information technology (IT) personnel.
2. To investigate the institutional and in-company training facilities available for the training and development of IT personnel and to make recommendations to the Council on additional facilities required.
3. To advise the Institute of Professional Education And Knowledge (PEAK) and the Hong Kong Institute of Vocational Education (IVE) on the direction and strategic development of their IT programmes.
4. To advise on the course planning, curriculum development and the quality assurance system of the PEAK and IVE.
5. To prescribe job specifications and advise on training programmes for the principal IT jobs and training required.
6. To tender advice in respect of skill competitions in IT.
7. To organize seminars/conferences for the promotion or betterment of the IT training and development.
8. To liaise with employers, training boards, general committees, training and development centres, educational and training institutions, government departments on all matters pertaining to IT Training and development.
9. To advise on the publicity relating to the activities of the Committee and the VTC's IT programmes.
10. To submit to the Council an annual report on the CITTD's work and its recommendations on the strategies for the IT discipline.
11. To undertake any other functions delegated by the Council in accordance with Section 7 of the Vocational Training Council Ordinance.



Headquarters (Industry Partnership) 總辦事處(行業合作)  
30F, Billion Plaza II, 10 Cheung Yue Street, Cheung Sha Wan, Kowloon, Hong Kong  
香港九龍長沙灣長裕街10號億京廣場2期30樓  
www.vtc.edu.hk

Telephone No 電話

Facsimile No 傳真

Our Reference 本局檔號 ITTD/4/2 (2016)

Your Reference 來函檔號



8 April 2016

Dear Sir/Madam,

The 2016 Manpower Survey of the  
Information Technology Sector

The Vocational Training Council (VTC) is a statutory body appointed by the Government to be responsible for manpower training in Hong Kong.

The Committee on Information Technology (IT) Training and Development is one of the general committees and training boards of the VTC. It is established to assess the manpower situation and to devise training plans to meet the manpower needs of the IT sector.

With the assistance of the Census and Statistics Department, the Committee will conduct the Manpower Survey of the IT Sector from 14 April to 13 May 2016. The purpose of the survey is to obtain accurate data concerning the present and future manpower situation and training information so as to enable the Committee to formulate appropriate training plans to meet the needs of the sector. The survey findings will serve as reliable guidelines for employers' manpower planning and also advise on the training strategies of the companies. Your co-operation in supplying the information will be very much appreciated.

---- I enclose the following documents for your reference and completion:

- (a) Questionnaire – Parts I and II (Appendix A);
- (b) Explanatory notes (Appendix B);
- (c) Definition of type of training under column (J) of Questionnaire (Part I) (Appendix C); and
- (d) Descriptions of principal jobs in the IT sector (Appendix D).

Please note that for question under column (J) of the Part I on the training needs of existing employees in the next 12 months, you may wish to seek confirmation/advice from your IT department or personnel.

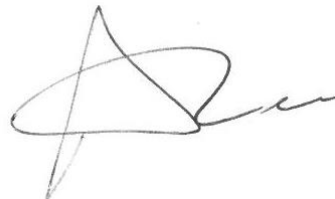
During the survey period, an officer of the Census and Statistics Department will contact your office. The interviewing officer will answer any questions you may have and assist in the completion of the questionnaire if necessary.

You may wish to download the previous version of the Manpower Survey Report on the IT Sector from the VTC website at <http://citttd.vtc.edu.hk>. The 2016 Manpower Survey Report will also be uploaded when it is ready.

I wish to assure you that the information collected will be handled in strict confidence and will be published only in the form of statistical summaries without reference to individual organisations.

Should you have any questions regarding the survey, please contact the Manpower Statistics Section of the Census and Statistics Department at 2116 8172.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'LEE Wai-kwong', written in a cursive style.

(Ir LEE Wai-kwong, Sunny)  
Chairman  
Committee on Information Technology  
Training and Development

**CONFIDENTIAL**  
 WHEN ENTERED WITH DATA

填入數據後即成  
**機密文件**

**VOCATIONAL TRAINING COUNCIL**  
**職業訓練局**

**THE 2016 MANPOWER SURVEY OF THE INFORMATION TECHNOLOGY SECTOR**  
**資訊科技業二〇一六年人力調查**

**QUESTIONNAIRE**  
**調查表**

(PLEASE READ THE EXPLANATORY NOTES BEFORE COMPLETING THIS QUESTIONNAIRE)  
 (填表前請參閱附註)

For official use only: 此欄毋須填寫	Rec. Type	Survey Code	Industry Code	Establishment No.	Enumerator's No.	Editor's No.	Check Digit	No. of Employees Covered by the Questionnaire
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NAME OF COMPANY: \_\_\_\_\_  
 公司名稱

ADDRESS: \_\_\_\_\_  
 地址

NATURE OF BUSINESS: \_\_\_\_\_  
 業務性質  
 TOTAL NO. OF PERSONS ENGAGED IN THE COMPANY: \_\_\_\_\_  
 公司的僱員總人數

NAME OF PERSON TO CONTACT: \_\_\_\_\_  
 聯絡人姓名  
 \_\_\_\_\_ 28  
 \_\_\_\_\_ 47

TEL. NO.: \_\_\_\_\_ - \_\_\_\_\_  
 電話  
 \_\_\_\_\_ 48 \_\_\_\_\_ 55 \_\_\_\_\_ 56 \_\_\_\_\_ 63

E-MAIL: \_\_\_\_\_  
 電郵  
 \_\_\_\_\_ 64 \_\_\_\_\_ 98

**Part I**  
**第一部份**

(A) Job 職務		(B) Average Annual Remuneration Package  每年平均 薪酬	(C) No. of Employees as at 14.4.2016 (Excl. Freelancers <sup>#</sup> )  在2016年 4月14日的 僱員人數 (不包括自由 工作者 <sup>#</sup> )	(D) No. of Freelancers <sup>#</sup> as at 14.4.2016  在2016年 4月14日的 自由工作者 <sup>#</sup> 人數	(E) No. of Vacancies as at 14.4.2016  在2016年 4月14日的 空缺額	(F) No. of Posts as at April 2015 (Incl. Freelancers <sup>#</sup> )  在2015年4月的 職位數目 (包括自由 工作者 <sup>#</sup> )	(G) Forecast No. of Posts as at April 2017 (Incl. Freelancers <sup>#</sup> )  預計 在2017年4月的 職位數目 (包括自由 工作者 <sup>#</sup> )	(H) Preferred Academic Qualification  僱員宜有 學歷	(I) Preferred Relevant Years of IT Experience  僱員宜有的 資訊科技 相關年資	(J) Training Needs of Existing Employees in the Next 12 Months (Please select up to three options)  未來十二個月現職 僱員的訓練需求 (可選最多三項)			
Job Title 職稱	Rec. Type	Job Code 職務編號	Code 編號 (See below) (參閱 本頁下端)					Code 編號 (See below) (參閱 本頁下端)	Code 編號 (See below) (參閱 本頁下端)	Code 編號 (See overleaf) (參閱背頁)			
(See Appendix D) (參閱附錄 D)		8 - 10	11	12 - 15	16 - 19	20 - 23	24 - 27	28 - 31	32	33	34 - 35	36 - 37	38 - 39
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25.	2												

**Coding Descriptions for Part I**

**第一部份編號說明**

**Column (B)**

**(B) 欄**

Enter in Column (B) the average **annual remuneration package** of employee(s) according to the following codes:

請將僱員**每年**平均薪酬按下列編號填入(B)欄內：

(Annual Basic Salary + Annual Bonus/Commission + Annual Housing Allowance/Benefit + Other Regular Allowance)

Code 編號	(Annual Basic Salary + Annual Bonus/Commission + Annual Housing Allowance/Benefit + Other Regular Allowance) (每年底薪+每年花紅/佣金+每年房屋津貼/福利+其他定期津貼)
1	HK\$1,080,001 or more 港幣1,080,001元或以上
2	HK\$600,001 - HK\$1,080,000 港幣600,001元至1,080,000元
3	HK\$360,001 - HK\$600,000 港幣360,001元至600,000元
4	HK\$240,001 - HK\$360,000 港幣240,001元至360,000元
5	HK\$100,001 - HK\$240,000 港幣100,001元至240,000元
6	HK\$100,000 or below 港幣100,000元或以下

**Column (H)**

**(H) 欄**

Enter in Column (H) the preferred academic qualification which an employee should have according to the following codes:

請將僱員宜有學歷按下列編號填入(H)欄內：

Code 編號	Preferred Academic Qualification 宜有學歷
1	Postgraduate (Higher degrees (e.g. master degrees) or equivalent) 研究院(高等學位(如碩士學位)或同等教育程度)
2	First Degree (First degree or equivalent) 學士學位(學士學位, 或同等教育程度)
3	Sub-degree (Associate Degree, Higher Diploma, Professional Diploma, Higher Certificate or equivalent) 副學位(副學士、高級文憑、專業文憑、高級證書, 或同等教育程度)
4	Senior Secondary (Secondary 4-6, Diploma, HKDSE or equivalent) 高中(中四至中六、文憑、香港中學文憑考試, 或同等教育程度)
5	Junior Secondary (Secondary 1-3 or equivalent) 初中(中一至中三, 或同等教育程度)

**Column (I)**

**(I) 欄**

Enter in Column (I) the preferred relevant years of IT experience which an employee should have according to the following codes:

請將僱員宜有的資訊科技相關年資按下列編號填入(I)欄內：

Code 編號	Preferred Relevant Years of IT Experience 宜有資訊科技相關年資
1	15 years or above 十五年或以上
2	10 years to less than 15 years 十年至十五年以下
3	5 years to less than 10 years 五年至十年以下
4	2 years to less than 5 years 二年至五年以下
5	Less than 2 years 二年以下

Note: # A freelancer is a person who pursues a profession without a long-term commitment to any one employer in the information technology sector. Freelancers may be engaged on a daily, an hourly or a project basis.

註: # 「自由工作者」指並無與資訊科技業僱主建立長期僱傭關係的人士。自由工作者可以日薪、時薪或按項目收取報酬。

If additional lines are necessary, please tick here  and enter on supplementary sheet(s).  
如此頁填滿, 請先將(✓)號填入此內, 然後在附頁繼續填寫。

**Coding Descriptions for Part I (Cont'd)****第一部份編號說明(續)****Column (J)****(J) 欄**

Enter in Column (J) the training needs of existing employees in the next 12 months according to the following codes:

請將貴機構於未來十二個月對現職僱員的訓練需求，按下列編號填入(J)欄內：

<u>Code</u> 編號	<u>Type of Training</u> 訓練種類	(See Appendix C for definition of each type of training) (參閱附錄C有關各項訓練種類的說明)
01	Basic Office IT Skills	辦公室資訊科技基本技能
02	Applied Basic IT Tools for Business Processes	基本資訊科技工具在業務的應用
03	Java and Object-Oriented Technology	Java及物件導向技術
04	Linux/Unix & Open Source	Linux/Unix及源碼開放程式
05	.NET Development	.Net 開發
06	Windows Platform Technology	視窗平台技術
07	Service-Oriented Architecture (SOA), Web Services and XML Development	服務導向架構、網上服務與XML開發
08	Multimedia and Computer Graphics	多媒體及電腦圖像
09	Interactive Game Design/Development	互動遊戲設計／開發
10	Internet/Intranet/Web Development	互聯網／內聯網／網絡開發
11	IT Applications in Customer Relationship Management (Digital Marketing, e-Marketing, e-Services)	資訊科技在客戶關係管理的應用（數碼市場推廣、電子市場推廣、電子服務）
12	Information and System Security	資訊及系統保安
13	Database Technology	資料庫科技
14	Networking/Data Communications	網絡／數據通訊
15	Application Development Tools/Languages	應用開發工具／語言
16	Web Tools and Related Applications	萬維網工具及其相關應用
17	Mobile Computing	流動電腦應用
18	IT Infrastructure Library	資訊科技基礎架構標準庫(ITIL)
19	Radio Frequency Identification (RFID) Technologies	射頻識別(RFID)科技
20	IT Applications in Supply Chain Management (e-Logistics, e-Procurement)	資訊科技在供應鏈管理的應用（電子物流、電子採購）
21	IT Applications in Product Design	資訊科技在產品設計的應用
22	e-Learning Technology and Development	網上教學科技及開發
23	Project Management and Design	項目管理及設計
24	Software Quality (Capability Maturity Model Integration)	軟件質素（能力成熟度模型(CMMI)）
25	Understanding IT Practice in the Mainland of China	中國內地資訊科技業概況
26	Virtualisation and Cloud Computing	虛擬化及雲端運算
27	Data Science and Data Analytics	數據科學和數據分析
28	3D printing	3D 打印
29	Other IT-related Training	其他與資訊科技有關的訓練

**THE 2016 MANPOWER SURVEY OF THE INFORMATION TECHNOLOGY SECTOR**  
**資訊科技業二〇一六年人力調查**

**PART II 第二部份**

**Sources of Recruitment & Internal Promotion**

**新聘僱員的來源及僱員的內部晉升**

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Est. No. _____
Er. No. _____

- (1) Number of IT employees recruited or promoted in respect of new or existing posts during the past 12 months by source:

過去十二個月內新聘或晉升以填補增設職位或現有空缺的資訊科技僱員人數  
 (按來源分類) :

	<u>Sources of Recruitment</u> 新聘僱員的來源				<u>Promotion</u> 晉升
	<u>Fresh Graduate of a Hong Kong Institution</u> 剛畢業於本地院校	<u>Fresh Graduate of a Non-HK Institution</u> 剛畢業於非本地院校	<u>Experienced Person Recruited from Hong Kong</u> 從香港聘請有工作經驗的	<u>Experienced Person Recruited Outside Hong Kong</u> 從香港以外聘請有工作經驗的	<u>Internal Promotion</u> 內部晉升
IT Employees 資訊科技僱員	8	11	14	17	20

**Reasons for Employees' Leaving the Company and Their Whereabouts**

**僱員離職原因及去向**

- (2) Number of IT employees left your company during the past 12 months by whereabouts:

過去十二個月內離職的資訊科技僱員人數 (按去向分類) :

	<u>Employees' Whereabouts After Leaving the Company</u> 離職僱員去向				<u>Employer's Decision</u> 僱主決定
	<u>Taking Up an IT Position</u> <sup>*(1)</sup> 轉任另一份資訊科技工作 <sup>*(1)</sup>	<u>Taking Up a Non-IT Position</u> <sup>*(2)</sup> 轉任一份與資訊科技無關的工作 <sup>*(2)</sup>	<u>Emigration, Retirement or Further Studies</u> 移民、退休或升學	<u>Unknown</u> 不知	<u>Retrenchment</u> 縮減開支
IT Employees 資訊科技僱員	23	26	29	32	35

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	Q2 <input type="text"/> 40	<input type="text"/> 41

\* (1) Including starting own IT business.

\* (1) 包括自行經營資訊科技業務。

\* (2) Including starting own non-IT business.

\* (2) 包括自行經營非資訊科技業務。

**Major Difficulties Encountered in Recruitment****主要招聘困難**

- (3) (a) Have your company recruited/tried to recruit any IT employees in the past 12 months ?  
過去十二個月，貴公司是否有招聘／嘗試招聘資訊科技僱員？

Yes 有  
Please go to Q(3)(b)  
請答第 (3)(b) 題

No 沒有  
Please go to Q(4) directly  
請直接答第 (4) 題

42

- (b) Did your company encounter any difficulties in recruitment of IT employees ?  
在招聘資訊科技僱員過程中，貴公司是否有遇上困難？

Yes 有  
Please go to Q(3)(c)  
請答第 (3)(c) 題

No 沒有  
Please go to Q(4) directly  
請直接答第 (4) 題

43

- (c) Please choose the difficulties encountered. (Your may tick up to three options.)  
請選擇所遇到的困難。(可選取最多三項。)

(i) Candidates lacked the relevant skills/expertise  
應徵者並無相關技能／知識

44

(ii) Candidates lacked the relevant experience  
應徵者缺乏相關經驗

45

(iii) Candidates lacked the relevant academic qualification and credential  
應徵者未具相關學歷及專業資格

46

(iv) Candidates lacked the relevant management/supervisory skills  
應徵者缺乏相關管理／督導技能

47

(v) Candidates' language skills (including Putonghua) were not up to expectation  
應徵者語文能力(包括普通話)不夠水平

48

(vi) Candidates' character/attitude was undesirable  
應徵者性格／態度欠佳

49

(vii) Candidates found the remuneration package not attractive  
應徵者認為薪酬欠吸引

50

(viii) Candidates were unwilling to work on shift for long hours  
應徵者不願意長時間輪班工作

51

(ix) Few candidates applied for the existing vacancies  
現有空缺的應徵人數不多

52

(x) Candidates found the location of the office not attractive  
應徵者認為辦公室位置未如理想

53

(xi) Others (Please Specify)  
其他(請註明)

54

55

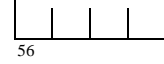
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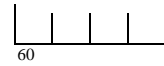
**Gender Distribution****性別分佈**

- (4) Please state the total number of male and female IT employees (including freelancers) in your company as at 14.4.2016:  
請提供貴公司在2016年4月14日的男性及女性資訊科技僱員人數（包括自由工作者）：

No. of Male IT Employees  
男性資訊科技僱員人數



No. of Female IT Employees  
女性資訊科技僱員人數

**Job Nature Distribution****工作性質分佈**

- (5) Please state the percentage of local IT employees (including freelancers) in your company who have engaged in the following job nature as at 14.4.2016:  
請提供貴公司在2016年4月14日從事以下工作性質的本地資訊科技僱員比率（包括自由工作者）：

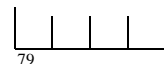
<u>Job Nature</u> 工作性質	<u>% of Local IT Employees</u> 本地資訊科技僱員比率
(i) Teaching and Research in Academic and Education Institutions 在學術和教育機構從事教學和科研工作	64
(ii) Product Development/Engineering (i.e. developing core technologies, products and services) 從事IT核心技術、產品和服務的研究、設計和開發工作	67
(iii) Application Development/Engineering (i.e. using technologies, products and services to develop applications to meet the business needs) 從事應用的設計和開發工作（例如：利用IT技術、產品和服務開發出適用於不同業務的應用）	70
(iv) Operation and Technical Support 操作及技術支援	73
(v) Others (Please Specify) 其他（請註明）	76

**Equivalent IT staff from contractor companies****從事資訊科技職責的外判公司人員**

- (6) Please state the total number of full time equivalent IT staff seconded from contractor company(ies) to work for your company as at 14.4.2016:

請提供貴公司在2016年4月14日，全職從事資訊科技職責的外判公司人員人數：

No. of IT staffs from contractor company(ies)  
從事資訊科技職責的外判公司人員人數



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Q4    
83 84

Q5    
85

Q6    
86



The 2016 Manpower Survey of the  
Information Technology Sector

Explanatory Notes

1. Front Page of the Questionnaire

- (a) On the front page of the questionnaire, you are requested to fill in your company profile (including the nature of business and the total number of persons engaged in the company).
- (b) The total number of persons engaged in the company covers the following categories:
  - (i) Full-time staff directly paid by the company who are either at work or temporarily absent from work, viz sick leave, maternity leave, annual vacation, casual leave or on strike;
  - (ii) Unpaid family workers;
  - (iii) Working/active proprietors; and
  - (iv) Temporary workers (including freelancers) who have worked one hour or more as at survey reference date.

2. Questionnaire (Part I)

- (a) Before completing the questionnaire, please read carefully the job titles and job descriptions in Appendix D.
- (b) Please complete columns (A) to (J) of the questionnaire and insert a zero (0) in any column which is not applicable.
- (c) Column (A) - Job Title/Code
  - (i) Please enter into column (A) those job titles, together with their appropriate job codes specified in Appendix D, applicable to your company in order of their job categories (i.e. General IT management jobs first, followed by IT/software development jobs).
  - (ii) Please add in column (A) titles of any principal IT jobs not mentioned in Appendix D, and briefly describe them in respect of the appropriate job categories.

- (iii) The job titles may not be the same as those adopted by your company, but if the description of a certain job in your company is the same or substantially the same as the job description of, for example, Systems Analyst, then for the purpose of this survey you should regard the job holder as a Systems Analyst regardless of his/her actual title in your company.
- (iv) In the event where an employee's duties in your company are split between two or more job titles, please use the job title that best describes his/her principal responsibility.
- (v) Hardware/software sales and marketing employees with technical knowledge in IT products and services should be included and grouped under the job category "IT Sales and Marketing".

(d) Column (B) - Average Annual Remuneration Package

Please select the appropriate code showing the average annual remuneration package for the employee(s) (excluding freelancers) by referring to the Coding Descriptions for Part I. The average annual remuneration package should include basic salary, bonus/commission, housing allowance/benefit and other regular allowance. If you have more than one employee doing the same principal IT job, please enter the average figure.

(e) Column (C) - Number of Employees as at 14.4.2016  
(Excl. Freelancers)

Please fill in the total number of employees (excluding freelancers) against each principal IT job as at 14.4.2016. The permanent employees include all those under the company's payroll, disregarding whether the employees are deployed to work in other places (including the mainland of China).

(f) Column (D) - Number of Freelancers as at 14.4.2016

Please fill in the total number of freelancers against each principal IT job as at 14.4.2016. A freelancer is a person who pursues a profession without a long-term commitment to any one employer in the IT sector. Freelancers may be engaged on a daily, an hourly or a project basis.

(g) Column (E) - Number of Vacancies as at 14.4.2016

Please fill in the total number of vacancies against each principal IT job as at 14.4.2016. "Vacancies" refer to those unfilled, immediately available job openings for which the company is actively trying to recruit personnel as at survey reference date.

(h) Column (F) - Number of Posts as at April 2015 (Incl. Freelancers)

Please fill in the total number of posts (including freelancers) against each principal IT job as at April 2015.

(i) Column (G) - Forecast Number of Posts as at April 2017 (Incl. Freelancers)

Please fill in the forecast number of posts against each principal IT job as at April 2017 (including freelancers). The number given could be less than that in columns (C) + (D) + (E) if a contraction is expected.

(j) Columns (H) and (I) - Preferred Academic Qualification /  
Preferred Relevant Years of IT Experience

Please select the appropriate code showing the preferred academic qualification and preferred relevant years of IT experience, which your company requires an employee in a particular position to have by referring to the Coding Descriptions for Part I.

(k) Column (J) - Training Needs of Existing Employees in the Next 12 Months

Please select the appropriate code showing the type of training which your company requires the existing employees of each principal IT job to have in the next 12 months, by referring to the Coding Descriptions for Part I. A maximum of 3 types of training (by codes) may be filled in.

3. Questionnaire (Part II)

(a) Question (1) - Sources of Recruitment & Internal Promotion

- (i) Please fill in the number of IT employees recruited/promoted in the past 12 months.
- (ii) Fresh graduate of a Hong Kong Institution/Non-HK Institution should include those senior secondary or above school leavers.
- (iii) “Experienced Person” should be regarded as person with working experience in any fields.
- (iv) For internal transfer of an employee from non-IT field or recruitment of experienced person from local company, he/she should be reckoned as “Experienced Person Recruited from Hong Kong”.

(b) Question (2) - Reasons for Employees’ Leaving the Company and Their Whereabouts

- (i) Please fill in the number of IT employees left during the past 12 months.
- (ii) “Retrenchment” is defined as employer’s decision to down-size or re-organise to cope with the recent financial situation. If an employee left the company after completion of contract, he/she should not be regarded as “retrenchment”.
- (iii) If an IT employee left the company to start his/her own business related to IT field, he/she should be regarded as taking up an IT position.

(c) Question (3) - Major Difficulties Encountered in Recruitment

Please indicate the difficulties (by ticking up to 3 options) which you have encountered in recruitment of IT employees in the past 12 months.

(d) Question (4) - Gender Distribution

Please fill in the total number of male and female IT employees (including freelancers) as at 14.4.2016.

(e) Question (5) - Job Nature Distribution

Please fill in the percentage of local IT employees (including freelancers) by job nature as at 14.4.2016.

(f) Question (6) – Equivalent IT staff from contractor companies

Please fill in the total number of full time equivalent IT staff seconded from contractor company(ies) to work for your company as at 14.4.2016.

The 2016 Manpower Survey of the  
Information Technology Sector

Definition of Type of Training under Column (J) of Questionnaire (Part I)

1. Basic Office IT Skills

Basic Office IT Skills refer to those skill sets associated with the office automation tools used daily by many of the office staff, faculty and students on the campus to improve or automate their daily tasks and operation workflow. Office automation tools cover mailers, schedulers, browsers, FTP software, databases, word processors and spreadsheets.

2. Applied Basic IT Tools for Business Processes

This category comprises the use of spreadsheet for automation and planning, database for accounting and business applications, word processor in office publications, and Internet in effective customer's communication to increase the productivity and services of the organisations.

3. Java and Object-Oriented Technology

Java technology can be used to create complete applications that may run on a single computer or be distributed among servers and clients in a network. It can also be used to build a small application module or applet for use as part of a Web Page. Object-oriented technology is used in developing a software product that is highly modular, reusable and also the data and the software used to interpret or act upon can be treated as one entity.

4. Linux/Unix and Open Source

Open source refers to any program whose source code is made available for use or modification as users or other developers see fit. Open source software is usually developed as a public collaboration and made freely available (such as Linux/Unix operating system).

5. .NET Development

.NET is both a business strategy from Microsoft and its collection of programming support for what are known as Web services (i.e. the ability to use the Web rather than your own computer for various services). Microsoft's goal is to provide individual and business users with a seamlessly interoperable and Web-enabled interface for applications and computing devices and to make computing activities increasingly Web browser-oriented. The .NET platform includes servers; building-block services (such as Web-based data storage); and device software.

## 6. Windows Platform Technology

Windows platform technology is designed for small business and professional users as well as to the more technical and larger business market. A significant feature is Microsoft's Active Directory, which among other capabilities enables a company to set up virtual private networks, to encrypt data locally or on the network, and to give users access to shared files in a consistent way from any network computer.

## 7. Service-Oriented Architecture (SOA), Web Services and XML Development

Service-Oriented Architecture (SOA) expresses a perspective of software architectural design that defines the use of 'services' to support the requirements of software users. In a SOA environment, resources on a network are made available as independent 'services' that can be accessed without knowledge of their underlying technologies and implementation details. Web services (sometimes called application services) are services (usually including some combination of programming and data) that are made available from a business's Web server for Web users or other Web-connected programs. Besides the standardisation and wide availability to users and businesses of the Internet itself, Web services are also increasingly enabled by the use of the Extensible Markup Language (XML) as a means of standardising data formats and exchanging data. XML is the foundation for the Web Services Description Language (WSDL).

## 8. Multimedia and Computer Graphics

Multimedia and computer graphics involves the use of computer hardware and software to integrate texts, animated graphic images, sound and motion video for presentation of information and other applications. The technologies include digital video, virtual reality/3D image, voice recognition, real-time streaming audio & video, real-time audio & video multicast and broadcast.

## 9. Interactive Game Design/Development

This category includes game theory; the design and development cycle of computer-based games; current game delivery systems and software; game development systems and standards; files structure and conversion issues; human-computer interface issues; intellectual property rights; ethical issues including the current game rating system; and emerging technical developments and trends.

## 10. Internet/Intranet/Web Development

This category includes web development and programming (such as using JSP, EJB, XML, Java Servlets, PHP scripting, .NET).

11. IT Applications in Customer Relationship Management (Digital Marketing, e-Marketing, e-Services)

Customer Relationship Management (CRM) is an information industry term for methodologies, software, and usually Internet capabilities that help an enterprise manages customer relationships in an organised way. IT applications systems have been widely developed and adopted in various aspects of the CRM products/services, which include sales force automation, call centres, help desks, and prospect and customer information databases. The latter are often integrated with “data-mining” technology to allow personalised customer services, adaptive and one-to-one marketing. In a broader sense, this category also includes Digital Marketing which uses digital channels (e.g. search engine optimisation (SEO), social media, etc.) to promote or market products and services to consumers and businesses.

12. Information and System Security

This category comprises technologies for Internet Commerce security (such as encryption standards, authentication, public key scheme, and digital signature), anti-virus protection for Windows systems, security for Wireless LAN and servers.

13. Database Technology

This category includes Database Administration, Database Design, Data and Knowledge Management, Document Image Processing (DIP) Systems, Mapping, Object-oriented Technology, Object Database, Data Warehouse and Mining.

14. Networking/Data Communications

This category includes Broadband Networks, Network System Administration, Router/Switch Technology, TCP/IP Communication Protocol, Cable Modem, Asymmetric Digital Subscriber Line (ADSL), Wireless LAN, Bluetooth, 3G/4G Mobile Communications, Near Field Communication (NFC) and Internet of Things (IoT).

15. Application Development Tools/Languages

Application development tools/languages are used to design and develop new custom applications or to modify or enhance customised or packaged applications. Java, Visual Basic and C/C++/Visual C++/Objective C are application development tools/languages used in the market place.

16. Web Tools and Related Applications

The Web offers rich interaction and collaboration among the users, and rich choices of effective tools. The training in this area can include overview and features of Web tools and their impact on people, such as blog, wiki, podcasting, video sharing websites and social networking websites, real time collaboration using free on-line tools, etc.

17. Mobile Computing

Mobile computing includes wireless and cellular technologies on handheld electronics and portable computer systems. New versions of standards are being continuously developed in an effort to provide higher data rates for advanced mobile services. With the widespread use of smart phones and tablet computers, mobile applications commonly known as Apps become popular as a means to provide entertainment or as a communication tool between corporations and customers.

18. IT Infrastructure Library

IT Infrastructure Library (ITIL) was developed by the Office of Government Commerce (OGC) in the U.K., and is recognised as the best practices in IT Service Management worldwide. Many IT operations management tools and processes are now built on ITIL, and its adoption is picking up in Asia.

19. Radio Frequency Identification (RFID) Technologies

RFID has been proposed to identify the goods being handled. The commonly used barcode scanning has difficulties in identification of products packed in high density within a tolerable time frame while RFID technology can resolve this problem. The applications of RFID technologies for business applications (including management of supply chains or demand chains, and logistics services chains - collectively referred to as business chains) in corporations of different business natures within the company boundary have been widely adopted.

20. IT Applications in Supply Chain Management (e-Logistics, e-Procurement)

Supply Chain Management (SCM) is the monitoring and control of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. SCM involves coordinating and integrating these flows both within and among companies. As a solution for successful SCM, sophisticated IT application systems with web interfaces are developed and applied for the e-Logistics and e-Procurement which provide part or all of the SCM services for the companies.

21. IT Applications in Product Design

IT applications are widely used in many design and manufacturing industries like jewellery design, interior design, furniture design, construction industry, etc. This training helps the traditional industry professionals and IT practitioners to pick up the latest design tools available in the market to speed up their design process and enhance the quality of the product.



22. e-Learning Technology and Development

Delivery of e-Learning requires an integrated technology system of hardware, software, and human resources. This category covers the fundamentals of electronic information delivery, including content development and delivery, licensing, managing external contents, address access and intellectual property issues with an online delivery system.

23. Project Management and Design

The project management and design process cover gathering requirements, managing project design process, defining team responsibilities, identifying milestones, scoping timelines, and staging deliverables.

24. Software Quality (Capability Maturity Model Integration)

This category includes the processes and types of tools that can be used during the implementation of the Capability Maturity Model Integration (CMMI); the cost of quality; the use of several statistical quality tools for process design, analysis, and measurement; risk management plan to control expected risks; and the application of different types of testing and planning that contributing to software product quality.

25. Understanding IT Practice in the Mainland of China

Understanding IT Practice in the Mainland of China provides IT and practical legal advice to those doing business in the Mainland of China. It brings in-depth related IT knowledge and practical experience to assisting companies in their expansion and operation in the Mainland of China.

26. Virtualisation and Cloud Computing

Virtualisation is an emerging IT paradigm that separates computing functions and technology implementations from physical hardware. Cloud computing, for example, is the virtualisation of computer programs through an Internet connection rather than installing applications on every office computer.

27. Data Science and Data Analytics

Data Science and Data Analytics refer to the use of a combination of processes, methods, systems and enabling technologies to facilitate the extraction of knowledge or insights for business intelligence, data visualisation and other purposes.

## 28. 3D printing

With the ever-improving price-performance ratio of 3D printers, 3D printing is rapidly revolutionising the way of production and self-actualisation. 3D objects can be “printed” based on digital 3D-models, either by scanning a set of 3D images or drawing using a CAD software. With 3D printing, companies can experiment with new ideas and proof of product concepts with minimal expenses. In fact, 3D printing is going to impact many industries such as medical, automobile and consumer-product industries. It can also allow hobbyists or personal manufacturers to produce personalised prototypes and products with craftsmanship and imaginations.

## 29. Other IT-related Training

The 2016 Manpower Survey of the  
Information Technology Sector  
 資訊科技業二〇一六年人力調查

Job Descriptions of  
Principal Jobs in the Information Technology (IT) Sector  
 資訊科技業主要職務工作說明

Category 類別	Code 編號	Generic Title 通用職稱	Job Description 工作說明
GENERAL IT MANAGEMENT 總資訊科技管理	101	IT Director 資訊科技總監	Focuses on strategic planning as well as manages overall IT functions (including application system design and development, office automation and communication networks, services delivery and end user support) to meet the business/organisation objectives in the most cost-effective manner.  負責制定策略及管理所有資訊科技工作，包括：設計及開發應用系統、辦公室自動化及通訊網絡、提供服務、支援終端用戶，以最具成本效益方式達到業務／機構目標。
		MIS Director 管理資訊系統總監	
Head of IT 資訊科技主管			
CIO 首席資訊主任			
	102	CTO 首席技術總監	Responsible for the technology direction and strategic roadmap of the company's products and services.  負責公司產品和服務的技術方向及發展路向。
IT/SOFTWARE DEVELOPMENT 資訊科技／軟件開發	201	Systems Development Manager 系統開發經理	Analyses of organisation's functions and processes; designs IT applications and systems, and/or customises package solutions to meet business objectives; manages all phases of the development life cycle including feasibility study, development, implementation and support.  分析機構內各種工作及程序；設計電腦應用軟件及系統或制定套裝方案，達致業務目標；管理系統開發各階段的工作，包括進行可行性研究、開發、推行及支援系統。

IT/SOFTWARE DEVELOPMENT (CONT'D)  
資訊科技／軟件開發(續)

Category 類別	Code 編號	Generic Title 通用職稱	Job Description 工作說明		
	202	IT Architect 資訊科技建築師	<p>Develops the strategic direction of the technology that is deployed in the company; performs a quality assurance function to make sure all parts of the organisation adhere to the IT strategy; maintains IT strategy integrity and ensures systems developed according to defined IT strategy to meet the business/organisation objectives; and implements IT strategy to increase the company's revenue and market share.</p> <p>制定公司的技術策略方向；推行質素保證，確保各部門依循資訊科技策略；維持資訊科技策略完整一致，確保按既定的策略開發系統，以達致商業／機構目標；推行資訊科技策略，以便提高公司的收入及市場佔有率。</p>		
		Business Analyst 商業分析員			
	203	Project Manager 項目經理		<p>Manages specific IT development or services projects based on the user/customer requirements to ensure the implementation is on schedule and within budget; designs the processes that enable the management and service of various user/customer groups are satisfactory to meet the company's standards and requirements.</p> <p>根據用戶／客戶要求，管理個別電腦開發或項目服務，確保如期推行，不會超出預算；設計工序，確保服務令用戶／客戶滿意，達到公司的標準及要求。</p>	
		Project Leader 項目組長			
	204	UX Designer 用戶體驗設計師			<p>Translates and documents the functional requirements based on user/customer requirements; performs system studies, analysis, design and implementation of computer systems to meet user/customer business and operational needs.</p> <p>根據用戶／客戶要求，制定及記錄功能規格；負責電腦系統的研究、分析、設計及推行，應付用戶／客戶的業務／運作需要。</p>
	205	Programmer 程式編製員			<p>Designs and develops computer programs to meet business needs according to the requirements laid down by the functional and technical specifications; applies appropriate system and programming tools, and hardware to deliver cost efficient business solutions.</p>
		Analyst/Programmer 分析員／程式編製員			

Category 類別	Code 編號	Generic Title 通用職稱	Job Description 工作說明
		Software Engineer 軟件工程師	根據功能及技術規格，設計及開發電腦程式，應付業務需要；應用合適的系統、程式編製工具及硬件，提供具成本效益的業務方案。
IT/SOFTWARE DEVELOPMENT (CONT'D) 資訊科技／軟件開發(續)	206	Web Designer/ Developer 網站設計員／ 開發員	Uses tool set to design and create Web Pages, animation graphics and/or other multimedia contents for integration to IT applications according to business requirement, strategy and direction in the mixed technical and creative works.  按照業務要求、策略及方向，結合科技與創作，使用工具套設計及製作網頁、動畫或其他多媒體內容，以便配合電腦應用軟件使用。
	207	Quality Assurance Specialist 品質檢查專責經理	Ensures that the development process and deliverables adhere to the conventions, standards and requirements laid down by the organisation, and/or the system specifications, whichever appropriate, and that the deliverables meet customer business requirements.  確保開發程序及製成品符合機構或系統的規格及要求，及／或製成品符合客戶的業務要求。
		Software Assurance Specialist/Engineer 軟件品質檢查專責經理／工程師	
		IT Systems Auditor 電腦系統審核經理	
	208	Research and Development Engineer 研究及開發工程師	Works on the development of innovative products and user applications; investigates the use of emerging technology; and involves in collaboration with IT companies and/or user organisations to ensure that the developed product or application meets users' needs.  開發新產品及應用軟件；研究新科技的用途；與電腦公司或用戶機構合作，確保所開發的產品或應用軟件符合用戶需要。
		Software Product Engineer 軟件產品工程師	
	209	Software/Firmware Product Designer 軟件／固件產品設計員	Conducts research and development for software/firmware products; designs new software/firmware products in communication with the users to meet the needs of the market place.  研究及開發軟件／固件產品；與用戶溝通，設計新軟件／固件產品，應付
		Product Analyst/ Developer 產品分析員／ 開發員	

Category 類別	Code 編號	Generic Title 通用職稱	Job Description 工作說明
		Software Product Manager 軟件產品經理	市場需求。
IT/SOFTWARE DEVELOPMENT (CONT'D) 資訊科技／軟件開發(續)	210	Technical Writer 技術撰稿員	Plans, designs and writes user manuals and technical references for the company's range of hardware and software products; and/or involves in the writing of promotional material and newsletters for users.  為公司的軟、硬件產品策劃、設計及編寫用戶手冊及技術指南；及／或參與編寫客戶宣傳資料及通訊。
	211	Computer Game Designer/Artist/ Developer 電腦遊戲設計／美術／開發員	Designs and develops computer games or multimedia products in both programming and creative aspects; prepares creative designs (such as graphic designs, character designs, web designs, and animation designs) for multimedia production, computer game development, computer animation and digital visual effects.  負責電腦遊戲或多媒體產品於程式編寫和創作上的設計和開發；為多媒體製作、電腦遊戲開發、電腦動畫和數碼視覺效果籌劃創意設計（例如：圖像設計、角色造型設計、網頁設計和動畫設計）。
		Computer Graphic Designer/Artist 電腦圖像設計／美術員	
		Computer Animator 電腦動畫設計師	
		Web Graphic Designer 網頁圖像設計師	
		Visual Effects Designer 視覺效果設計師	
TELECOMMUNICATIONS AND NETWORKING 電訊及網絡	301	Telecommunications Manager 電訊經理	Manages the data and voice networks through which IT services are delivered securely and effectively to meet the organisation's overall IT strategy, policy and standards; liaises/manages network carriers and hardware vendors to acquire cost effective telecom services to meet business needs.  管理數據及話音網絡，提供安全有效的資訊科技服務，以便符合機構的整體資訊科技策略、政策及標準；為獲取具成本效益的電訊服務，聯絡／管理網絡及硬件供應商，以便符合業務需求。
		Networking Manager 網絡經理	

Category 類別	Code 編號	Generic Title 通用職稱	Job Description 工作說明
TELECOMMUNICATIONS AND NETWORKING (CONT'D) 電訊及網絡(續)	302	Telecommunications Consultant 電訊顧問	Translates requirements into properly engineered and tested communication solutions as part of the overall information system in the mixed software/hardware area of telecommunications/networks technology.  因應電訊／網絡技術的需要，提供合適並且經過試驗的軟件／硬件，以配合整個資訊系統。
		Network Consultant 網絡顧問	
	303	Telecommunications Engineer 電訊工程師	Plans and designs new communication software; installs new networks and services; analyses current and planned network usages; and recommends solutions to solve networking problems.  策劃及設計新通訊軟件；安裝新網絡及提供服務；分析現時及預計網絡使用率；建議方案解決網絡問題。
		Network Engineer 網絡工程師	
	304	Network Administrator 網絡管理主任	Administrates the applications network infrastructure and telephony (voice, data, wireless) systems; oversees the design and installation of wiring for these systems.  管理應用網絡基建及電話系統（話音、數據、無線）；監督有關系統的電線設計及安裝。
		Network Officer 網絡主任	
TECHNICAL SERVICES 技術服務	IT SECURITY 資訊保安	401	Undertakes design, technical support and review on IT/network security, firewalls and intrusion detection; drafts the information security standards, policy and procedures; and ensures the implementation/work plans are always followed by the IT teams and departments.  負責設計、技術支援及檢討資訊／網絡保安、防火牆及侵入偵察設施；擬定資訊保安標準、政策及程序；確保各資訊科技團隊及部門嚴格遵守推行／工作計劃。
		IT Security Specialist 電腦保安專責經理	
		Information Security Specialist 資訊保安專責經理	
		Information Security Officer 資訊保安主任	

Category 類別		Code 編號	Generic Title 通用職稱	Job Description 工作說明
TECHNICAL SERVICES (CONT'D) 技術服務(續)	DATABASE 資料庫	402	Database Administrator 資料庫管理主任	Plans and controls the set-up and maintenance of Database System to ensure a reliable and effective system environment for the development and operation of application systems requiring the database architecture.  策劃及管理資料庫系統，提供完善服務，以便開發及運用應用系統。
			Data Warehouse Administrator 數據庫管理主任	
			Database Designer 資料庫設計員	
	SYSTEMS PROGRAMMING 系統程式編製	403	Systems Programmer (in-house/vendor environment) 系統程式編製員 (機構內部／電腦供應商)	Specialises in the system support and maintenance, which enable the use of system software for improving the system performance and quality of service; designs and prepares the use of specialised programs.  專責系統支援及維修，以便提高系統性能及服務質素；設計及編寫專用程式。
			Systems Engineer 系統工程師	
	FIELD SUPPORT 實地支援	404	Customer Engineering Manager 客戶工程經理	Manages a team of Customer Service Engineers to provide service support in maintaining normal operation of IT systems for clients.  管理一組客戶服務工程師，為客戶提供電腦系統正常操作的服務支援。
			Services Support Manager 服務支援經理	
		405	Customer Service Engineer 客戶服務工程師	Provides hardware services including installation of hardware systems, preventive and remedial maintenance to meet company/customer service level expectations; provides first level troubleshooting training to customer.  提供符合公司或客戶要求的硬件服務，包括安裝硬件系統、預防及補救性維修；提供第一階段檢修訓練給客戶。
			Field Engineer 實地服務工程師	
	406	Field Technician 實地服務技術員	Carries out hardware services including equipment/PC installation, preventive and remedial maintenance, as directed by Field/Customer Service Engineer, to meet service level expectations.  按實地服務／客戶服務工程師指示，提供合乎要求的硬件服務，包括設備／個人電腦安裝、預防及補救性維修。	



Category 類別	Code 編號	Generic Title 通用職稱	Job Description 工作說明
OPERATION SERVICES 操作服務	501	Computer Operations Manager 電腦操作經理	<p>Directs and controls the operations of all data centre equipment and systems in order to provide accurate, secure and timely information processing to support the company business; works with internal colleagues/users on system development and technical services so as to provide efficient IT services to customers; provides vendor management.</p> <p>監管資訊中心所有設備及系統的運作，提供準確、安全及適時的資訊處理服務，以便支援公司業務；與機構內部同事／用戶共同進行系統開發及技術服務，提供有效率的資訊科技服務給客戶；管理電腦供應商。</p>
	502	Help Desk Supervisor 求助台主任	<p>Supervises a team of Help Desk staff in solving technical problems and liaises with service vendors for problem escalation; plans, designs, reviews and implements corporate Help Desk system.</p> <p>督導求助台職員解決技術問題，如問題惡化，則聯絡服務供應商；為公司策劃、設計、檢討及推行求助台制度。</p>
	503	Help Desk Representative 求助台服務員	<p>Understands and delivers on-line assistance to users in solving technical problems through company Help Desk hotline; maintains and performs call centre operation for ensuring cases are resolved in a timely manner.</p> <p>透過公司的求助熱線，為用戶解答技術問題；負責求助中心的運作，確保及時解決個案。</p>
		Customer Service Officer/Representative 客戶服務主任／服務員	
	504	Computer Operations Supervisor 電腦操作主任	<p>Supervises shift team of operators and manages all areas of data centre operations; follows through Change and Problem Management on hardware, software and environment.</p> <p>督導需輪班的電腦操作人員及管理資訊中心各方面的運作；貫徹執行硬件、軟件及環境的轉變及問題管理。</p>
		Operations Support Supervisor 操作支援主任	

Category 類別	Code 編號	Generic Title 通用職稱	Job Description 工作說明
OPERATION SERVICES (CONT'D) 操作服務(續)	505	Computer Operator 電腦操作員	Operates, monitors and supports computer systems to ensure high system availability and that scheduled events are executed. In small data centres, the responsibilities also include telecommunication and Help Desk.  操作、監控及支援電腦系統，以確保系統在高備用之中及其預定項目能順利執行。在小型資訊中心內，其職責亦包括電訊及求助台服務。
		Systems Operator 系統操作員	
	506	User Support/ Co-ordinator 用戶支援／統籌員	Provides technical support services to internal users or external clients, including desktop hardware, system and application software installation; upgrading; problem diagnosis and resolution over the phone/intranet/e-mail; and/or dispatches to user location, if necessary, to help solving the problems.  為機構內部用戶或外間客戶提供技術支援服務，包括：安裝桌面硬件、系統及應用軟件；系統升級；透過電話／內聯網／電郵診斷及解決問題；如有需要，或需造訪用戶協助解決問題。
IT EDUCATION AND TRAINING 資訊科技教育及訓練	601	Lecturer 講師	Provides education/training for pre-entry or post-entry IT personnel.  為資訊科技從業員提供職前或在職教育／訓練。
		Professor 教授	
		Training Officer 訓練主任	
	602	IT Trainer 資訊科技訓練員	Provides training for users of IT systems.  為電腦系統用戶提供訓練。
		IT Instructor 資訊科技教導員	
	603	IT Researcher (in a tertiary educational institution) 資訊科技研究員 (大專院校)	Provides technical support for technological and scientific research and development work.  為科研及開發工作提供技術支援。
Research Assistant 研究助理			

Category 類別	Code 編號	Generic Title 通用職稱	Job Description 工作說明
IT SALES AND MARKETING 資訊科技銷售及市場推廣	701	Sales/Marketing Director 銷售／市場總監	Sets sales/marketing strategy; advises the sales/marketing representatives on ways to improve their sales/marketing performance; maintains contact with dealers and distributors; analyses sales/marketing statistics gathered by their staff to determine IT sales/marketing potential and inventory requirements; monitors the preferences of customers.  設定銷售／市場策略；建議各種方法以改進銷售／市場代表的業績；保持與代理商及經銷商的聯絡；分析從員工所收集的銷售／市場統計，從而確定資訊科技銷售／市場潛力及存貨需求；監測客戶的喜好。
		Account Director 客戶總監	
		Sales/Marketing Manager 銷售／市場經理	
	702	Sales/Marketing Representative 銷售／市場代表	Evaluates customers' business needs and determines areas where the company's IT product/services can complement theirs; explains to customers how the IT products/services can solve their business problems; involves presenting and demonstrating company's IT products/services, checking on proper equipment installation and delivery of services, and working with customers on future needs.  評估客戶業務需要及確定公司各方面的資訊科技產品／服務能配合客戶所需；向客戶說明資訊科技產品／服務如何能解決其業務問題；參與介紹及示範公司的資訊科技產品／服務，檢查設備安裝及服務提供是否正確，及制定客戶未來所需。
		Account Manager 客戶經理	
		Product Promotion Representative 產品推廣代表	

Remark: Equivalent titles have the same job code.

註：同等職稱有同一編號。

**Number of IT Employees (including Freelancers) by Sector/Branch by Job Category**  
**按行業／業務及技能類別劃分的資訊科技僱員人數（包括自由工作者）**

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊科技管理		IT/Software Development 資訊科技／軟件開發		Telecommunications & Networking 電訊及網絡		Technical <sup>@</sup> Services 技術服務		Operation Services 操作服務		IT Education & Training 資訊科技教育及訓練		IT Sales & Marketing 資訊科技銷售及市場推廣		Total 總計		
			EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	(%)*	(%)*	(%)* <sup>#</sup>
Manufacturing 製造業	1	Manufacture and repair of computers and peripheral equipment; Manufacture of electronic parts and components for computer and telecommunications equipment 電腦及其周邊設備的製造及修理；電腦及電訊設備所用電子零件及組件的製造	2	-	203	-	51	-	707	10	311	-	-	-	34	-	1 318	-	(1.5)
			(0.2)	(-)	(15.5)	(-)	(3.9)	(-)	(54.1)	(100.0)	(23.8)	(-)	(-)	(-)	(2.6)	(-)	(100.0)	(-)	(-)
Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及出入口貿易、飲食業及酒店業	6	Export trading, import for wholesale, wholesale and retail sale of computers, computer peripheral equipment and computer software packages 電腦、電腦周邊設備及套裝軟件的出口貿易、進口批發、批發及零售	8	-	1 020	-	61	-	2 277	14	709	-	44	3 367	-	7 500	-	(8.5)	
			(0.1)	(-)	(13.6)	(-)	(0.8)	(-)	(30.4)	(100.0)	(9.5)	(-)	(0.6)	(45.0)	(-)	(100.0)	(-)	(-)	

**IT and Communications Services Organizations 資訊科技及通訊服務機構**

EM Number of IT employees (excluding freelancers).

EM 資訊科技僱員人數（不包括自由工作者）。

FL Number of Freelancers.

FL 自由工作者人數。

@ Technical services include job categories of IT security, database, systems programming and field support.

@ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT employees by sector/branch.

\* 佔該行業／業務資訊科技僱員人數的百分率。

# As a percentage of number of IT employees in the whole economy.

# 佔全部行業資訊科技僱員總數的百分率。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理		IT/Software Development 資訊科技/ 軟件開發		Telecommunications & Networking 電訊及網絡		Technical <sup>@</sup> Services 技術服務		Operation Services 操作服務		IT Education & Training 資訊科技 教育及訓練		IT Sales & Marketing 資訊科技 銷售及 市場推廣		Total 總計	
			EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	(%)*	(%)* (%)#
IT Products and Services Suppliers 資訊科技產品 及服務供應商	18	IT related products and services (including consultancy, software development, software products, software support and maintenance services; data processing and tabulation services; engineering and technical services of computer facilities management) 與資訊科技相關的產品及服務 (包括顧問、軟件開發、軟件產 品、軟件支援及修護服務; 資料 處理及編纂服務; 電腦設備管理 活動的工程及技術服務)	412 (1.4)	- (-)	13 349 (45.5)	44 (6.8)	3 696 (12.6)	- (-)	6 043 (20.6)	161 (24.7)	2 985 (10.2)	446 (68.5)	114 (0.4)	- (-)	2 763 (9.4)	- (-)	30 013 (100.0)	(34.2)
Digital Creative 數碼創意業	24	Digital creative 數碼創意	11 (1.8)	- (-)	474 (79.4)	13 (61.9)	5 (0.8)	1 (4.8)	6 (1.0)	- (-)	43 (7.2)	7 (33.3)	- (-)	58 (9.7)	- (-)	618 (100.0)	(0.7)	
Communications 通訊服務業	13	Internet access services 互聯網接駁服務	2 (0.3)	- (-)	82 (12.3)	- (-)	55 (8.3)	- (-)	126 (18.9)	- (-)	86 (12.9)	- (-)	- (-)	314 (47.2)	- (-)	665 (100.0)	(0.8)	
	14	Communications services (except internet access services) 通訊服務 (互聯網接駁服務除 外)	13 (0.3)	- (-)	1 096 (24.1)	- (-)	1 167 (25.6)	- (-)	1 139 (25.0)	- (-)	653 (14.3)	1 (100.0)	- (-)	489 (10.7)	- (-)	4 558 (100.0)	(5.2)	
<b>Sub-total 小計</b>			<b>448 (1.0)</b>	<b>- (-)</b>	<b>16 224 (36.9)</b>	<b>57 (8.2)</b>	<b>5 035 (11.4)</b>	<b>1 (0.1)</b>	<b>10 298 (23.4)</b>	<b>185 (26.5)</b>	<b>4 787 (10.9)</b>	<b>454 (65.1)</b>	<b>158 (0.4)</b>	<b>7 025 (16.0)</b>	<b>- (-)</b>	<b>44 672 (100.0)</b>	<b>(50.9)</b>	

EM Number of IT employees (excluding freelancers).

EM 資訊科技僱員人數 (不包括自由工作者)。

FL Number of Freelancers.

FL 自由工作者人數。

@ Technical services include job categories of IT security, database, systems programming and field support.

@ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT employees by sector/branch.

\* 佔該行業/業務資訊科技僱員人數的百分率。

# As a percentage of number of IT employees in the whole economy.

# 佔全部行業資訊科技僱員總數的百分率。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理		IT/Software Development 資訊科技/ 軟件開發		Telecommunications & Networking 電訊及網絡		Technical <sup>@</sup> Services 技術服務		Operation Services 操作服務		IT Education & Training 資訊科技 教育及訓練		IT Sales & Marketing 資訊科技 銷售及 市場推廣		Total 總計			
			(%)*		(%)*		(%)*		(%)*		(%)*		(%)*		(%)*		(%)*		(%)#	
			EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL
Other Manufacturing 其他製造業	2	Other manufacturing (non-IT products) 其他製造業 (非資訊科技產品)	52	-	738	-	87	-	77	-	547	-	-	-	-	-	-	1 501	-	(1.7)
			(3.5)	(-)	(49.2)	(-)	(5.8)	(-)	(5.1)	(-)	(36.4)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(100.0)	(-)
Electricity, Gas and Water 電力、氣體燃料 及水務	3	Other manufacturing of non-IT products with embedded software 其他有內置軟件的非資訊科技 產品製造	4	-	126	-	-	-	30	-	13	-	-	-	-	16	-	189	-	(0.2)
			(2.1)	(-)	(66.7)	(-)	(-)	(-)	(15.9)	(-)	(6.9)	(-)	(-)	(-)	(-)	(-)	(8.5)	(-)	(100.0)	(-)
Electricity, Gas and Water 電力、氣體燃料 及水務	4	Electricity, gas and water supply 電力、燃氣及自來水供應	13	-	225	-	21	-	57	-	74	-	-	-	-	-	-	390	-	(0.4)
			(3.3)	(-)	(57.7)	(-)	(5.4)	(-)	(14.6)	(-)	(19.0)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(100.0)	(-)
Construction 建造業	5	Construction 建造	20	-	130	5	48	-	97	-	173	-	-	-	-	-	473	-	(0.5)	
			(4.3)	(-)	(27.8)	(100.0)	(10.3)	(-)	(20.7)	(-)	(37.0)	(-)	(-)	(-)	(-)	(-)	(-)	(100.0)	(-)	(-)
Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及出入口貿 易、飲食業及酒店業	7	Other import and export trades (except import and export trades of computers, computer peripherals and software packages) 其他出入口貿易(電腦、電腦周 邊設備及套裝軟件的出入口貿 易除外)	137	-	1 709	-	181	-	1 031	-	2 872	-	-	-	-	57	5 987	-	(6.8)	
			(2.3)	(-)	(28.5)	(-)	(3.0)	(-)	(17.2)	(-)	(48.0)	(-)	(-)	(-)	(-)	(1.0)	(100.0)	(-)	(-)	

**IT Users Organizations 資訊科技用戶機構**

EM Number of IT employees (excluding freelancers).

EM 資訊科技僱員人數 (不包括自由工作者)。

FL Number of Freelancers.

FL 自由工作者人數。

@ Technical services include job categories of IT security, database, systems programming and field support.

@ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT employees by sector/branch.

\* 佔該行業/業務資訊科技僱員人數的百分率。

# As a percentage of number of IT employees in the whole economy.

# 佔全部行業資訊科技僱員總數的百分率。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理		IT/Software Development 資訊科技/ 軟件開發		Telecommunications & Networking 電話及網絡		Technical <sup>@</sup> Services 技術服務		Operation Services 操作服務		IT Education & Training 資訊科技 教育及訓練		IT Sales & Marketing 資訊科技 銷售及 市場推廣		Total 總計		
			EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	(%)*	(%)*	(%)* <sup>#</sup>
Transport and Storage Services 運輸及貨倉服務業	8	Other wholesale and retail (except wholesale and retail sale of computers, computer peripherals and software packages); Accommodation and food service activities 其他批發及零售(電腦、電腦周 邊設備及套裝軟件的批發及零 售除外); 住宿及膳食服務活動	155	-	662	-	95	-	459	-	590	975	-	-	72	-	3 008	-	(3.4)
			(7.6)	(-)	(32.6)	(-)	(4.7)	(-)	(22.6)	(-)	(29.0)	(100.0)	(-)	(-)	(3.5)	(-)	(100.0)	(-)	
Transport and Storage Services 運輸及貨倉服務業	9	Airline companies 航空公司	4	-	360	-	2	-	14	-	73	-	3	-	-	-	456	-	(0.5)
			(0.9)	(-)	(78.9)	(-)	(0.4)	(-)	(3.1)	(-)	(16.0)	(-)	(0.7)	(-)	(-)	(-)	(100.0)	(-)	
Transport and Storage Services 運輸及貨倉服務業	10	Railway and cable transport; Public bus services; Licensed and franchised ferry services; Vehicular tunnel, bridge and highway operators 鐵路及纜索運輸; 公共巴士服 務; 持牌及專營渡輪服務; 汽車 隧道、橋樑及高速公路營運者	10	-	139	-	15	-	23	-	54	-	-	-	-	-	241	-	(0.3)
			(4.1)	(-)	(57.7)	(-)	(6.2)	(-)	(9.5)	(-)	(22.4)	(-)	(-)	(-)	(-)	(-)	(100.0)	(-)	
Transport and Storage Services 運輸及貨倉服務業	11	Air cargo forwarding services 航空貨運代理服務	14	-	144	-	4	-	34	-	121	-	-	-	-	-	317	-	(0.4)
			(4.4)	(-)	(45.4)	(-)	(1.3)	(-)	(10.7)	(-)	(38.2)	(-)	(-)	(-)	(-)	(-)	(100.0)	(-)	
Transport and Storage Services 運輸及貨倉服務業	12	Other transport and storage services 其他運輸及貨倉服務業	30	-	393	-	22	-	110	-	421	-	-	-	-	-	976	-	(1.1)
			(3.1)	(-)	(40.3)	(-)	(2.3)	(-)	(11.3)	(-)	(43.1)	(-)	(-)	(-)	(-)	(-)	(100.0)	(-)	

EM Number of IT employees (excluding freelancers).

EM 資訊科技僱員人數 (不包括自由工作者)。

FL Number of Freelancers.

FL 自由工作者人數。

@ Technical services include job categories of IT security, database, systems programming and field support.

@ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT employees by sector/branch.

\* 佔該行業/業務資訊科技僱員人數的百分率。

# As a percentage of number of IT employees in the whole economy.

# 佔全部行業資訊科技僱員總數的百分率。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理		IT/Software Development 資訊科技/ 軟件開發		Telecommunications & Networking 電訊及網絡		Technical <sup>®</sup> Services 技術服務		Operation Services 操作服務		IT Education & Training 資訊科技 教育及訓練		IT Sales & Marketing 資訊科技 銷售及 市場推廣		Total 總計	
			EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	(%)*	(%)* <sup>#</sup>
Financing, Insurance, Real Estate and Business Services 金融、保險、房地產 及商業服務業	15	Domestic banking units 本地銀行單位	163	-	4 660	4	209	-	1 181	-	1 558	12	-	-	-	7 787	(8.9)	
			(2.1)	(-)	(60.0)	(25.0)	(2.7)	(-)	(15.2)	(-)	(20.0)	(75.0)	(-)	(-)	(-)	(-)	(100.0)	
	16	Real estate brokerage and agency 地產經紀及代理	6	-	98	-	8	-	16	-	119	-	-	-	1	248	(0.3)	
	17	Others (Financing, Insurance, Real Estate and Business Services) 其他(金融、保險、房地產及 商業服務業)	116	-	3 658	-	308	-	1 222	-	2 384	-	1	-	2	7 691	(8.8)	
			(1.5)	(-)	(47.6)	(-)	(4.0)	(-)	(15.9)	(-)	(31.0)	(-)	(-)	(-)	(-)	(-)	(100.0)	
Medical and Health Care Services 醫療及保健服務	19	Medical, dental, and other health care services (including Hospital Authority) 醫療、牙科及其他保健服務 (包括醫院管理局)	18	-	855	-	12	-	54	-	138	-	-	-	-	1 077	(1.2)	
			(1.7)	(-)	(79.4)	(-)	(1.1)	(-)	(5.0)	(-)	(12.8)	(-)	(-)	(-)	(-)	(-)	(100.0)	
Community, Social and Personal Services 社區、社會及 個人服務業	20	Universities and post-secondary colleges; Research and scientific institutes; Hong Kong Examinations and Assessment Authority 大學及專上學院、科研機構; 香港考試及評核局	45	-	799	9	79	-	383	-	847	25	1 129	42	-	3 358	(3.8)	
			(1.4)	(-)	(24.3)	(11.8)	(2.4)	(-)	(11.7)	(-)	(25.8)	(32.9)	(34.4)	(55.3)	(-)	(-)	(100.0)	
	21	Educational institutes other than universities, post-secondary colleges (excluding Hong Kong Examinations and Assessment Authority) 其他院校(大學及專上學院、 香港考試及評核局除外)	82	-	105	-	60	-	115	-	2 117	50	2 358	-	-	4 887	(5.6)	
			(1.7)	(-)	(2.2)	(-)	(1.2)	(-)	(2.4)	(-)	(43.8)	(100.0)	(48.7)	(-)	(-)	(100.0)		

EM Number of IT employees (excluding freelancers).

EM 資訊科技僱員人數(不包括自由工作者)。

FL Number of Freelancers.

FL 自由工作者人數。

@ Technical services include job categories of IT security, database, systems programming and field support.

@ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT employees by sector/branch.

\* 佔該行業/業務資訊科技僱員人數的百分率。

# As a percentage of number of IT employees in the whole economy.

# 佔全部行業資訊科技僱員總數的百分率。



Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理		IT/Software Development 資訊科技/ 軟件開發		Telecommunications & Networking 電訊及網絡		Technical <sup>®</sup> Services 技術服務		Operation Services 操作服務		IT Education & Training 資訊科技 教育及訓練		IT Sales & Marketing 資訊科技 銷售及 市場推廣		Total 總計	
			EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	EM	FL	(%)*	(%)* (%)#
	22	Motion pictures and other entertainment services; and Television / Radio Stations & Studios 電影及其他娛樂服務；電視台、 電台及製作室	7 (1.2)	- (-)	408 (67.1)	- (-)	48 (7.9)	- (-)	54 (8.9)	- (-)	91 (15.0)	- (-)	- (-)	- (-)	- (-)	- (-)	608 (100.0)	(0.7)
	23	Others (Community, Social and Personal Services); HKPC & HKTDCC 其他(社區、社會及個人服務 業); 香港生產力促進局、香港 貿發局	54 (4.5)	- (-)	392 (33.0)	- (-)	36 (3.0)	- (-)	150 (12.6)	- (-)	515 (43.4)	- (-)	36 (3.0)	4 (0.3)	- (-)	- (-)	1 187 (100.0)	(1.4)
Government Bureaux/Departments 政府部門	25	Government bureaux/ departments 政府部門	99 (3.7)	- (-)	1 703 (62.8)	19 (65.5)	147 (5.4)	8 (27.6)	108 (4.0)	2 (6.9)	655 (24.2)	- (-)	- (-)	- (-)	- (-)	- (-)	2 741 (100.0)	(3.1)
<b>Sub-total 小計</b>			<b>1 029 (2.5)</b>	<b>- (-)</b>	<b>17 304 (41.2)</b>	<b>37 (3.2)</b>	<b>1 382 (3.3)</b>	<b>8 (0.7)</b>	<b>5 215 (12.4)</b>	<b>2 (0.2)</b>	<b>13 362 (31.8)</b>	<b>1 062 (92.3)</b>	<b>3 527 (8.4)</b>	<b>42 (3.6)</b>	<b>152 (0.4)</b>	<b>- (-)</b>	<b>43 122 (100.0)</b>	<b>(49.1)</b>
<b>Grand Total 總數</b>			<b>1 477 (1.7)</b>	<b>- (-)</b>	<b>33 528 (39.0)</b>	<b>94 (5.1)</b>	<b>6 417 (7.5)</b>	<b>9 (0.5)</b>	<b>15 513 (18.0)</b>	<b>187 (10.1)</b>	<b>18 149 (21.1)</b>	<b>1 516 (82.0)</b>	<b>3 685 (4.3)</b>	<b>42 (2.3)</b>	<b>7 177 (8.4)</b>	<b>- (-)</b>	<b>87 794 (100.0)</b>	<b>(100.0)</b>

EM Number of IT employees (excluding freelancers).

EM 資訊科技僱員人數 (不包括自由工作者)。

FL Number of Freelancers.

FL 自由工作者人數。

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+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT employees by sector/branch.

\* 佔該行業/業務資訊科技僱員人數的百分率。

# As a percentage of number of IT employees in the whole economy.

# 佔全部行業資訊科技僱員總數的百分率。

**Number of IT Employees (including Freelancers) by Job Category/Title by Sector/Branch**  
**按技能類別／職稱及行業／業務劃分的資訊科技僱員人數**  
(包括自由工作者)

Job Code 職務編號	Job Title 職稱	Manufacturing 製造業		Electricity, Gas and Water 電力、氣體燃料及水務		Construction 建造業		Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及出入口貿易、飲食業及酒店業			Transport and Storage Services 運輸及貨倉服務業			Communications Services 通訊服務業		Financing, Insurance, Real Estate and Business Services 金融、保險、房地產及商業服務業			IT Products and Services Suppliers 資訊科技產品及服務供應商		Medical and Health Care Services 醫療及保健服務		Community, Social and Personal Services 社區、社會及個人服務業			Digital Creative Industries 創意業	Government Bureaux/ Departments 政府部門	Total 總計	(%)*
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	(%)*		
<b>General IT Management 一般資訊科技管理</b>																													
101	IT Director 資訊科技總監	2	42	3	11	20	8	137	155	4	7	14	30	2	9	135	6	94	378	18	45	82	7	43	11	98	1 361 (1.6)		
102	CTO 首席資訊主任	-	10	1	2	-	-	-	-	-	3	-	-	-	4	28	-	22	34	-	-	-	-	11	-	1	116 (0.1)		
	<b>Sub-total 小計</b>	<b>2</b>	<b>52</b>	<b>4</b>	<b>13</b>	<b>20</b>	<b>8</b>	<b>137</b>	<b>155</b>	<b>4</b>	<b>10</b>	<b>14</b>	<b>30</b>	<b>2</b>	<b>13</b>	<b>163</b>	<b>6</b>	<b>116</b>	<b>412</b>	<b>18</b>	<b>45</b>	<b>82</b>	<b>7</b>	<b>54</b>	<b>11</b>	<b>99</b>	<b>1 477 (1.7)</b>		
<b>IT/Software Development 資訊科技／軟件開發</b>																													
201	Systems Development Manager 系統開發經理	-	23	3	8	6	42	200	52	10	9	4	42	2	6	419	14	147	286	76	104	39	11	33	8	95	1 639 (1.9)		
202	IT Architect 資訊科技建築師	-	10	2	26	2	210	9	52	54	5	-	6	-	192	213	2	116	297	9	14	-	2	22	-	152	1 395 (1.6)		
203	Project Manager 項目經理	15	38	10	22	39	238	166	55	141	14	43	66	33	78	640	17	329	1 518	7	82	-	5	93	45	271	3 965 (4.5)		
204	Systems Analyst 系統分析員	50	150	9	83	27	240	475	181	105	48	33	126	1	118	1 492	13	1 590	1 923	321	77	-	30	69	12	507	7 680 (8.7)		
205	Programmer 程式編製員	44	166	45	82	41	159	755	260	48	62	64	147	35	80	1 598	39	1 100	7 101	437	479	51	46	158	92	644	13 733 (15.6)		
206	Web Designer/ Developer 網站設計員／開發員	-	77	-	2	-	21	42	58	1	1	-	-	10	183	68	13	100	765	-	3	5	6	4	16	4	1 379 (1.6)		
207	Quality Assurance Specialist 品質檢查專責經理	30	-	5	-	-	27	2	4	1	-	-	6	1	31	142	-	130	201	-	1	-	-	6	10	-	597 (0.7)		

\* As a percentage of number of IT employees in all job categories/titles.  
\* 佔全部技能類別／職稱資訊科技僱員總數的百分率。

Job Code 職務 編號	Job Title 職稱	Manufacturing 製造業		Electricity, Gas and Water 電力、 氣體燃料 及水務		Construction 建造業		Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及 出入口貿易、 飲食業及酒店業		Transport and Storage Services 運輸及貨倉服務業			Communications Services 通訊服務業		Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業			IT Products and Services 資訊科技 產品及服務 供應商		Medical and Health Care 醫療及 保健服務		Community, Social and Personal Services 社區、社會及 個人服務業			Digital Creative 數碼 創意業		Government Bureau/ Department 政府部門		Total 總計	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	(%)*			
208	Research and Development Engineer 研究及開發工程師	-	77	9	2	-	11	3	-	-	-	-	-	37	12	-	-	334	-	2	-	-	-	10	10	507 (0.6)				
209	Software/Firmware Product Designer 軟件/固件產品 設計員	64	-	43	-	20	72	57	-	-	-	-	-	371	70	-	86	577	-	5	-	-	-	17	39	1 421 (1.6)				
210	Technical Writer 技術撰稿員	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	27	-	19	-	-	-	2	-	58 (0.1)				
211	Computer Game Designer/Artist/ Developer 電腦遊戲設計/ 美術/開發員	-	197	-	-	-	-	-	-	-	-	-	-	-	-	-	60	364	5	22	10	308	7	275	-	1 248 (1.4)				
<b>Sub-total 小計</b>		<b>203</b>	<b>738</b>	<b>126</b>	<b>225</b>	<b>135</b>	<b>1 020</b>	<b>1 709</b>	<b>662</b>	<b>360</b>	<b>139</b>	<b>144</b>	<b>393</b>	<b>82</b>	<b>4 664</b>	<b>98</b>	<b>3 658</b>	<b>13 393</b>	<b>855</b>	<b>808</b>	<b>105</b>	<b>408</b>	<b>392</b>	<b>487</b>	<b>1 722</b>	<b>33 622</b> <b>(38.3)</b>				
Telecommunications & Networking 電訊及網絡		-	-	-	1	-	7	-	11	-	-	2	9	142	43	2	30	225	-	24	5	3	2	1	13	520 (0.6)				
301	Telecommunications Manager 電訊經理	14	-	-	1	7	5	-	38	-	-	3	5	115	16	-	14	573	-	12	-	-	7	-	1	811 (0.9)				
302	Telecommunications Consultant 電訊顧問	14	77	-	16	15	30	20	2	2	2	-	3	29	75	6	77	1 225	5	12	-	40	16	4	49	2 537 (2.9)				
303	Telecommunications Engineer 電訊工程師	23	10	-	3	26	19	161	44	-	13	4	14	12	75	-	187	1 673	7	31	55	5	11	1	92	2 558 (2.9)				
304	Network Administrator 網絡管理主任	51	87	-	21	48	61	181	95	2	15	4	22	55	209	8	308	3 696	12	79	60	48	36	6	155	6 426 (7.3)				
<b>Sub-total 小計</b>		<b>51</b>	<b>87</b>	<b>-</b>	<b>21</b>	<b>48</b>	<b>61</b>	<b>181</b>	<b>95</b>	<b>2</b>	<b>15</b>	<b>4</b>	<b>22</b>	<b>55</b>	<b>209</b>	<b>8</b>	<b>308</b>	<b>3 696</b>	<b>12</b>	<b>79</b>	<b>60</b>	<b>48</b>	<b>36</b>	<b>6</b>	<b>155</b>	<b>6 426</b> <b>(7.3)</b>				

\* As a percentage of number of IT employees in all job categories/titles.  
\* 佔全部技能類別/職稱資訊科技僱員總數的百分率。

Job Code 職務 編號	Job Title 職稱	Manufacturing 製造業		Electricity, Gas and Water 電力、 氣體燃料 及水務		Construction 建造業		Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及 出入口貿易、 飲食業及酒店業		Transport and Storage Services 運輸及貨倉服務業		Communications Services 通訊服務業		Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業		IT Products and Services 資訊科技 產品及服務 供應商		Medical and Health Care 醫療及 保健服務		Community, Social and Personal Services 社區、社會及 個人服務業		Digital Creative 數碼 創意業		Government Bureaux/ Departments 政府部門		Total 總計 (%)*	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		25
<b>Technical Services</b> <b>— IT Security</b> 技術服務 — 資訊科技保安																											
401	IT Security Specialist 電腦保安專責經理	5	11	1	15	2	19	-	29	8	-	-	5	7	189	-	117	238	1	16	39	-	50	-	-	17	769 (0.9)
<b>Technical Services — Database</b> 技術服務 — 資料庫																											
402	Database Administrator 資料庫管理主任	-	-	-	-	10	37	84	26	-	1	3	2	34	128	4	234	233	2	13	-	-	9	-	-	4	824 (0.9)
<b>Technical Services</b> <b>— Systems Programming</b> 技術服務 — 系統程式編製																											
403	Systems Programmer (in-house/vendor environment) 系統程式編製員 (機構內部/ 電腦供應商)	129	58	3	26	21	156	820	224	3	8	34	5	46	703	5	614	872	19	33	62	44	59	3	47	4 101 (4.7)	
<b>Technical Services</b> <b>— Field Support</b> 技術服務 — 實地支援																											
404	Customer Engineering Manager 客戶工程經理	17	2	1	12	1	168	-	52	3	-	-	7	51	131	-	14	376	1	26	-	5	6	-	4	877 (1.0)	
405	Customer Service Engineer 客戶服務工程師	79	2	25	-	13	1 362	37	58	-	7	-	34	99	21	7	137	1 184	8	12	5	5	6	3	22	3 126 (3.6)	
406	Field Technician 實地服務技術員	487	4	-	4	50	549	90	70	-	7	-	73	902	9	-	106	3 301	23	283	9	-	20	-	16	6 003 (6.8)	
<b>Sub-total 小計</b>		<b>583</b>	<b>8</b>	<b>26</b>	<b>16</b>	<b>64</b>	<b>2 079</b>	<b>127</b>	<b>180</b>	<b>3</b>	<b>14</b>	<b>-</b>	<b>114</b>	<b>1 052</b>	<b>161</b>	<b>7</b>	<b>257</b>	<b>4 861</b>	<b>32</b>	<b>321</b>	<b>14</b>	<b>10</b>	<b>32</b>	<b>3</b>	<b>42</b>	<b>10 006 (11.4)</b>	

\* As a percentage of number of IT employees in all job categories/titles.  
\* 佔全部技能類別/職稱資訊科技僱員總數的百分率。

Job Code 職務編號	Job Title 職稱	Manufacturing 製造業		Electricity, Gas and Water 電力、 氣體燃料 及水務	Construction 建造業	Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及 出入口貿易、 飲食業及酒店業			Transport and Storage Services 運輸及貨倉服務業			Communications Services 通訊服務業		Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業		IT Products and Services 資訊科技 產品及服務 供應商	Medical and Health Care 醫療及 保健服務	Community, Social and Personal Services 社區、社會及 個人服務業				Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門	Total 總計 (%)*					
		1	2			3	4	5	6	7	8	9	10	11	12			13	14	15	16				17	18	19	20	21
<b>Operation Services 操作服務</b>																													
501	Computer Operations Manager 電腦操作經理	2	46	2	5	16	28	175	38	7	38	7	3	28	36	6	31	182	3	155	72	7	30	5	5	49	6	25	962 (1.1)
502	Help Desk Supervisor 求助台主任	1	-	1	1	1	1	-	4	4	1	-	-	-	-	6	50	195	1	21	100	-	13	-	-	3	1	7	411 (0.5)
503	Help Desk Representative 求助台服務員	52	8	4	15	3	161	59	14	35	4	-	30	18	211	157	2	62	609	-	29	5	8	12	21	90	1 609 (1.8)		
504	Computer Operations Supervisor 電腦操作主任	2	120	-	24	13	18	86	50	1	9	7	45	25	30	219	-	173	125	5	177	70	4	29	4	67	1 303 (1.5)		
505	Computer Operator 電腦操作員	15	102	-	29	35	166	288	301	-	10	16	66	6	187	492	18	422	690	31	154	199	31	57	1	376	3 692 (4.2)		
506	User Support/ Co-ordinator 用戶支援/統籌員	239	271	6	-	105	335	2 264	1 158	26	27	70	244	25	145	325	95	1 551	1 835	95	469	1 888	43	365	17	90	11 688 (13.3)		
<b>Sub-total 小計</b>		<b>311</b>	<b>547</b>	<b>13</b>	<b>74</b>	<b>173</b>	<b>709</b>	<b>2 872</b>	<b>1 565</b>	<b>73</b>	<b>54</b>	<b>121</b>	<b>421</b>	<b>86</b>	<b>654</b>	<b>1 570</b>	<b>119</b>	<b>2 384</b>	<b>3 431</b>	<b>138</b>	<b>872</b>	<b>2 167</b>	<b>91</b>	<b>515</b>	<b>50</b>	<b>655</b>	<b>19 665</b> <b>(22.4)</b>		
<b>IT Education &amp; Training 資訊科技教育及訓練</b>																													
601	Lecturer 講師	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	761	1 405	-	-	-	-	-	2 180 (2.5)	
602	IT Trainer 資訊科技訓練員	-	-	-	-	-	44	-	-	3	-	-	-	-	-	-	-	1	100	-	69	953	-	36	-	-	1 206 (1.4)		
603	IT Researcher (in a tertiary educational institution) 資訊科技研究員 (大專院校)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	341	-	-	-	-	-	341 (0.4)		
<b>Sub-total 小計</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>44</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>114</b>	<b>-</b>	<b>1 171</b>	<b>2 358</b>	<b>-</b>	<b>36</b>	<b>-</b>	<b>-</b>	<b>3 727</b> <b>(4.2)</b>		

\* As a percentage of number of IT employees in all job categories/titles.

\* 佔全部技能類別/職稱資訊科技僱員總數的百分率。

Job Code 職務編號	Job Title 職稱	Manufacturing 製造業			Electricity 電力、 氣體燃料 及水務		Construction 建造業		Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及 出入口貿易、 飲食業及酒店業		Transport and Storage Services 運輸及貨倉服務業			Communications Services 通訊服務業		Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業			IT Products and Services 資訊科技 產品及服務 供應商		Medical and Health Care Services 醫療及 保健服務		Community, Social and Personal Services 社區、社會及 個人服務業			Digital Creative 數碼 創意業		Government Bureaux/ Departments 政府部門		Total 總計 (%)*					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25									
IT Sales & Marketing 資訊科技銷售及市場推廣																																			
701	Sales/Marketing Director 銷售/市場總監	11	-	13	-	-	538	57	16	-	-	-	28	140	-	1	2	665	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	1 491 (1.7)	
702	Sales/Marketing Representative 銷售/市場代表	23	-	3	-	-	2 829	-	56	-	-	-	286	349	-	-	-	2 098	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	5 686 (6.5)	
	<i>Sub-total 小計</i>	<u>34</u>	<u>-</u>	<u>16</u>	<u>-</u>	<u>-</u>	<u>3 367</u>	<u>57</u>	<u>72</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>314</u>	<u>489</u>	<u>-</u>	<u>1</u>	<u>2</u>	<u>2 763</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>58</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>7 177</u> <u>(8.2)</u>		
	<b>Total 總計</b>	<b>1 318</b>	<b>1 501</b>	<b>189</b>	<b>390</b>	<b>473</b>	<b>7 500</b>	<b>5 987</b>	<b>3 008</b>	<b>456</b>	<b>241</b>	<b>317</b>	<b>976</b>	<b>665</b>	<b>4 558</b>	<b>7 787</b>	<b>248</b>	<b>7 691</b>	<b>30 013</b>	<b>1 077</b>	<b>3 358</b>	<b>4 887</b>	<b>608</b>	<b>1 187</b>	<b>618</b>	<b>2 741</b>	<b>87 794</b> <b>(100.0)</b>								

\* As a percentage of number of IT employees in all job categories/titles.  
\* 佔全部技能類別/職稱資訊科技僱員總數的百分比。

Note: Figures may not add up to the total due to rounding.  
註：因四捨五入關係，各項數字相加或與總計數字略有出入。

**Number of IT Employees (including Freelancers) by Employment Size of Company by Sector**  
**按行業及公司規模劃分（包括自由工作者）的資訊科技僱員人數**

Employment Size 僱員人數	Manufacturing 製造業 (%)*	Electricity, Gas and Water 電力、 氣體燃料 及水務 (%)*	Wholesale, Retail and Import/Export 批發、 零售及 進出口 貿易、飲食 業及酒店業 (%)*	Transport and Storage Services 運輸及 貨倉 服務業 (%)*	Financing, Insurance, Real Estate and Business Services 金融、 保險、 房地產及 商業服務業 (%)*	IT Products and Services 資訊科技 產品 及服務 供應商 供應商 (%)*	Medical and Health Care Services 醫療及 保健服務 (%)*	Community, Social and Personal Services 社區、 社會及 個人服務業 (%)*	Digital Creative 數碼 創意業 (%)*	Government Bureaux/ Departments 政府部門 (%)*	Total 總計 (%)*
1 - 4	584 (8.8)	-	128 (1.9)	-	100 (1.5)	5 739 (86.5)	-	-	42 (0.6)	-	6 634 (100.0)
1 至 4 人											
5 - 9	69 (1.1)	-	1 768 (28.7)	-	109 (1.8)	4 070 (66.2)	-	47 (0.8)	64 (1.0)	-	6 151 (100.0)
5 至 9 人											
10 - 19	129 (2.2)	-	1 567 (26.9)	1	75 (1.3)	3 685 (63.3)	2	177 (3.0)	55 (0.9)	-	5 818 (100.0)
10 至 19 人											
20 - 49	295 (3.2)	-	1 968 (21.2)	87	636 (6.9)	4 781 (51.6)	-	994 (10.7)	134 (1.4)	-	9 273 (100.0)
20 至 49 人											
50 - 99	557 (6.4)	-	923 (10.6)	22	203 (2.3)	3 075 (35.2)	-	3 582 (41.0)	86 (1.0)	12	8 732 (100.0)
50 至 99 人											
100 - 199	218 (2.8)	-	1 882 (24.0)	360	997 (12.7)	3 006 (38.3)	25 (0.3)	630 (8.0)	230 (2.9)	47 (0.6)	7 842 (100.0)
100 至 199 人											
200 - 499	1 002 (9.7)	-	2 566 (24.9)	349	1 525 (14.8)	2 769 (26.8)	15 (0.1)	755 (7.3)	7 (0.1)	164 (1.6)	10 322 (100.0)
200 至 499 人											
500 & Over	154 (0.5)	390 (1.2)	5 693 (17.2)	1 171 (3.5)	12 081 (36.6)	2 888 (8.7)	1 035 (3.1)	3 855 (11.7)	-	2 518 (7.6)	33 022 (100.0)
500 人及以上											
Total 總計	3 008 (3.4)	390 (0.4)	16 495 (18.8)	1 990 (2.3)	15 726 (17.9)	30 013 (34.2)	1 077 (1.2)	10 040 (11.4)	618 (0.7)	2 741 (3.1)	87 794 (100.0)

\* As a percentage of number of IT employees (including freelancers) by employment size of company.  
\* 佔該類公司（按規模劃分）資訊科技僱員總數（包括自由工作者）的百分率。

Note: Figures may not add up to the total due to rounding.  
註：因四捨五入關係，各項數字相加或與總計數字略有出入。





**Number of Male and Female IT Employees (including Freelancers) by Employment Size of Company by Sector**  
**男性及女性資訊科技僱員人數 (包括自由工作者) (按公司規模及行業劃分)**

Employment Size 僱員人數	Manufacturing 製造業		Electricity, Gas and Water 電力、氣體燃料及水務		Wholesale, Retail and Import/Export Trades, Catering 零售批發及出入口貿易、飲食業及酒店業		Transport and Storage Services 運輸及貨倉服務業		Communications Services 通訊服務業		Financing, Insurance, Real Estate and Business Services 金融、保險、房地產及商業服務業		IT Products and Services 資訊科技產品及服務		Medical and Health Care Services 醫療及保健服務		Community, Social and Personal Services 社區、社會及個人服務業		Digital Creative 數碼創意業		Government Bureaux/ Departments 政府部門	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1-4	581	3	-	-	128	-	-	-	39	2	-	100	-	4,619	1,120	-	-	38	4	-	-	
1至4人	(99.5)	(0.5)	(-)	(-)	(100.0)	(-)	(-)	(-)	(95.1)	(4.9)	(100.0)	(-)	(80.5)	(19.5)	(-)	(-)	(-)	(90.5)	(9.5)	(-)	(-)	
5-9	64	5	-	-	717	-	1,051	-	24	-	109	-	3,290	775	5	-	47	45	11	8	-	
5至9人	(92.8)	(7.2)	(-)	(-)	(40.6)	(-)	(59.4)	(-)	(100.0)	(-)	(100.0)	(-)	(80.8)	(19.0)	(0.1)	(-)	(-)	(100.0)	(70.3)	(17.2)	(12.5)	
10-19	94	13	22	-	1,266	131	170	1	125	2	75	-	3,157	528	2	-	177	46	9	-	-	
10至19人	(72.9)	(10.1)	(17.1)	(-)	(80.8)	(8.4)	(10.8)	(100.0)	(98.4)	(1.6)	(100.0)	(-)	(85.7)	(14.3)	(100.0)	(-)	(100.0)	(-)	(83.6)	(16.4)	(-)	
20-49	229	24	42	-	1,083	110	775	85	124	38	216	246	390	3,477	612	692	-	503	185	306	104	
20至49人	(77.6)	(8.1)	(14.2)	(-)	(55.0)	(5.6)	(39.4)	(97.7)	(32.8)	(10.1)	(57.1)	(38.7)	(61.3)	(72.7)	(12.8)	(14.5)	(-)	(50.6)	(18.6)	(30.8)	(77.6)	
50-99	532	22	3	-	781	66	76	22	204	29	29	161	2	2,340	537	198	-	2,262	638	682	60	
50至99人	(95.5)	(3.9)	(0.5)	(-)	(84.6)	(7.2)	(8.2)	(100.0)	(77.9)	(11.1)	(11.1)	(79.3)	(1.0)	(19.7)	(76.1)	(17.5)	(6.4)	(63.1)	(17.8)	(19.0)	(69.8)	
100-199	192	26	-	-	962	59	861	317	42	247	151	28	775	214	8	2,056	383	567	7	18	544	
100至199人	(88.1)	(11.9)	(-)	(-)	(51.1)	(3.1)	(45.7)	(88.1)	(11.7)	(58.0)	(35.4)	(6.6)	(77.7)	(21.5)	(0.8)	(68.4)	(12.7)	(18.9)	(28.0)	(-)	(72.0)	
200-499	910	92	-	-	2,469	91	6	331	616	101	243	1,379	115	31	2,325	444	-	598	58	99	7	
200至499人	(90.8)	(9.2)	(-)	(-)	(96.2)	(3.5)	(0.2)	(94.8)	(64.2)	(10.5)	(25.3)	(90.4)	(7.5)	(2.0)	(84.0)	(16.0)	(-)	(79.2)	(7.7)	(13.1)	(100.0)	
500 & Over	154	-	-	-	58	17	315	180	2,198	771	36	8,970	1,906	1,205	2,335	553	-	835	200	-	835	
500人及以上	(100.0)	(-)	(-)	(-)	(14.9)	(4.4)	(80.8)	(77.6)	(73.1)	(25.7)	(1.2)	(74.2)	(15.8)	(10.0)	(80.9)	(19.1)	(-)	(80.7)	(19.3)	(-)	(80.7)	
Total	2,756	185	67	58	17	315	381	82	42	3,577	1,094	552	11,815	2,237	1,674	23,599	4,952	1,462	857	202	18	
總計	(91.6)	(6.2)	(2.2)	(14.9)	(4.4)	(80.8)	(80.5)	(17.3)	(2.1)	(68.5)	(20.9)	(10.6)	(75.1)	(14.2)	(10.6)	(78.6)	(16.5)	(4.9)	(79.6)	(18.8)	(1.7)	
Ratio of M & F 男性及女性比例	< 15:1 >	< 3:1 >	< 5:1 >	< 8:1 >	< 15:1 >	< 3:1 >	< 5:1 >	< 3:1 >	< 5:1 >	< 5:1 >	< 3:1 >	< 5:1 >	< 4:1 >	< 5:1 >	< 7:1 >	< 4:1 >	< 5:1 >	< 7:1 >	< 4:1 >	< 5:1 >	< 7:1 >	

M Number of male IT Employees (including freelancers).  
 M 男性資訊科技僱員人數 (包括自由工作者)。  
 F Number of female IT Employees (including freelancers).  
 F 女性資訊科技僱員人數 (包括自由工作者)。  
 U Unspecified.  
 U 未有說明。  
 \* As a percentage of number of IT employees (including freelancers) by employment size of company by sector.  
 \* 佔該行業內該類公司 (按規模劃分) 資訊科技僱員總數 (包括自由工作者) 的百分率。  
 Note: Figures may not add up to their totals due to rounding.  
 註: 因四捨五入關係, 各項數字相加或與總計數字略有出入。

**Number of Existing IT Vacancies by Sector/Branch by Job Category**  
**按行業／業務及技能類別劃分的現有資訊科技空缺數目**

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理	IT/Software Development 資訊科技/ 軟件開發	Telecommunications & Networking 電訊及網絡	Technical <sup>@</sup> Services 技術服務	Operation Services 操作服務	IT Education & Training 資訊科技 教育及訓練	IT Sales & Marketing 資訊科技 銷售及 市場推廣	Total 總計
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
<b>IT and Communications Services Organizations 資訊科技及通訊服務機構</b>										
Manufacturing 製造業	1	Manufacture and repair of computers and peripheral equipment; Manufacture of electronic parts and components for computer and telecommunications equipment 電腦及其周邊設備的製造及修理； 電腦及電訊設備所用電子零件及組件的製造	- (-)	9 (4.2)	- (-)	12 (1.6)	- (-)	- (-)	- (-)	21 (1.6)
Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及出入口貿易、飲食業及酒店業	6	Export trading, import for wholesale, wholesales and retail sale of computers, computer peripheral equipment and computer software packages 電腦、電腦周邊設備及套裝軟件的出口貿易、進口批發、批發及零售	- (-)	25 (2.4)	- (-)	22 (1.0)	12 (1.7)	- (-)	7 (0.2)	66 (0.9)

@ Technical services include job categories of IT security, database, systems programming and field support.  
技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.  
業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT posts by sector/branch by job category.  
佔該行業／業務該技能類別資訊科技職位數目的百分率。

# As a percentage of number of IT posts by sector/branch.  
佔該行業／業務資訊科技職位數目的百分率。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理	IT/Software Development 資訊科技/ 軟件開發	Telecommunications & Networking 電訊及網絡	Technical <sup>@</sup> Services 技術服務	Operation Services 操作服務	IT Education & Training 資訊科技 教育及訓練	IT Sales & Marketing 資訊科技 銷售及 市場推廣	Total 總計
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
IT Products and Services Suppliers 資訊科技產品 及服務供應商	18	IT related products and services (including consultancy, software development, software products, software support and maintenance services; data processing and tabulation services; engineering and technical services of computer facilities management) 與資訊科技相關的產品及服務 (包括顧問、軟件開發、軟件產品、軟件支援及修護服務; 資料處理及編纂服務; 電腦設備管理活動的工程及技術服務)	1 (0.2)	881 (6.2)	36 (1.0)	216 (3.4)	40 (1.2)	1 (0.9)	94 (3.3)	1 269 (4.1)
Digital Creative 數碼創意業	24	Digital creative 數碼創意	- (-)	18 (3.6)	- (-)	- (-)	1 (2.0)	- (-)	2 (3.3)	21 (3.3)
Communications Services 通訊服務業	13	Internet access services 互聯網接駁服務	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	14	Communications services (except internet access services) 通訊服務 (互聯網接駁服務除外)	- (-)	62 (5.4)	40 (3.3)	73 (6.0)	3 (0.5)	- (-)	15 (3.0)	193 (4.1)
<b>Sub-total 小計</b>			<b>1 (0.2)</b>	<b>995 (5.8)</b>	<b>76 (1.5)</b>	<b>323 (3.0)</b>	<b>56 (1.1)</b>	<b>1 (0.6)</b>	<b>118 (1.7)</b>	<b>1 570 (3.4)</b>

@ Technical services include job categories of IT security, database, systems programming and field support.  
技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.  
業務按第 1.26 段所列出的行業劃分。

+ As a percentage of number of IT posts by sector/branch by job category.  
佔該行業/業務該技能類別資訊科技職位數目的百分率。

\* As a percentage of number of IT posts by sector/branch.  
佔該行業/業務資訊科技職位數目的百分率。

# As a percentage of number of IT posts by sector/branch.  
佔該行業/業務資訊科技職位數目的百分率。

# As a percentage of number of IT posts by sector/branch.  
佔該行業/業務資訊科技職位數目的百分率。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理	IT/Software Development 資訊科技/ 軟件開發	Telecommunications & Networking 電訊及網絡	Technical <sup>@</sup> Services 技術服務	Operation Services 操作服務	IT Education & Training 資訊科技 教育及訓練	IT Sales & Marketing 資訊科技 銷售及 市場推廣	Total 總計
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)* <sup>#</sup>
<b>IT Users Organizations 資訊科技用戶機構</b>										
Other Manufacturing 其他製造業	2	Other manufacturing (non-IT products) 其他製造業 (非資訊科技產品)	- (-)	10 (1.3)	- (-)	10 (11.5)	- (-)	- (-)	10 (100.0)	30 (2.0)
	3	Other manufacturing of non-IT products with embedded software 其他有內置軟件的非資訊科技 產品製造	- (-)	18 (12.5)	- (-)	5 (14.3)	1 (7.1)	- (-)	1 (5.9)	25 (11.7)
Electricity, Gas and Water 電力、氣體燃料及水務	4	Electricity, gas and water supply 電力、燃氣及自來水供應	- (-)	3 (1.3)	- (-)	- (-)	- (-)	- (-)	- (-)	3 (0.8)
Construction 建造業	5	Construction 建造	- (-)	3 (2.2)	- (-)	1 (1.0)	11 (6.0)	- (-)	- (-)	15 (3.1)
Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及出入口貿 易、飲食業及酒店業	7	Other import and export trades (except import and export trades of computers, computer peripherals and software packages) 其他出入口貿易 (電腦、電腦周邊 設備及套裝軟件的出入口貿易除 外)	- (-)	57 (3.2)	- (-)	- (-)	20 (0.7)	- (-)	- (-)	77 (1.3)
	8	Other wholesale and retail (except wholesale and retail sale of computers, computer peripherals and software packages); Accommodation and food service activities 其他批發及零售 (電腦、電腦周邊 設備及套裝軟件的批發及零售除 外); 住宿及膳食服務活動	2 (1.3)	16 (2.4)	- (-)	- (-)	4 (0.3)	- (-)	- (-)	22 (0.7)

@ Technical services include job categories of IT security, database, systems programming and field support.

@ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT posts by sector/branch by job category.

\* 佔該行業/業務技能類別資訊科技職位數目的百分率。

# As a percentage of number of IT posts by sector/branch.

# 佔該行業/業務資訊科技職位數目的百分率。

Sector 行業	Branch+ 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理		IT/Software Development 資訊科技/ 軟件開發		Telecommunications & Networking 電訊及網絡		Technical <sup>@</sup> Services 技術服務		Operation Services 操作服務		IT Education & Training 資訊科技 教育及訓練		IT Sales & Marketing 資訊科技 銷售及 市場推廣		Total 總計	
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
Transport and Storage Services 運輸及貨倉 服務業	9	Airline companies 航空公司	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10	Railway and cable transport; Public bus services; Licensed and franchised ferry services; Vehicular tunnel, bridge and highway operators 鐵路及纜索運輸；公共巴士服務； 持牌及專營渡輪服務；汽車隧道、 橋樑及高速公路營運者	-	3 (2.1)	-	-	-	-	2 (8.0)	-	-	-	-	-	-	-	-	5 (2.0)
Financing, Insurance, Real Estate and Business Services 金融、保險、房地產 及商業服務業	11	Air cargo forwarding services 航空貨運代理服務	-	-	-	-	-	-	-	-	2 (1.6)	-	-	-	-	-	2 (0.6)	
	12	Other transport and storage services 其他運輸及貨倉服務業	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	15	Domestic banking units 本地銀行單位	-	51 (1.1)	-	15 (6.7)	-	29 (2.4)	52 (3.2)	-	-	-	-	-	-	-	147 (1.9)	
	16	Real estate brokerage and agency 地產經紀及代理	-	-	-	-	-	1 (5.9)	-	-	-	-	-	-	-	-	1 (0.4)	
Medical and Health Care Services 醫療及保健服務	17	Others (Financing, Insurance, Real Estate and Business Services) 其他（金融、保險、房地產 及商業服務業）	-	135 (3.6)	-	6 (1.9)	-	15 (1.2)	109 (4.4)	-	-	-	-	-	-	-	265 (3.3)	
	19	Medical, dental, and other health care services (including Hospital Authority) 醫療、牙科及其他保健服務 (包括醫院管理局)	-	37 (4.1)	-	4 (25.0)	-	2 (3.6)	13 (8.6)	-	-	-	-	-	-	-	56 (4.9)	

@ Technical services include job categories of IT security, database, systems programming and field support.

@ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT posts by sector/branch by job category.

\* 佔該行業／業務技能類別資訊科技職位數目的百分率。

# As a percentage of number of IT posts by sector/branch.

# 佔該行業／業務資訊科技職位數目的百分率。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理	IT/Software Development 資訊科技/ 軟件開發	Telecommunications & Networking 電訊及網絡	Technical <sup>@</sup> Services 技術服務	Operation Services 操作服務	IT Education & Training 資訊科技 教育及訓練	IT Sales & Marketing 資訊科技 銷售及 市場推廣	Total 總計
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
Community, Social and Personal Services 社區、社會及 個人服務業	20	Universities and post-secondary colleges; Research and scientific institutes; Hong Kong Examinations and Assessment Authority 大學及專上學院、科研機構； 香港考試及評核局	- (-)	18 (2.2)	3 (3.7)	5 (1.3)	20 (2.2)	3 (0.3)	- (-)	49 (1.4)
	21	Educational institutes other than universities, post-secondary colleges (excluding Hong Kong Examinations and Assessment Authority) 其他院校（大學及專上學院、 香港考試及評核局除外）	- (-)	- (-)	- (-)	- (-)	231 (9.6)	- (-)	- (-)	231 (4.5)
	22	Motion pictures and other entertainment services; and Television / Radio Stations & Studios 電影及其他娛樂服務；電視台、 電台及製作室	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	23	Others (Community, Social and Personal Services); HKIPC & HKTDC 其他（社區、社會及個人服務業）； 香港生產力促進局、香港貿發局	- (-)	32 (7.5)	- (-)	9 (5.7)	16 (3.0)	- (-)	- (-)	57 (4.6)

@ Technical services include job categories of IT security, database, systems programming and field support.  
技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.  
業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT posts by sector/branch by job category.  
佔該行業／業務該技能類別資訊科技職位數目的百分率。

# As a percentage of number of IT posts by sector/branch.  
佔該行業／業務資訊科技職位數目的百分率。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理		IT/Software Development 資訊科技/ 軟件開發		Telecommunications & Networking 電訊及網絡		Technical <sup>@</sup> Services 技術服務		Operation Services 操作服務		IT Education & Training 資訊科技 教育及訓練		IT Sales & Marketing 資訊科技 銷售及 市場推廣		Total 總計	
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
Government Bureaux/ 政府部門	25	Government bureaux / 政府部門	1 (1.0)	62 (3.5)	2 (1.3)	- (-)	9 (1.4)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	74 (2.6)
<b>Sub-total 小計</b>			<b>3 (0.3)</b>	<b>445 (2.5)</b>	<b>30 (2.1)</b>	<b>79 (1.5)</b>	<b>488 (3.3)</b>	<b>3 (0.1)</b>	<b>11 (6.7)</b>	<b>1 059 (2.4)</b>								
<b>Grand Total 總數</b>			<b>4 (0.3)</b>	<b>1 440 (4.1)</b>	<b>106 (1.6)</b>	<b>402 (2.5)</b>	<b>544 (2.7)</b>	<b>4 (0.1)</b>	<b>129 (1.8)</b>	<b>2 629 (2.9)</b>								

@ Technical services include job categories of IT security, database, systems programming and field support.

+ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.

\* 業務按第 1.26 段所列出的行業劃分。

\* As a percentage of number of IT posts by sector/branch by job category.

# 佔該行業／業務該技能類別資訊科技職位數目的百分率。

# As a percentage of number of IT posts by sector/branch.

# 佔該行業／業務資訊科技職位數目的百分率。

Note: Figures may not add up to the total due to rounding.

註：因四捨五入關係，各項數字相加或與總計數字略有出入。

Number of IT Employees (including Freelancers) Leaving in the Past 12 Months  
by Employment Size of Company by Sector  
過往 12 個月資訊科技僱員離職人數 (按行業及公司規模劃分)

Employment Size 僱員人數	Manufacturing 製造業 (%)*	Electricity, Gas and Water 電力、 氣體燃料 及水務 (%)*	Wholesale, Retail and Import/Export 批發、 零售及 進出口 (%)*	Trades, Hotels 及出入口 貿易、飲食 業及酒店業 (%)*	Transport and Storage Services 運輸及 貨倉 服務業 (%)*	Communications Services 通訊服務業 (%)*	Financing, Insurance, Real Estate and Business Services 金融、 保險、 房地產及 商業服務業 (%)*	IT Products and Suppliers 資訊科技 產品及服務 供應商 (%)*	Medical and Health Care Services 醫療及 保健服務 (%)*	Community, Social and Personal Services 社區、 社會及 個人服務業 (%)*	Digital Creative 數碼 創意業 (%)*	Government Bureaux/ Departments 政府部門 (%)*	Total 總計
1 - 4	25 (4.3)	-	-	-	-	-	-	185 (3.1)	-	-	23 (47.9)	-	233 (3.4)
1 至 4 人		(-)	(-)	(-)	(-)	(-)	(-)		(-)	(-)		(-)	
5 - 9	1 (1.4)	-	50 (2.8)	-	66 (275.0)	-	-	630 (14.4)	-	-	4 (6.1)	-	751 (11.6)
5 至 9 人		(-)	(-)	(-)	(-)	(-)	(-)		(-)	(-)		(-)	
10 - 19	17 (12.7)	-	-	-	-	1 (0.8)	-	359 (9.2)	-	-	3 (5.1)	-	380 (6.3)
10 至 19 人		(-)	(-)	(-)	(-)	(-)	(-)		(-)	(-)		(-)	
20 - 49	27 (8.5)	-	291 (14.7)	-	4 (1.1)	4 (1.1)	24 (3.6)	475 (9.6)	-	168 (14.5)	40 (29.6)	-	1 029 (10.6)
20 至 49 人		(-)	(-)	(-)	(-)	(-)	(-)		(-)	(-)		(-)	
50 - 99	27 (4.8)	-	156 (15.9)	-	1 (4.5)	32 (12.2)	57 (27.8)	378 (12.0)	-	449 (12.5)	-	-	1 100 (12.4)
50 至 99 人		(-)	(-)	(-)	(-)	(-)	(-)		(-)	(-)	(-)	(-)	
100 - 199	28 (12.7)	-	95 (5.0)	-	11 (3.1)	83 (19.5)	25 (2.4)	243 (7.8)	-	58 (8.1)	1 (0.4)	6 (12.8)	550 (6.8)
100 至 199 人		(-)	(-)	(-)	(-)	(-)	(-)		(-)	(-)			
200 - 499	17 (1.7)	-	89 (3.4)	-	34 (9.7)	13 (1.4)	227 (14.1)	220 (7.7)	5 (29.4)	18 (2.3)	-	10 (6.0)	684 (6.5)
200 至 499 人		(-)	(-)	(-)	(-)	(-)	(-)				(-)	(-)	
500 & Over	13 (7.9)	6 (1.5)	457 (7.9)	-	54 (4.6)	295 (9.2)	881 (7.1)	89 (3.1)	52 (4.8)	342 (8.7)	-	149 (5.8)	2 347 (6.9)
500 人及以上		(-)	(-)	(-)	(-)	(-)	(-)				(-)	(-)	
Total 總計	155 (5.0)	6 (1.5)	1 138 (6.8)	100 (5.0)	494 (9.1)	1 214 (7.5)	2 579 (8.2)	57 (5.0)	1 035 (10.0)	71 (11.1)	165 (5.9)	7 074 (7.8)	

\* As a percentage of number of IT posts by employment size of company by sector.  
\* 佔該行業內該類公司 (按規模劃分) 資訊科技職位總數的百分率。

Note: Figures may not add up to the total due to rounding.  
註：因四捨五入關係，各項數字相加或與總計數字略有出入。



**Percentage of Companies Having Encountered Difficulties in Recruitment of IT Employees in the Past 12 Months by Employment Size of Company**  
**過往 12 個月招聘資訊科技僱員時遇到困難的公司所佔百分率 (按公司規模劃分)**

Difficulties Encountered in Recruitment of IT Employees 招聘資訊科技僱員所遇到的困難	Employment Size of Company 公司僱員人數							Overall 總計	
	1-4 1至4人	5-9 5至9人	10-19 10至19人	20-49 20至49人	50-99 50至99人	100-199 100至199人	200-499 200至499人		500 & Over 500人及以上
	%*	%*	%*	%*	%*	%*	%*	%*	
Candidates lacked the relevant skills/expertise 應徵者並無相關技能/知識	61.2	17.4	39.8	9.9	1.5	8.3	29.6	22.4	19.8
Candidates lacked the relevant experience 應徵者缺乏相關經驗	90.8	0.6	46.8	39.6	13.4	29.6	39.3	29.1	33.8
Candidates lacked the relevant academic qualification and credential 應徵者未具相關學歷及專業資格	-	13.2	-	2.5	0.3	6.7	1.2	3.8	3.1
Candidates lacked the relevant management/supervisory skills 應徵者缺乏相關管理/督導技能	-	-	-	-	-	0.4	0.4	3.0	0.3
Candidates' language skills (including Putonghua) were not up to expectation 應徵者語文能力 (包括普通話) 不夠水平	0.3	-	0.5	1.4	0.6	-	-	4.2	0.8
Candidates' character/attitude was undesirable 應徵者性格/態度欠佳	0.3	0.3	9.5	2.0	0.2	2.0	6.6	5.1	2.4
Candidates found the remuneration package not attractive 應徵者認為薪酬欠吸引	29.9	-	18.4	39.6	2.0	13.4	16.7	7.6	16.5
Candidates were unwilling to work on shift for long hours 應徵者不願意長時間輪班工作	-	-	6.0	2.3	7.6	1.6	-	7.2	3.4
Few candidates applied for the existing vacancies 現有空缺的應徵人數不多	32.5	4.5	27.9	46.4	19.2	13.4	11.3	18.1	23.8
Candidates found the location of the office not attractive 應徵者認為辦公室位置未如理想	-	-	1.5	0.2	-	0.8	-	1.3	0.3
Others# 其他#	-	0.3	6.0	4.3	-	2.0	0.4	-	1.5

Notes: %\* = Total no. of companies having recruited /tried to recruit IT employees in the past 12 months  
註 應徵者認為辦公室內位置未如理想

No. of companies giving the respective answers  
填寫公司數目

%\* = Total no. of companies having recruited /tried to recruit IT employees in the past 12 months  
過往 12 個月曾招聘 / 嘗試招聘資訊科技僱員的公司總數

# Others difficulties reported:

# 其他填報困難:

In companies with 5-9 & 20-49 employees  
僱員人數介乎 5-9 人及 20-49 人的公司

1. Candidates found the IT sector not attractive.

1. 應徵者認為資訊科技業並不吸引。

In companies with 50-99 & 100-199 employees  
僱員人數介乎 50-99 人及 100-199 人的公司

2. Candidates found the IT sector lacked of promotion opportunity.

2. 應徵者認為資訊科技業缺乏晉升機會。

Percentage of Companies Having Encountered Difficulties in  
Recruitment of IT Employees in the Past 12 Months by Sector  
過往 12 個月各行業招聘資訊科技僱員時遇到困難的公司所佔百分率

Difficulties Encountered in Recruitment of IT Employees 招聘資訊科技僱員所遇到的困難	Wholesale, Retail and Import/Export											Community, Social and Personal Services 社區、社會及個人服務業	Digital Creative Industries 數碼創意業	Government Bureaux/Departments 政府部門	Whole Economy 各行業整體
	Manufacturing 製造業	Electricity, Gas and Water 電力、氣體燃料及水務	Construction 建造業	Catering and Hotels 零售批發及出入口	Transport and Storage Services 運輸及貨倉服務業	Communications Services 通訊服務業	Financing, Insurance, Real Estate and Business Services 金融、保險、房地產及商業服務業	IT Products and Services Suppliers 資訊科技產品及服務供應商	Medical and Health Care Services 醫療及保健服務	Community, Social and Personal Services 社區、社會及個人服務業	Digital Creative Industries 數碼創意業				
Candidates lacked the relevant skills/expertise 應徵者並無相關技能/知識	5.0	100.0	78.6	3.9	51.5	9.1	13.6	42.4	20.0	4.2	35.3	22.0	19.8		
Candidates lacked the relevant experience 應徵者缺乏相關經驗	21.0	100.0	78.6	9.9	66.7	18.2	28.2	49.6	30.0	31.3	41.2	26.8	33.8		
Candidates lacked the relevant academic qualification and credential 應徵者未具相關學歷及專業資格	2.0	-	-	1.0	-	-	0.6	7.4	-	1.1	-	2.4	3.1		
Candidates lacked the relevant management/supervisory skills 應徵者缺乏相關管理/督導技能	-	-	-	-	-	3.0	1.9	-	-	-	-	4.9	0.3		
Candidates' language skills (including Putonghua) were not up to expectation 應徵者語文能力(包括普通話)不夠水平	2.0	-	3.6	1.2	-	6.1	0.6	0.7	10.0	0.2	5.9	-	0.8		
Candidates' character/attitude was undesirable 應徵者性格/態度欠佳	3.0	-	-	-	45.5	-	0.6	3.3	10.0	1.7	5.9	-	2.4		

Difficulties Encountered in Recruitment of IT Employees 招聘資訊科技僱員所遇到的困難	Manufacturing 製造業		Electricity, Gas and Water 電力、氣體燃料及水務		Construction 建造業		Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及出入口貿易、飲食業及酒店業		Transport and Storage 運輸及貨倉服務業		Communications Services 通訊服務業		Financing, Insurance, Real Estate and Business Services 金融、保險、房地產及商業服務業		IT Products and Services 資訊科技產品及服務供應商		Medical and Health Care Services 醫療及保健服務		Community, Social and Personal Services 社區、社會及個人服務業		Digital Creative 數碼創意業		Government Bureaux/ 政府部門		Whole Economy 各行業整體	
	%	*	%	*	%	*	%	*	%	*	%	*	%	*	%	*	%	*	%	*	%	*	%	*	%	*
Candidates found the remuneration package not attractive 應徵者認為薪酬欠吸引	4.0	-	-	-	5.0	12.1	6.1	15.9	16.3	10.0	27.3	5.9	2.4	16.5												
Candidates were unwilling to work on shift for long hours 應徵者不願意長時間輪班工作	1.0	-	0.6	-	6.1	5.2	2.5	-	6.0	-	-	-	-	3.4												
Few candidates applied for the existing vacancies 現有空缺的應徵人數不多	21.0	100.0	10.7	1.2	3.0	9.1	26.5	26.0	50.0	34.9	29.4	22.0	23.8													
Candidates found the location of the office not attractive 應徵者認為辦公室位置未如理想	-	-	-	-	3.0	-	0.5	20.0	0.1	-	-	-	0.3													
Others <sup>#</sup> 其他 <sup>#</sup>	2.0	-	-	-	9.1	7.8	1.5	-	-	-	-	-	1.5													

No. of companies giving the respective answers  
填覆公司數目

Notes: \* =  $\frac{\text{Total no. of companies having recruited/tried to recruit IT employees in the past 12 months}}{\text{Total no. of companies having recruited/tried to recruit IT employees in the past 12 months}} \times 100\%$   
註 過往 12 個月曾招聘／嘗試招聘資訊科技僱員的公司總數

# Other difficulties reported :  
# 其他填報困難 :

For companies in sector of WRIE, Catering and Hotels, and Digital Creative  
屬零售批發及出入口貿易、飲食業及酒店業，以及數碼創意業的公司

1. Candidates found the IT sector not attractive.

1. 應徵者認為資訊科技業並不吸引。

For companies in sector of Community, Social and Personal Services  
屬社區、社會及個人服務業的公司

2. Candidates found the IT sector lacked of promotion opportunity.

2. 應徵者認為資訊科技業缺乏晉升機會。

**Preferred Academic Qualification of IT Posts by Job Title**  
**各職位資訊科技僱員宜有的學歷**

Job Code 職務 編號	Job Title 職稱	Number of IT Posts 資訊科技職位數目							Total 總計 (%)*
		Postgraduate 研究院 (%)*	First Degree 學士學位 (%)*	Sub-degree 副學位 (%)*	Senior Secondary 高中 (%)*	Junior Secondary 初中 (%)*	Unspecified 未有說明 (%)*		
<b>General IT Management</b>									
<b>一般資訊科技管理</b>									
101	IT Director 資訊科技總監	106 (7.8)	1 147 (84.0)	42 (3.1)	1 (0.1)	- (-)	69 (5.1)	1 365 (100.0)	
102	CTO 首席技術總監	28 (24.1)	86 (74.1)	- (-)	- (-)	- (-)	2 (1.7)	116 (100.0)	
<b>Sub-total 小計</b>		134 (9.0)	1 233 (83.3)	42 (2.8)	1 (0.1)	- (-)	71 (4.8)	1 481 (100.0)	
<b>IT/Software Development</b>									
<b>資訊科技／軟件開發</b>									
201	Systems Development Manager 系統開發經理	82 (5.0)	1 465 (88.8)	54 (3.3)	- (-)	- (-)	48 (2.9)	1 649 (100.0)	
202	IT Architect 資訊科技建築師	98 (6.9)	1 286 (90.3)	7 (0.5)	- (-)	- (-)	33 (2.3)	1 424 (100.0)	
203	Project Manager 項目經理	106 (2.6)	3 519 (87.2)	190 (4.7)	- (-)	- (-)	220 (5.5)	4 035 (100.0)	
204	Systems Analyst 系統分析員	32 (0.4)	6 163 (77.4)	1 590 (20.0)	100 (1.3)	- (-)	79 (1.0)	7 964 (100.0)	
205	Programmer 程式編製員	313 (2.2)	8 823 (60.6)	3 710 (25.5)	960 (6.6)	- (-)	742 (5.1)	14 548 (100.0)	

\* As a percentage of number of IT posts by job title.  
\* 佔該職稱資訊科技職位的百分率。

Job Code 職務 編號	Job Title 職稱	Postgraduate 研究院 (%)*	First Degree 學士學位 (%)*	Sub-degree 副學位 (%)*	Senior Secondary 高中 (%)*	Junior Secondary 初中 (%)*	Unspecified 未有說明 (%)*	Total 總計 (%)*
206	Web Designer/Developer 網站設計員/開發員	- (-)	595 (41.3)	630 (43.8)	38 (2.6)	- (-)	177 (12.3)	1 440 (100.0)
207	Quality Assurance Specialist 品質檢查專責經理	18 (3.0)	522 (86.1)	42 (6.9)	11 (1.8)	- (-)	13 (2.1)	606 (100.0)
208	Research and Development Engineer 研究及開發工程師	3 (0.5)	333 (59.5)	179 (32.0)	2 (0.4)	- (-)	43 (7.7)	560 (100.0)
209	Software/Firmware Product Designer 軟件/固件產品設計員	- (-)	1 109 (74.0)	251 (16.8)	32 (2.1)	- (-)	106 (7.1)	1 498 (100.0)
210	Technical Writer 技術撰稿員	- (-)	52 (89.7)	4 (6.9)	- (-)	- (-)	2 (3.4)	58 (100.0)
211	Computer Game Designer/ Artist/Developer 電腦遊戲設計/美術/ 開發員	4 (0.3)	290 (22.7)	687 (53.7)	101 (7.9)	- (-)	198 (15.5)	1 280 (100.0)
<b>Sub-total 小計</b>		<b>656 (1.9)</b>	<b>24 157 (68.9)</b>	<b>7 344 (20.9)</b>	<b>1 244 (3.5)</b>	<b>- (-)</b>	<b>1 661 (4.7)</b>	<b>35 062 (100.0)</b>
<b>Telecommunications &amp; Networking 電訊及網絡</b>								
301	Telecommunications Manager 電訊經理	3 (0.6)	462 (87.0)	52 (9.8)	- (-)	- (-)	14 (2.6)	531 (100.0)
302	Telecommunications Consultant 電訊顧問	7 (0.8)	491 (59.2)	209 (25.2)	105 (12.7)	- (-)	18 (2.2)	830 (100.0)
303	Telecommunications Engineer 電訊工程師	5 (0.2)	1 779 (68.9)	580 (22.5)	137 (5.3)	- (-)	82 (3.2)	2 583 (100.0)

\* As a percentage of number of IT posts by job title.  
\* 佔該職稱資訊科技職位的百分率。

Job Code 職務 編號	Job Title 職稱	Postgraduate 研究院 (%)*	First Degree 學士學位 (%)*	Sub-degree 副學位 (%)*	Senior Secondary 高中 (%)*	Junior Secondary 初中 (%)*	Unspecified 未有說明 (%)*	Total 總計 (%)*
304	Network Administrator 網絡管理主任	7 (0.3)	1 349 (52.1)	796 (30.8)	134 (5.2)	- (-)	302 (11.7)	2 588 (100.0)
	<b>Sub-total 小計</b>	<b>22 (0.3)</b>	<b>4 081 (62.5)</b>	<b>1 637 (25.1)</b>	<b>376 (5.8)</b>	<b>- (-)</b>	<b>416 (6.4)</b>	<b>6 532 (100.0)</b>
	<u>Technical Services – IT Security</u> 技術服務 — 資訊科技保安							
401	IT Security Specialist 電腦保安專責經理	44 (5.6)	503 (63.9)	93 (11.8)	- (-)	- (-)	147 (18.7)	787 (100.0)
	<u>Technical Services – Database</u> 技術服務 — 資料庫							
402	Database Administrator 資料庫管理主任	1 (0.1)	499 (59.3)	294 (34.9)	24 (2.9)	- (-)	24 (2.9)	842 (100.0)
	<u>Technical Services</u> — <u>Systems Programming</u> 技術服務 — 系統程式編製							
403	Systems Programmer (in-house/vendor environment) 系統程式編製員 (機構內部／電腦供應商)	16 (0.4)	2 736 (65.7)	853 (20.5)	384 (9.2)	- (-)	175 (4.2)	4 164 (100.0)
	<u>Technical Services – Field Support</u> 技術服務 — 實地支援							
404	Customer Engineering Manager 客戶工程經理	8 (0.9)	637 (72.2)	197 (22.3)	17 (1.9)	- (-)	23 (2.6)	882 (100.0)
405	Customer Service Engineer 客戶服務工程師	6 (0.2)	975 (30.8)	1 242 (39.3)	837 (26.5)	11 (0.3)	91 (2.9)	3 162 (100.0)

\* As a percentage of number of IT posts by job title.

\* 佔該職稱資訊科技職位的百分率。

Job Code 職務 編號	Job Title 職稱	Postgraduate 研究院 (%)*	First Degree 學士學位 (%)*	Sub-degree 副學位 (%)*	Senior Secondary 高中 (%)*	Junior Secondary 初中 (%)*	Unspecified 未有說明 (%)*	Total 總計 (%)*
406	Field Technician 實地服務技術員	- (-)	1 587 (25.3)	2 358 (37.6)	1 817 (29.0)	186 (3.0)	317 (5.1)	6 265 (100.0)
	<b>Sub-total 小計</b>	<b>14 (0.1)</b>	<b>3 199 (31.0)</b>	<b>3 797 (36.8)</b>	<b>2 671 (25.9)</b>	<b>197 (1.9)</b>	<b>431 (4.2)</b>	<b>10 309 (100.0)</b>
<u>Operation Services</u> 操作服務								
501	Computer Operations Manager 電腦操作經理	9 (0.9)	610 (63.1)	112 (11.6)	88 (9.1)	2 (0.2)	145 (15.0)	966 (100.0)
502	Help Desk Supervisor 求助台主任	- (-)	248 (59.5)	138 (33.1)	23 (5.5)	1 (0.2)	7 (1.7)	417 (100.0)
503	Help Desk Representative 求助台服務員	1 (0.1)	398 (24.4)	562 (34.4)	533 (32.6)	16 (1.0)	123 (7.5)	1 633 (100.0)
504	Computer Operations Supervisor 電腦操作主任	25 (1.8)	598 (43.5)	431 (31.3)	209 (15.2)	13 (0.9)	100 (7.3)	1 376 (100.0)
505	Computer Operator 電腦操作員	- (-)	1 304 (34.7)	1 117 (29.7)	1 189 (31.6)	49 (1.3)	100 (2.7)	3 759 (100.0)
506	User Support/Co-ordinator 用戶支援/統籌員	16 (0.1)	1 423 (11.8)	3 832 (31.8)	3 785 (31.4)	174 (1.4)	2 828 (23.5)	12 058 (100.0)
	<b>Sub-total 小計</b>	<b>51 (0.3)</b>	<b>4 581 (22.7)</b>	<b>6 192 (30.6)</b>	<b>5 827 (28.8)</b>	<b>255 (1.3)</b>	<b>3 303 (16.3)</b>	<b>20 209 (100.0)</b>

\* As a percentage of number of IT posts by job title.

\* 佔該職稱資訊科技職位的百分率。

Job Code 職務 編號	Job Title 職稱	Postgraduate 研究院 (%)*	First Degree 學士學位 (%)*	Sub-degree 副學位 (%)*	Senior Secondary 高中 (%)*	Junior Secondary 初中 (%)*	Unspecified 未有說明 (%)*	Total 總計 (%)*
<b>IT Education &amp; Training</b> 資訊科技教育及訓練								
601	Lecturer 講師	451 (20.7)	1 134 (51.9)	- (-)	40 (1.8)	- (-)	558 (25.6)	2 183 (100.0)
602	IT Trainer 資訊科技訓練員	47 (3.9)	1 072 (88.8)	88 (7.3)	- (-)	- (-)	- (-)	1 207 (100.0)
603	IT Researcher (in a tertiary educational institution) 資訊科技研究員 (大專院校)	- (-)	341 (100.0)	- (-)	- (-)	- (-)	- (-)	341 (100.0)
<b>Sub-total 小計</b>		<b>498 (13.3)</b>	<b>2 547 (68.3)</b>	<b>88 (2.4)</b>	<b>40 (1.1)</b>	<b>- (-)</b>	<b>558 (15.0)</b>	<b>3 731 (100.0)</b>
<b>IT Sales &amp; Marketing</b> 資訊科技銷售及市場推廣								
701	Sales/Marketing Director 銷售／市場總監	42 (2.8)	741 (49.4)	313 (20.9)	195 (13.0)	1 (0.1)	208 (13.9)	1 500 (100.0)
702	Sales/Marketing Representative 銷售／市場代表	51 (0.9)	1 646 (28.3)	2 173 (37.4)	1 179 (20.3)	5 (0.1)	752 (13.0)	5 806 (100.0)
<b>Sub-total 小計</b>		<b>93 (1.3)</b>	<b>2 387 (32.7)</b>	<b>2 486 (34.0)</b>	<b>1 374 (18.8)</b>	<b>6 (0.1)</b>	<b>960 (13.1)</b>	<b>7 306 (100.0)</b>
<b>Total 總計</b>		<b>1 529 (1.7)</b>	<b>45 923 (50.8)</b>	<b>22 826 (25.2)</b>	<b>11 941 (13.2)</b>	<b>458 (0.5)</b>	<b>7 746 (8.6)</b>	<b>90 423 (100.0)</b>

\* As a percentage of number of IT posts by job title.

\* 佔該職稱資訊科技職位的百分率。

Note: Figures may not add up to the total due to rounding.  
因四捨五入關係，各項數字相加或與總計數字略有出入。



**Preferred IT Experience of IT Posts by Job Title**  
**各職位資訊科技僱員宜有的資訊科技工作經驗**

Job Code 職務 編號	Job Title 職稱	Number of IT Posts 資訊科技職位數目					Unspecified 未有說明 (%)*	Total 總計 (%)*
		15 Years or Above 15年或 以上 (%)*	10 Years to Less Than 15 Years 10年至 15年以下 (%)*	5 Years to Less Than 10 Years 5年至 10年以下 (%)*	2 Years to Less Than 5 Years 2年至 5年以下 (%)*	Less Than 2 Years 2年以下 (%)*		
<b>General IT Management</b> 一般資訊科技管理								
101	IT Director 資訊科技總監	274 (20.1)	600 (44.0)	328 (24.0)	89 (6.5)	5 (0.4)	69 (5.1)	1 365 (100.0)
102	CTO 首席技術總監	18 (15.5)	41 (35.3)	55 (47.4)	- (-)	- (-)	2 (1.7)	116 (100.0)
<b>IT/Software Development</b> 資訊科技／軟件開發								
201	Systems Development Manager 系統開發經理	87 (5.3)	722 (43.8)	554 (33.6)	222 (13.5)	13 (0.8)	51 (3.1)	1 649 (100.0)
202	IT Architect 資訊科技建築師	13 (0.9)	368 (25.8)	821 (57.7)	100 (7.0)	48 (3.4)	74 (5.2)	1 424 (100.0)
203	Project Manager 項目經理	39 (1.0)	1 173 (29.1)	2 202 (54.6)	351 (8.7)	25 (0.6)	245 (6.1)	4 035 (100.0)
204	Systems Analyst 系統分析員	1 (-)	666 (8.4)	4 807 (60.4)	1 761 (22.1)	283 (3.6)	446 (5.6)	7 964 (100.0)
205	Programmer 程式編製員	- (-)	933 (6.4)	3 096 (21.3)	6 986 (48.0)	2 629 (18.1)	904 (6.2)	14 548 (100.0)
206	Web Designer/Developer 網站設計員／開發員	- (-)	78 (5.4)	352 (24.4)	679 (47.2)	154 (10.7)	177 (12.3)	1 440 (100.0)
207	Quality Assurance Specialist 品質檢查專責經理	- (-)	76 (12.5)	259 (42.7)	166 (27.4)	58 (9.6)	47 (7.8)	606 (100.0)
208	Research and Development Engineer 研究及開發工程師	- (-)	24 (4.3)	291 (52.0)	193 (34.5)	9 (1.6)	43 (7.7)	560 (100.0)
209	Software/Firmware Product Designer 軟件／固件產品設計員	- (-)	67 (4.5)	963 (64.3)	259 (17.3)	103 (6.9)	106 (7.1)	1 498 (100.0)
210	Technical Writer 技術撰稿員	- (-)	- (-)	6 (10.3)	50 (86.2)	- (-)	2 (3.4)	58 (100.0)
211	Computer Game Designer/ Artist/Developer 電腦遊戲設計／美術／開發員	- (-)	33 (2.6)	120 (9.4)	417 (32.6)	513 (40.1)	197 (15.4)	1 280 (100.0)

\* As a percentage of number of IT posts by job title.

\* 佔該職稱資訊科技職位的百分率。

**Number of IT Posts**  
**資訊科技職位數目**

Job Code 職務 編號	Job Title 職稱	15 Years or Above 15年或 以上 (%)*	10 Years to Less Than 15 Years 10年至 15年以下 (%)*	5 Years to Less Than 10 Years 5年至 10年以下 (%)*	2 Years to Less Than 5 Years 2年至 5年以下 (%)*	Less Than 2 Years 2年以下 (%)*	Unspecified 未有說明 (%)*	Total 總計 (%)*
<b><u>Telecommunications &amp; Networking</u></b> 電訊及網絡								
301	Telecommunications Manager 電訊經理	4 (0.8)	161 (30.3)	267 (50.3)	65 (12.2)	- (-)	34 (6.4)	531 (100.0)
302	Telecommunications Consultant 電訊顧問	- (-)	123 (14.8)	329 (39.6)	320 (38.6)	- (-)	58 (7.0)	830 (100.0)
303	Telecommunications Engineer 電訊工程師	1 (-)	12 (0.5)	947 (36.7)	1 024 (39.6)	335 (13.0)	264 (10.2)	2 583 (100.0)
304	Network Administrator 網絡管理主任	1 (-)	9 (0.3)	589 (22.8)	1 124 (43.4)	563 (21.8)	302 (11.7)	2 588 (100.0)
<b><u>Technical Services – IT Security</u></b> 技術服務 — 資訊科技保安								
401	IT Security Specialist 電腦保安專責經理	1 (0.1)	46 (5.8)	298 (37.9)	269 (34.2)	3 (0.4)	170 (21.6)	787 (100.0)
<b><u>Technical Services – Database</u></b> 技術服務 — 資料庫								
402	Database Administrator 資料庫管理主任	- (-)	33 (3.9)	300 (35.6)	435 (51.7)	50 (5.9)	24 (2.9)	842 (100.0)
<b><u>Technical Services – Systems Programming</u></b> 技術服務 — 系統程式編製								
403	Systems Programmer (in-house/vendor environment) 系統程式編製員 (機構內部／電腦供應商)	10 (0.2)	561 (13.5)	1 396 (33.5)	1 750 (42.0)	272 (6.5)	175 (4.2)	4 164 (100.0)
<b><u>Technical Services – Field Support</u></b> 技術服務 — 實地支援								
404	Customer Engineering Manager 客戶工程經理	7 (0.8)	115 (13.0)	383 (43.4)	347 (39.3)	- (-)	30 (3.4)	882 (100.0)
405	Customer Service Engineer 客戶服務工程師	- (-)	25 (0.8)	632 (20.0)	2 262 (71.5)	152 (4.8)	91 (2.9)	3 162 (100.0)
406	Field Technician 實地服務技術員	- (-)	31 (0.5)	1 256 (20.0)	3 099 (49.5)	1 528 (24.4)	351 (5.6)	6 265 (100.0)

\* As a percentage of number of IT posts by job title.

\* 佔該職稱資訊科技職位的百分率。

**Number of IT Posts**  
**資訊科技職位數目**

Job Code 職務 編號	Job Title 職稱	15 Years or Above 15年或 以上 (%)*	10 Years to Less Than 15 Years 10年至 15年以下 (%)*	5 Years to Less Than 10 Years 5年至 10年以下 (%)*	2 Years to Less Than 5 Years 2年至 5年以下 (%)*	Less Than 2 Years 2年以下 (%)*	Unspecified 未有說明 (%)*	Total 總計 (%)*
<b>Operation Services</b>								
<b>操作服務</b>								
501	Computer Operations Manager 電腦操作經理	67 (6.9)	232 (24.0)	371 (38.4)	145 (15.0)	- (-)	151 (15.6)	966 (100.0)
502	Help Desk Supervisor 求助台主任	- (-)	164 (39.3)	74 (17.7)	155 (37.2)	17 (4.1)	7 (1.7)	417 (100.0)
503	Help Desk Representative 求助台服務員	- (-)	15 (0.9)	83 (5.1)	818 (50.1)	558 (34.2)	159 (9.7)	1 633 (100.0)
504	Computer Operations Supervisor 電腦操作主任	- (-)	84 (6.1)	345 (25.1)	818 (59.4)	27 (2.0)	102 (7.4)	1 376 (100.0)
505	Computer Operator 電腦操作員	- (-)	27 (0.7)	512 (13.6)	1 878 (50.0)	1 192 (31.7)	150 (4.0)	3 759 (100.0)
506	User Support/Co-ordinator 用戶支援／統籌員	- (-)	10 (0.1)	1 156 (9.6)	4 460 (37.0)	3 677 (30.5)	2 755 (22.8)	12 058 (100.0)
<b>IT Education &amp; Training</b>								
<b>資訊科技教育及訓練</b>								
601	Lecturer 講師	90 (4.1)	354 (16.2)	696 (31.9)	335 (15.3)	150 (6.9)	558 (25.6)	2 183 (100.0)
602	IT Trainer 資訊科技訓練員	- (-)	12 (1.0)	281 (23.3)	306 (25.4)	608 (50.4)	- (-)	1 207 (100.0)
603	IT Researcher (in a tertiary educational institution) 資訊科技研究員（大專院校）	- (-)	- (-)	- (-)	250 (73.3)	91 (26.7)	- (-)	341 (100.0)
<b>IT Sales &amp; Marketing</b>								
<b>資訊科技銷售及市場推廣</b>								
701	Sales/Marketing Director 銷售／市場總監	49 (3.3)	177 (11.8)	457 (30.5)	518 (34.5)	74 (4.9)	225 (15.0)	1 500 (100.0)
702	Sales/Marketing Representative 銷售／市場代表	- (-)	57 (1.0)	795 (13.7)	3 208 (55.3)	966 (16.6)	780 (13.4)	5 806 (100.0)
	<b>Total</b> 總計	<b>662</b> (0.7)	<b>7 029</b> (7.8)	<b>25 021</b> (27.7)	<b>34 859</b> (38.6)	<b>14 103</b> (15.6)	<b>8 749</b> (9.7)	<b>90 423</b> (100.0)

\* As a percentage of number of IT posts by job title.  
\* 佔該職稱資訊科技職位的百分率。

Note : Figures may not add up to the total due to rounding.  
因四捨五入關係，各項數字相加或與總計數字略有出入。

**Average Annual Remuneration Package of IT Employees (Excluding Freelancers) by Job Title**  
**各職位資訊科技僱員（不包括自由工作者）的每年平均薪酬福利**

Job Code 職務編號	Job Title 職稱	Number of IT Employees 資訊科技僱員數目								Total 總計 (%)*
		HK\$1,080,001 or More 或以上 (%)*	HK\$600,001 - HK\$1,080,000 (%)*	HK\$360,001 - HK\$600,000 (%)*	HK\$240,001 - HK\$360,000 (%)*	HK\$100,001 - HK\$240,000 (%)*	HK\$100,000 or Below 或以下 (%)*	Unknown 不詳 (%)*		
<b>General IT Management</b> 一般資訊科技管理										
101	IT Director 資訊科技總監	393 (28.9)	301 (22.1)	366 (26.9)	93 (6.8)	- (-)	8 (0.6)	200 (14.7)	1 361 (100.0)	
102	CTO 首席技術總監	36 (31.0)	44 (37.9)	15 (12.9)	7 (6.0)	- (-)	- (-)	14 (12.1)	116 (100.0)	
<b>IT/Software Development</b> 資訊科技／軟件開發										
201	Systems Development Manager 系統開發經理	197 (12.0)	741 (45.3)	296 (18.1)	188 (11.5)	3 (0.2)	- (-)	212 (13.0)	1 637 (100.0)	
202	IT Architect 資訊科技建築師	9 (0.6)	795 (57.0)	179 (12.8)	289 (20.7)	- (-)	- (-)	123 (8.8)	1 395 (100.0)	
203	Project Manager 項目經理	72 (1.8)	1 732 (43.7)	1 190 (30.0)	370 (9.3)	1 (-)	- (-)	600 (15.1)	3 965 (100.0)	
204	Systems Analyst 系統分析員	14 (0.2)	1 512 (19.7)	3 507 (45.8)	1 828 (23.9)	274 (3.6)	1 (-)	528 (6.9)	7 664 (100.0)	
205	Programmer 程式編製員	- (-)	305 (2.2)	4 223 (30.8)	4 531 (33.1)	3 037 (22.2)	- (-)	1 612 (11.8)	13 708 (100.0)	
206	Web Designer/Developer 網站設計員／開發員	- (-)	14 (1.0)	234 (17.1)	320 (23.4)	419 (30.6)	8 (0.6)	373 (27.3)	1 368 (100.0)	

\* As a percentage of number of IT employees by job title.  
\* 佔該職稱資訊科技僱員總數的百分率。

Job Code 職務編號	Job Title 職稱	HK\$1,080,001 or More 或以上		HK\$600,001 - HK\$1,080,000		HK\$360,001 - HK\$600,000		HK\$240,001 - HK\$360,000		HK\$100,001 - HK\$240,000		HK\$100,000 or Below 或以下		Unknown 不詳		Total 總計	
		(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
207	Quality Assurance Specialist 品質檢查專責經理	- (-)	30 (5.0)	280 (46.9)	76 (12.7)	2 (0.3)	- (-)	209 (35.0)	597 (100.0)								
208	Research and Development Engineer 研究及開發工程師	- (-)	10 (2.0)	67 (13.2)	156 (30.8)	34 (6.7)	- (-)	239 (47.2)	506 (100.0)								
209	Software/Firmware Product Designer 軟件／固件產品設計員	- (-)	177 (12.5)	558 (39.3)	424 (29.8)	41 (2.9)	1 (0.1)	220 (15.5)	1 421 (100.0)								
210	Technical Writer 技術撰稿員	- (-)	- (-)	6 (11.1)	9 (16.7)	- (-)	- (-)	39 (72.2)	54 (100.0)								
211	Computer Game Designer/ Artist/Developer 電腦遊戲設計／美術／開發員	- (-)	- (-)	172 (14.2)	474 (39.1)	184 (15.2)	5 (0.4)	378 (31.2)	1 213 (100.0)								
<b>Telecommunications &amp; Networking 電訊及網絡</b>																	
301	Telecommunications Manager 電訊經理	2 (0.4)	198 (38.1)	186 (35.8)	44 (8.5)	- (-)	- (-)	90 (17.3)	520 (100.0)								
302	Telecommunications Consultant 電訊顧問	- (-)	88 (10.9)	202 (24.9)	231 (28.5)	206 (25.4)	- (-)	84 (10.4)	811 (100.0)								
303	Telecommunications Engineer 電訊工程師	- (-)	69 (2.7)	569 (22.5)	963 (38.0)	467 (18.4)	- (-)	466 (18.4)	2 534 (100.0)								
304	Network Administrator 網絡管理主任	- (-)	53 (2.1)	199 (7.8)	1 310 (51.3)	941 (36.9)	- (-)	49 (1.9)	2 552 (100.0)								

\* As a percentage of number of IT employees by job title.  
\* 佔該職稱資訊科技僱員總數的百分率。

Job Code 職務編號	Job Title 職稱	HK\$1,080,001 or More 或以上 (%)*	HK\$600,001 - HK\$1,080,000 (%)*	HK\$360,001 - HK\$600,000 (%)*	HK\$240,001 - HK\$360,000 (%)*	HK\$100,001 - HK\$240,000	HK\$100,000 or Below 或以下 (%)*	Unknown 不詳 (%)*	Total 總計 (%)*
<b>Technical Services – IT Security</b>									
<b>技術服務 — 資訊科技保安</b>									
401	IT Security Specialist 電腦保安專責經理	1 (0.1)	110 (15.5)	268 (37.8)	184 (26.0)	- (-)	5 (0.7)	141 (19.9)	709 (100.0)
<b>Technical Services – Database</b>									
<b>技術服務 — 資料庫</b>									
402	Database Administrator 資料庫管理主任	- (-)	57 (6.9)	173 (21.0)	212 (25.7)	299 (36.3)	- (-)	83 (10.1)	824 (100.0)
<b>Technical Services – Systems Programming</b>									
<b>技術服務 — 系統程式編製</b>									
403	Systems Programmer (in-house/vendor environment) 系統程式編製員 (機構內部／電腦供應商)	- (-)	706 (17.2)	1 391 (33.9)	1 330 (32.4)	282 (6.9)	- (-)	392 (9.6)	4 101 (100.0)
<b>Technical Services – Field Support</b>									
<b>技術服務 — 實地支援</b>									
404	Customer Engineering Manager 客戶工程經理	12 (1.4)	204 (23.3)	232 (26.5)	333 (38.0)	- (-)	- (-)	96 (10.9)	877 (100.0)
405	Customer Service Engineer 客戶服務工程師	- (-)	33 (1.1)	757 (24.3)	866 (27.8)	512 (16.5)	16 (0.5)	926 (29.8)	3 110 (100.0)
406	Field Technician 實地服務技術員	- (-)	7 (0.1)	679 (11.5)	1 029 (17.5)	3 064 (52.0)	- (-)	1 113 (18.9)	5 892 (100.0)

\* As a percentage of number of IT employees by job title.

\* 佔該職稱資訊科技僱員總數的百分率。

Job Code 職務編號	Job Title 職稱	HK\$1,080,001 or More 或以上		HK\$600,001 - HK\$1,080,000		HK\$360,001 - HK\$600,000		HK\$240,001 - HK\$360,000		HK\$100,001 - HK\$240,000		HK\$100,000 or Below 或以下		Unknown 不詳	Total 總計
		(%)*	(%)	(%)*	(%)	(%)*	(%)	(%)*	(%)	(%)*	(%)	(%)*	(%)		
<b>Operation Services</b> 操作服務															
501	Computer Operations Manager 電腦操作經理	5 (0.5)	208 (21.6)	241 (25.1)	175 (18.2)	70 (7.3)	- (-)	263 (27.3)	962 (100.0)						
502	Help Desk Supervisor 求助台主任	- (-)	24 (5.8)	226 (55.0)	110 (26.8)	11 (2.7)	- (-)	40 (9.7)	411 (100.0)						
503	Help Desk Representative 求助台服務員	- (-)	15 (0.9)	75 (4.7)	526 (33.0)	675 (42.3)	24 (1.5)	279 (17.5)	1 594 (100.0)						
504	Computer Operations Supervisor 電腦操作主任	- (-)	17 (1.3)	365 (28.1)	350 (26.9)	309 (23.8)	- (-)	259 (19.9)	1 300 (100.0)						
505	Computer Operator 電腦操作員	- (-)	- (-)	276 (7.6)	1 721 (47.2)	1 225 (33.6)	37 (1.0)	387 (10.6)	3 646 (100.0)						
506	User Support/Co-ordinator 用戶支援/統籌員	- (-)	17 (0.2)	334 (3.3)	3 222 (31.5)	4 260 (41.6)	54 (0.5)	2 349 (22.9)	10 236 (100.0)						
<b>IT Education &amp; Training</b> 資訊科技教育及訓練															
601	Lecturer 講師	76 (3.5)	222 (10.2)	899 (41.3)	154 (7.1)	29 (1.3)	- (-)	795 (36.6)	2 175 (100.0)						
602	IT Trainer 資訊科技訓練員	- (-)	29 (2.4)	632 (53.0)	388 (32.5)	46 (3.9)	36 (3.0)	62 (5.2)	1 193 (100.0)						
603	IT Researcher (in a tertiary educational institution) 資訊科技研究員 (大專院校)	- (-)	- (-)	37 (11.7)	- (-)	- (-)	- (-)	280 (88.3)	317 (100.0)						

\* As a percentage of number of IT employees by job title.  
\* 佔該職稱資訊科技僱員總數的百分率。

Job Code 職務編號	Job Title 職稱	HK\$1,080,001 or More 或以上 (%)*	HK\$600,001 - HK\$1,080,000 (%)*	HK\$360,001 - HK\$600,000 (%)*	HK\$240,001 - HK\$360,000 (%)*	HK\$100,001 - HK\$240,000 (%)*	HK\$100,000 or Below 或以下 (%)*	Unknown 不詳 (%)*	Total 總計 (%)*
<b>IT Sales &amp; Marketing</b>									
資訊科技銷售及市場推廣									
701	Sales/Marketing Director 銷售/市場總監	85 (5.7)	129 (8.7)	385 (25.8)	304 (20.4)	95 (6.4)	7 (0.5)	486 (32.6)	1 491 (100.0)
702	Sales/Marketing Representative 銷售/市場代表	361 (6.3)	599 (10.5)	360 (6.3)	1 199 (21.1)	1 274 (22.4)	107 (1.9)	1 786 (31.4)	5 686 (100.0)
	Total 總計	1 263 (1.5)	8 446 (9.8)	19 579 (22.8)	23 416 (27.2)	17 760 (20.7)	309 (0.4)	15 173 (17.7)	85 946 (100.0)

Note: (1) Annual Remuneration Package = Annual Basic Salary + Annual Bonus/Commission + Annual Housing Allowance/Benefit + Other Regular Allowance.  
註：(1) 每年薪酬福利 = 每年基本薪酬 + 每年花紅/佣金 + 每年房屋津貼/福利 + 其他固定津貼。

(2) Figures may not add up to their totals due to rounding.  
(2) 因四捨五入關係，各項數字相加或與總計數字略有出入。

\* As a percentage of number of IT employees by job title.  
\* 佔該職稱資訊科技僱員總數的百分率。



**Percentage of Companies  
Having Specified the Need of IT Employees to Receive Training in the  
Next 12 Months by Employment Size of Company by Sector**

表示於未來 12 個月資訊科技僱員有訓練需求的  
各類公司百分率（按行業及公司規模劃分）

Employment Size 僱員人數	Manufacturing 製造業	Electricity, Gas and Water 電力、 氣體燃料 及水務	Construction 建造業	Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發 及出入口 貿易、飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉 服務業	Communications Services 通訊服務業	Financing, Insurance, Real Estate and Business Services 金融、 保險、 房地產及 商業服務業	IT Products and Services 資訊科技 產品及服務 供應商	Medical and Health Care Services 醫療及 保健服務	Community, Social and Personal Services 社區、 社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureau/ Departments 政府部門	Whole Economy 各行業 整體
1 - 4 1 至 4 人	11.3	-	-	-	-	1.8	-	22.5	-	-	19.4	-	5.6
5 - 9 5 至 9 人	3.7	-	-	0.1	-	-	-	3.4	-	-	6.7	-	0.2
10 - 19 10 至 19 人	0.3	-	-	0.6	-	-	-	23.6	-	-	-	-	1.0
20 - 49 20 至 49 人	3.5	-	-	2.6	-	7.8	1.4	26.2	-	22.7	9.1	-	5.8
50 - 99 50 至 99 人	-	-	6.6	-	0.5	25.0	8.6	22.0	-	21.2	-	60.0	8.1
100 - 199 100 至 199 人	19.6	-	3.2	19.8	0.8	28.6	5.8	35.9	12.5	39.5	50.0	20.0	19.5
200 - 499 200 至 499 人	2.2	-	36.1	13.7	6.4	12.5	19.2	35.7	33.3	33.1	100.0	80.0	19.5
500 & Over 500 人及以上	45.8	33.3	24.0	19.2	-	41.7	34.5	25.0	60.0	21.3	-	64.4	29.8
Overall 總計	3.6	14.3	0.7	0.8	0.1	6.9	1.4	19.3	0.4	6.9	14.1	58.2	2.8

\* As a percentage of number of responding cases.  
佔填覆公司的百分率。

**Distribution of Training Needs of Existing IT Employees (with Top 3 Priorities)  
in the Next 12 Months by Training Type by Sector/Branch**  
未來 12 個月現職資訊科技僱員的訓練需求 (首選 3 項)  
(按行業/業務及訓練種類劃分)

**Number of IT Employees (in terms of Man-Times)**  
資訊科技僱員人次

Code 編號	Type of Training 訓練種類	Manufacturing 製造業			Electricity, Gas and Water 電力、 氣體燃料 及水務			Construction 建造業			Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及 出入口貿易、 飲食業及酒店業			Transport and Storage Services 運輸及貨倉 服務業			Communications Services 通訊服務業			Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業			IT Products and Services 資訊科技 產品及服務 供應商			Medical and Health Care 醫療及 保健服務			Community, Social and Personal Services 社區、社會及 個人服務業			Digital Creative 數碼 創意業			Government Bureaux/ Departments 政府部門			Whole Economy 各行各業 整體		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	(%)*													
01	Basic Office IT Skills 辦公室資訊科技 基本技能	30	10	-	-	-	60	-	-	2	1	-	-	2	-	-	-	217	1	7	224	14	30	2	177	777 (1.6)														
02	Applied Basic IT Tools for Business Processes 基本資訊科技工具 在業務的應用	24	-	-	4	8	40	-	268	2	-	-	30	74	70	-	-	697	11	98	172	-	51	3	78	1 630 (3.3)														
03	Java and Object-Oriented Technology Java 及物件導向技術	24	-	-	-	-	-	-	60	-	-	-	-	1	50	5	60	270	696	136	-	-	86	-	278	1 666 (3.3)														
04	Linux/Unix & Open Source Linux/Unix 及源碼 開放程式	-	-	4	-	-	-	-	192	-	-	-	10	-	8	14	-	60	725	149	34	-	9	5	66	1 276 (2.6)														
05	.NET Development .NET 開發	-	-	-	43	3	-	-	6	-	-	-	15	-	16	7	8	302	27	185	56	-	36	5	18	727 (1.5)														
06	Windows Platform Technology 視窗平台技術	-	30	-	25	33	874	-	119	-	-	-	-	-	185	-	60	135	479	251	-	-	39	7	134	2 371 (4.7)														
07	Service-Oriented Architecture (SOA), Web Services and XML Development 服務導向架構・網上 服務與 XML 開發	15	-	-	-	-	-	-	250	-	-	-	-	-	215	2	-	22	378	163	-	-	46	5	191	1 287 (2.6)														

\* As a percentage of number of IT employees (in terms of man-times) in all types of training.  
\* 佔全部資訊科技僱員訓練人次的百分率。

Code 編號	Type of Training 訓練種類	Manufacturing 製造業			Electricity, Gas and Water 電力、 氣體燃料 及水務			Construction 建造業			Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及 出入口貿易、 飲食業及酒店業			Transport and Storage Services 運輸及貨倉 服務業			Communications Services 通訊服務業			Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業			IT Products and Services 資訊科技 產品及服務 供應商			Medical and Health Care Services 醫療及 保健服務			Community, Social and Personal Services 社區、社會及 個人服務業			Digital Creative 數碼 創意業			Government Bureaux/ Departments 政府部門			Whole Economy 各行業 整體																																																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
08	Multimedia and Computer Graphics 多媒體及電腦圖像	-	16	-	-	-	-	-	-	-	-	-	-	-	4	-	220	307	-	23	60	-	39	8	3	680 (1.4)																																																																									
09	Interactive Game Design/Development 互動遊戲設計/開發	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	235	-	-	10	-	3	5	-	253 (0.5)																																																																									
10	Internet/Intranet/Web Development 互聯網/內聯網/ 網絡開發	-	99	-	116	158	-	285	-	3	38	-	2	33	1 060	-	145	1 004	11	40	163	-	54	22	157	3 390 (6.8)																																																																									
11	IT Applications in Customer Relationship Management (e-Marketing, e-Services) 資訊科技在客戶 關係管理的應用 (電子市場推廣、 電子服務)	11	-	4	-	1	207	-	352	1	-	-	12	-	996	4	6	1 698	-	29	5	-	44	-	219	3 589 (7.2)																																																																									
12	Information and System Security 資訊及系統保安	17	149	5	7	150	277	-	222	1	1	39	27	62	1 155	5	358	1 451	98	377	267	-	90	19	1 211	5 988 (12.0)																																																																									
13	Database Technology 資料庫科技	15	77	4	-	3	22	-	8	1	2	38	11	42	289	2	101	385	5	138	10	-	11	1	281	1 446 (2.9)																																																																									
14	Networking/Data Communications 網絡/數據通訊	21	22	10	-	47	22	-	32	-	-	-	11	84	1 093	9	375	998	8	96	354	-	75	28	429	3 714 (7.4)																																																																									
15	Application Development Tools/ Languages 應用開發工具/語言	-	34	6	116	15	12	333	100	-	-	-	1	-	8	17	243	602	35	100	15	-	64	2	126	1 829 (3.7)																																																																									
16	Web 2.0 Tools and Related Applications Web 2.0 工具及其 相關應用	-	-	7	-	-	-	-	-	-	-	-	1	2	56	19	8	173	102	55	167	-	50	10	112	762 (1.5)																																																																									

\* \* As a percentage of number of IT employees (in terms of man-times) in all types of training.  
佔全部資訊科技僱員訓練人次的百分率。

Code 編號	Type of Training 訓練種類	Manufacturing 製造業			Electricity, Gas and Water 電力、 氣體燃料 及水務			Construction 建造業			Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及 出入口貿易、 飲食業及酒店業			Transport and Storage Services 運輸及貨倉 服務業			Communications Services 通訊服務業			Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業			IT Products and Services 資訊科技 產品及服務 供應商			Medical and Health Care Services 醫療及 保健服務			Community, Social and Personal Services 社區、社會及 個人服務業			Digital Creative 數碼 創意業			Government Bureaux/ Departments 政府部門			Whole Economy 各行業 整體		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30									
17	Mobile Computing 流動電腦應用	15	-	-	-	-	899	-	-	-	-	-	-	-	-	85	2	60	268	92	38	109	-	48	7	161	-	-	1 784 (3.6)											
18	IT Infrastructure Library 資訊科技基礎架構標 準庫 (ITIL)	-	-	-	-	4	-	78	-	-	-	-	-	1	-	-	-	60	147	88	72	-	-	55	8	388	-	-	901 (1.8)											
19	Radio Frequency Identification (RFID) Technologies 射頻識別 (RFID) 科技	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	22 (-)											
20	IT Applications in Supply Chain Management (e-Logistics, e-Procurement) 資訊科技在供應 鏈管理的應用 (電子物流、電子 採購)	-	-	-	-	-	100	-	-	-	-	-	-	15	2	86	-	-	31	-	15	-	-	12	-	69	-	-	394 (0.8)											
21	IT Applications in Product Design 資訊科技在產品設計 的應用	-	16	-	-	-	12	-	-	-	-	-	-	4	-	17	-	80	180	-	8	-	-	-	20	7	-	-	344 (0.7)											
22	e-Learning Technology and Development 網上教學科技及開發	-	-	-	-	-	562	-	-	-	-	-	-	15	-	-	-	200	53	-	608	1 062	-	3	-	57	-	-	2 575 (5.2)											
23	Project Management and Design 項目管理及設計	-	-	-	-	23	294	-	1	-	-	-	-	-	1	102	2	126	457	18	44	5	-	147	2	470	-	-	1 823 (3.7)											
24	Software Quality (Capability Maturity Model Integration) 軟件質素 (能力成熟度模型 (CMMI))	-	-	-	-	-	-	-	-	-	-	-	-	1	-	50	-	-	482	-	36	-	-	92	20	227	-	-	982 (2.0)											

\* \* As a percentage of number of IT employees (in terms of man-times) in all types of training.  
佔全部資訊科技僱員訓練人次的百分率。

Code 編號	Type of Training 訓練種類	Manufacturing 製造業			Electricity, Gas and Water 電力、 氣體燃料 及水務			Construction 建造業			Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及 出入口貿易、 飲食業及酒店業			Transport and Storage Services 運輸及貨倉 服務業			Communications Services 通訊服務業			Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業			IT Products and Suppliers 資訊科技 產品及服務 供應商			Medical and Health Care 醫療及 保健服務			Community, Social and Personal Services 社區、社會及 個人服務業			Digital Creative 數碼 創意業			Government Bureaux/ Departments 政府部門			Whole Economy 各行業 整體		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33						
25	Understanding IT Practice in the Mainland of China 中國內地資訊 科技業概況	-	-	9	-	-	-	-	-	-	-	6	-	-	-	-	-	42	-	62	-	2	-	-	-	-	-	-	-	-	-	-	45	-	-	166 (0.3)				
26	Virtualization and Cloud Computing 虛擬化及雲端運算	15	-	-	-	1	2 540	-	-	-	-	5	-	-	-	-	-	110	-	-	467	36	355	268	-	4	463	4 279 (8.6)	94	-	-	-	-	-	3 080 (6.2)					
27	Data Science and Data Analytics	-	10	-	-	7	1 485	-	-	1	-	44	94	20	17	-	20	17	-	917	33	314	10	-	-	94	3 080 (6.2)	15	-	-	-	-	-	119 (0.2)						
28	3D Printing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	102	-	-	15	119 (0.2)	-	-	-	-	-	-	2 080 (4.2)						
29	Other IT-related Training 其他與資訊科技有關 的訓練	12	-	8	-	-	923	60	-	-	-	13	24	173	-	-	173	-	-	645	-	2	5	-	1	160	2 080 (4.2)	160	-	-	-	-	-	4 279 (8.6)						
	Overall 總計	199	463	57	320	453	8 349	393	2 247	3	12	116	-	224	421	5 890	105	2 172	12 203	2 845	3 343	3 098	14	1 187	184	5 636	49 934 (100.0)	5 636	-	-	-	-	-	49 934 (100.0)						

\* \* As a percentage of number of IT employees (in terms of man-times) in all types of training.  
佔全部資訊科技僱員訓練人次的百分率。

Note:  
註： Figures may not add up to the total due to rounding.  
因四捨五入關係，各項數字相加或與總計數字略有出入。

**Distribution of Training Needs of Existing IT Employees (with Top 3 Priorities)  
in the Next 12 Months by Job Category/Title by Type of Training Code**  
未來 12 個月現職資訊科技僱員的訓練需求 (首選 3 項)  
(按技能類別/職稱及訓練種類劃分)

**Number of IT Employees (in terms of Man-Times)**  
資訊科技僱員人次

	Type of Training Code 訓練種類編號																													Total (%)*
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
General IT Management 一般資訊科技管理																														
101 IT Director 資訊科技總監	-	5	4	-	5	8	2	-	-	90	93	224	32	24	111	5	19	11	-	-	-	9	78	5	70	62	15	-	14	
102 CTO 首席技術總監	-	-	1	-	-	-	-	-	-	-	-	30	-	22	2	-	-	-	-	-	-	1	1	-	-	-	-	-	8	
<b>Sub-total</b> 小計	-	5	5	-	5	8	2	-	-	90	93	254	32	46	113	5	19	11	-	-	-	10	79	5	70	62	15	-	22	
IT/Software Development 資訊科技/軟件開發																														
201 Systems Development Manager 系統開發經理	-	3	21	41	3	-	74	2	11	73	93	204	47	58	61	22	160	33	-	8	2	125	61	40	7	82	19	-	7	
202 IT Architect 資訊科技建築師	-	4	4	10	7	-	4	-	1	20	211	68	42	6	-	-	210	-	-	56	-	215	198	158	-	214	21	-	-	
203 Project Manager 項目經理	3	18	53	-	18	46	59	26	21	298	349	441	87	174	200	61	255	55	-	-	39	65	607	127	16	266	26	-	12	
204 Systems Analyst 系統分析員	-	13	513	370	-	66	528	5	-	591	211	634	195	358	129	65	224	91	-	-	12	265	85	96	-	293	157	13	13	
205 Programmer 程式編製員	3	130	892	579	434	472	454	220	104	855	600	669	210	313	724	136	263	42	-	62	60	38	84	110	-	317	356	-	112	
206 Web Designer/ Developer 網站設計員/ 開發員	-	22	3	-	-	6	22	78	1	210	-	41	2	75	22	102	7	-	-	-	4	42	-	-	-	-	56	-	-	
207 Quality Assurance Specialist 品質檢查專責經理	11	-	11	5	11	8	8	-	11	27	16	32	-	50	6	12	17	-	-	-	2	-	18	6	-	-	-	-	-	

\* As a percentage of number of IT employees (in terms of man-times) in all job categories/titles.  
\* 佔全部技能類別/職稱資訊科技僱員人次的百分率。

	Type of Training Code																				Total (%)*										
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20		21	22	23	24	25	26	27	28	29	
208 Research and Development Engineer 研究及開發工程師	-	-	1	10	6	6	6	6	6	24	5	41	1	1	6	24	-	-	-	-	1	26	-	4	10	10	-	-	-	188 (0.4)	
209 Software/Firmware Product Designer 軟件/固件產品設計員	39	-	26	-	16	72	-	89	9	46	-	69	11	45	95	33	96	3	-	24	80	158	-	-	48	23	-	-	982 (2.0)		
210 Technical Writer 技術撰稿員	-	-	-	-	-	-	-	-	-	10	10	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	22 (-)		
211 Computer Game Designer/Artist/ Developer 電腦遊戲設計/ 美術/開發員	-	5	-	-	42	6	-	101	81	2	-	5	-	-	1	-	62	-	-	-	3	1	-	-	4	-	-	-	313 (0.6)		
<b>Sub-total 小計</b>	<b>56</b>	<b>195</b>	<b>1 524</b>	<b>1 015</b>	<b>537</b>	<b>682</b>	<b>1 149</b>	<b>527</b>	<b>245</b>	<b>2 156</b>	<b>1 495</b>	<b>2 204</b>	<b>595</b>	<b>1 080</b>	<b>1 246</b>	<b>455</b>	<b>1 294</b>	<b>224</b>	<b>-</b>	<b>126</b>	<b>139</b>	<b>796</b>	<b>1 280</b>	<b>537</b>	<b>27</b>	<b>1 234</b>	<b>668</b>	<b>13</b>	<b>144</b>	<b>21 643 (43.3)</b>	
Telecommunications & Networking 電訊及網絡	-	-	4	3	-	-	9	-	-	15	25	32	4	71	-	-	27	7	-	-	1	5	7	-	1	5	4	-	1	221 (0.4)	
301 Telecommunications Manager 電訊經理	-	-	4	3	-	-	9	-	-	15	25	32	4	71	-	-	27	7	-	-	1	5	7	-	1	5	4	-	1	221 (0.4)	
302 Telecommunications Consultant 電訊顧問	3	3	-	-	-	-	-	-	-	1	16	129	-	132	4	1	-	2	-	-	-	-	31	3	-	113	10	-	-	448 (0.9)	
303 Telecommunications Engineer 電訊工程師	-	-	8	2	3	2	41	-	-	50	15	69	15	184	4	-	59	12	-	-	22	1	1	-	-	113	59	-	1	661 (1.3)	
304 Network Administrator 網絡管理主任	64	2	-	-	-	21	6	-	-	40	19	57	-	166	-	1	19	16	-	-	10	32	-	-	38	8	-	64	563 (1.1)		
<b>Sub-total 小計</b>	<b>67</b>	<b>5</b>	<b>12</b>	<b>5</b>	<b>3</b>	<b>23</b>	<b>56</b>	<b>-</b>	<b>-</b>	<b>106</b>	<b>75</b>	<b>287</b>	<b>19</b>	<b>553</b>	<b>8</b>	<b>2</b>	<b>105</b>	<b>37</b>	<b>-</b>	<b>23</b>	<b>16</b>	<b>71</b>	<b>3</b>	<b>1</b>	<b>269</b>	<b>81</b>	<b>-</b>	<b>66</b>	<b>1 893 (3.8)</b>		
Technical Services -IT Security 技術服務 — 資訊科技保安	-	-	-	-	1	-	-	-	-	1	19	44	267	6	98	-	1	42	4	-	8	-	40	14	-	44	66	1	-	1	657 (1.3)
401 IT Security Specialist 電腦保安專責經理	-	-	-	-	1	-	-	-	-	1	19	44	267	6	98	-	1	42	4	-	8	-	40	14	-	44	66	1	-	1	657 (1.3)

\* As a percentage of number of IT employees (in terms of man-times) in all job categories/titles.

\* 佔全部技能類別/職稱資訊科技僱員人次的百分率。

		Type of Training Code																												Total (%)*	
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29
Technical Services																															
-Database																															
技術服務 — 資料庫																															
402 Database Administrator					3			2			1	15	89	138	57	7			2					1	4					2	
資料庫管理主任																															
Technical Services																															
-Systems Programming																															
技術服務 — 系統程式編製																															
403 Systems Programmer (in-house/vendor environment)		11	203	34	8	2	144	51			290	70	185	49	124	155		3	85		70	2	3	29	5		102	25			
系統程式編製員 (機構內部/電腦供應商)																															
Technical Services																															
-Field Support																															
技術服務 — 實地支援																															
404 Customer Engineering Manager		3	2	15			26		2		57	54	90	14	53		12	1	2		44	2	1	16		1	14	49			
客戶工程經理																															
405 Customer Service Engineer		7	61	16	7	87	634	5	2		123	195	487	20	124	91	12	5	80		74	2		18		1	617	425		39	
客戶服務工程師																															
406 Field Technician		222	181	20	60		263	22	4		93	332	343	145	247	7		135	11		4	104	108				134	151	4	552	
實地服務技術員																															
<b>Sub-total 小計</b>		<b>243</b>	<b>447</b>	<b>85</b>	<b>78</b>	<b>90</b>	<b>1 067</b>	<b>80</b>	<b>8</b>	<b>1</b>	<b>583</b>	<b>710</b>	<b>1 461</b>	<b>372</b>	<b>703</b>	<b>260</b>	<b>25</b>	<b>186</b>	<b>184</b>	<b>20</b>	<b>196</b>	<b>10</b>	<b>148</b>	<b>186</b>	<b>9</b>	<b>46</b>	<b>933</b>	<b>681</b>	<b>4</b>	<b>678</b>	
Operation Services																															
操作服務																															
501 Computer Operations Manager																															
電腦操作經理																															
502 Help Desk Supervisor		2	1				6		2		20	1	16	26	15				27		7				2		3	12		1	
求助台主任																															
503 Help Desk Representative		21	123				89		4			28	98	52	55	5	15	11	15		15		5	14	10		50	81		10	
求助台服務員																															

\* As a percentage of number of IT employees (in terms of man-times) in all job categories/titles.  
\* 佔全部技能類別/職稱資訊科技僱員人次的百分率。



	Type of Training Code																	Total (%)*													
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17		18	19	20	21	22	23	24	25	26	27	28	29	
504 Computer Operations Supervisor 電腦操作主任	7	8	7	-	50	42	-	50	-	52	116	264	56	253	50	-	-	34	-	-	-	-	8	-	-	17	8	1	30	1,053 (2.1)	
505 Computer Operator 電腦操作員	45	178	-	103	-	311	-	-	-	18	108	371	122	289	-	23	29	226	-	8	-	-	12	34	12	180	102	1	119	2,291 (4.6)	
506 User Support/ Co-ordinator 用戶支援/統籌員	335	252	6	75	33	101	-	82	2	277	246	734	100	453	125	226	88	107	2	26	96	252	86	3	-	182	183	99	35	4,206 (8.4)	
<b>Sub-total 小計</b>	<b>410</b>	<b>562</b>	<b>37</b>	<b>178</b>	<b>92</b>	<b>563</b>	<b>-</b>	<b>138</b>	<b>2</b>	<b>384</b>	<b>517</b>	<b>1,608</b>	<b>412</b>	<b>1,109</b>	<b>201</b>	<b>272</b>	<b>148</b>	<b>433</b>	<b>2</b>	<b>58</b>	<b>96</b>	<b>257</b>	<b>193</b>	<b>51</b>	<b>14</b>	<b>440</b>	<b>392</b>	<b>102</b>	<b>237</b>	<b>8,908</b> <b>(17.8)</b>	
IT Education & Training 資訊科技教育及訓練	-	7	-	-	-	-	-	7	5	12	-	15	-	5	-	-	30	-	-	5	5	1,220	-	-	-	413	275	-	-	1,999 (4.0)	
601 Lecturer 講師	-	7	-	-	-	-	-	7	5	12	-	15	-	5	-	-	30	-	-	5	5	1,220	-	-	-	413	275	-	-	1,999 (4.0)	
602 IT Trainer 資訊科技訓練員	-	-	-	-	-	28	-	-	-	-	-	40	-	167	1	-	-	12	-	3	28	12	-	-	-	-	29	-	-	323 (0.6)	
603 IT Researcher (in a tertiary educational institution) 資訊科技研究員 (大專院校)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100 (0.2)	
<b>Sub-total 小計</b>	<b>-</b>	<b>7</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>28</b>	<b>-</b>	<b>7</b>	<b>5</b>	<b>12</b>	<b>-</b>	<b>55</b>	<b>-</b>	<b>172</b>	<b>1</b>	<b>-</b>	<b>30</b>	<b>12</b>	<b>-</b>	<b>8</b>	<b>8</b>	<b>1,348</b>	<b>12</b>	<b>-</b>	<b>-</b>	<b>413</b>	<b>304</b>	<b>-</b>	<b>-</b>	<b>2,422</b> <b>(4.9)</b>	
IT Sales & Marketing 資訊科技銷售及市場推廣	-	-	3	-	-	-	-	-	-	31	54	18	4	6	-	3	-	-	-	6	28	-	2	-	-	8	41	39	-	36	279 (0.6)
701 Sales/Marketing Director 銷售/市場總監	-	-	3	-	-	-	-	-	-	31	54	18	4	6	-	3	-	-	-	6	28	-	2	-	-	8	41	39	-	36	279 (0.6)
702 Sales/Marketing Representative 銷售/市場代表	1	409	-	-	-	-	-	-	-	28	645	101	12	45	-	-	2	-	-	-	40	-	-	-	377	-	887	900	-	897	4,344 (8.7)
<b>Sub-total 小計</b>	<b>1</b>	<b>409</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>59</b>	<b>699</b>	<b>119</b>	<b>16</b>	<b>51</b>	<b>-</b>	<b>3</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>6</b>	<b>68</b>	<b>-</b>	<b>2</b>	<b>377</b>	<b>8</b>	<b>928</b>	<b>939</b>	<b>-</b>	<b>933</b>	<b>4,623</b> <b>(9.3)</b>	
<b>Total 總計</b>	<b>777</b>	<b>1,630</b>	<b>1,666</b>	<b>1,276</b>	<b>727</b>	<b>2,371</b>	<b>1,287</b>	<b>680</b>	<b>253</b>	<b>3,390</b>	<b>3,589</b>	<b>5,988</b>	<b>1,446</b>	<b>3,714</b>	<b>1,829</b>	<b>762</b>	<b>1,784</b>	<b>901</b>	<b>22</b>	<b>394</b>	<b>344</b>	<b>2,575</b>	<b>1,823</b>	<b>982</b>	<b>166</b>	<b>4,279</b>	<b>3,080</b>	<b>119</b>	<b>2,080</b>	<b>49,934</b> <b>(100.0)</b>	

\* As a percentage of number of existing IT employees (in terms of man-times) who need training in the next 12 months.

\* 佔未來 12 個月現職資訊科技僱員所需訓練人次的百分率。

Note: Figures may not add up to the total due to rounding.

註：因四捨五入關係，各項數字相加或與總計數字略有出入。

**Employers' Forecast of IT Manpower Growth by April 2017 by Sector/Branch by Job Category**  
僱主預測2017年4月時資訊科技人力增長人數  
(按行業／業務及技能類別劃分)

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理	IT/Software Development 資訊科技/ 軟件開發	Telecommunications & Networking 電訊及網絡	Technical <sup>@</sup> Services 技術服務	Operation Services 操作服務	IT Education & Training 資訊科技 教育及訓練	IT Sales & Marketing 資訊科技 銷售及 市場推廣	Total 總計
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*
<b>IT and Communications Services Organizations 資訊科技及通訊服務機構</b>										
Manufacturing 製造業	1	Manufacture and repair of computers and peripheral equipment; Manufacture of electronic parts and components for computer and telecommunications equipment 電腦及其周邊設備的製造及修理；電腦及電訊設備所用電子零件及組件的製造	- (-)	- (-)	- (-)	15 (2.1)	- (-)	- (-)	- (-)	15 (1.1)
Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及出入口貿易、飲食業及酒店業	6	Export trading, import for wholesale, wholesale and retail sale of computers, computer peripheral equipment and computer software packages 電腦、電腦周邊設備及套裝軟件的出口貿易，進口批發，批發及零售	- (-)	- (-)	- (-)	-2 (-0.1)	- (-)	- (-)	- (-)	-2 (-)

@ Technical services include job categories of IT security, database, systems programming and field support.  
技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.  
業務按第 1.26 段所列出的行業劃分。

+ Branches are classified by industry sector as defined in paragraph 1.26.  
業務按第 1.26 段所列出的行業劃分。

\* Growth rate as a percentage of number of IT posts in May 2014 by sector/branch by job category.  
增長百分率根據 2014 年 5 月該行業／業務該技能類別資訊科技職位數目計算。

\* Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.  
增長百分率根據 2014 年 5 月該行業／業務資訊科技職位數目計算。

# Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.  
增長百分率根據 2014 年 5 月該行業／業務資訊科技職位數目計算。

# Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.  
增長百分率根據 2014 年 5 月該行業／業務資訊科技職位數目計算。

# Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.  
增長百分率根據 2014 年 5 月該行業／業務資訊科技職位數目計算。

# Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.  
增長百分率根據 2014 年 5 月該行業／業務資訊科技職位數目計算。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description <sup>+</sup> 行業說明	General IT Management 一般資訊 科技管理	IT/Software Development 資訊科技/ 軟件開發	Telecommunications & Networking 電訊及網絡	Technical <sup>@</sup> Services 技術服務	Operation Services 操作服務	IT Education & Training 資訊科技 教育及訓練	IT Sales & Marketing 資訊科技 銷售及 市場推廣	Total 總計
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)* <sup>#</sup>
IT Products and Services Suppliers 資訊科技產品 及服務供應商	18	IT related products and services (including consultancy, software development, software products, software support and maintenance services; data processing and tabulation services; engineering and technical services of computer facilities management ) 與資訊科技相關的產品及服 務(包括顧問、軟件開發、軟 件產品、軟件支援及修護服 務；資料處理及編纂服務；電 腦設備管理活動的工程及技 術服務)	- (-)	11 (0.1)	-6 (-0.2)	29 (0.5)	6 (0.2)	- (-)	-26 (-0.9)	14 (-)
Digital Creative 數碼創意業	24	Digital creative 數碼創意	- (-)	4 (0.8)	- (-)	- (-)	- (-)	- (-)	1 (1.7)	5 (0.8)
Communications Services 通訊服務業	13	Internet access services 互聯網接駁服務	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	14	Communications services (except internet access services) 通訊服務(互聯網接駁服務 除外)	- (-)	10 (0.9)	- (-)	- (-)	2 (0.3)	- (-)	10 (2.0)	22 (0.5)
<b>Sub-total 小計</b>			- (-)	<b>25</b> <b>(0.1)</b>	<b>-6</b> <b>(-0.1)</b>	<b>42</b> <b>(0.4)</b>	<b>8</b> <b>(0.2)</b>	- (-)	<b>-15</b> <b>(-0.2)</b>	<b>54</b> <b>(0.1)</b>

@ Technical services include job categories of IT security, database, systems, programming and field support.  
技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.  
業務按第 1.26 段所列出的行業劃分。

\* Growth rate as a percentage of number of IT posts in May 2014 by sector/branch by job category.  
增長百分率根據 2014 年 5 月該行業/業務該技能類別資訊科技職位數目計算。

# Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.  
增長百分率根據 2014 年 5 月該行業/業務資訊科技職位數目計算。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理 (%)*	IT/Software Development 資訊科技/ 軟件開發 (%)*	Telecommunications & Networking 電訊及網絡 (%)*	Technical <sup>@</sup> Services 技術服務 (%)*	Operation Services 操作服務 (%)*	IT Education & Training 資訊科技 教育及訓練 (%)*	IT Sales & Marketing 資訊科技 銷售及 市場推廣 (%)*	Total 總計 (%)*#
<b>IT Users Organizations 資訊科技用戶機構</b>										
Other Manufacturing 其他製造業	2	Other manufacturing (non-IT products) 其他製造業 (非資訊科技產品)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
		Other manufacturing of non-IT products with embedded software 其他有內置軟件的非資訊 科技產品製造	- (-)	1 (0.7)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
Electricity, Gas and Water 電力、氣體燃料 及水務	4	Electricity, gas and water supply 電力、燃氣及自來水供應	- (-)	-2 (-0.9)	- (-)	- (-)	- (-)	- (-)	- (-)	-2 (-0.5)
Construction 建造業	5	Construction 建造	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及出入 口貿易、飲食業及 酒店業	7	Other import and export trades (except import and export trades of computers, computer peripherals and software packages) 其他出入口貿易(電腦、電腦 周邊設備及套裝軟件的出入 口貿易除外)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)

@ Technical services include job categories of IT security, database, systems programming and field support.  
技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.  
業務按第 1.26 段所列出的行業劃分。

+ 業務按第 1.26 段所列出的行業劃分。

\* Growth rate as a percentage of number of IT posts in May 2014 by sector/branch by job category.  
增長百分率根據 2014 年 5 月該行業/業務該技能類別資訊科技職位數目計算。

\* 增長百分率根據 2014 年 5 月該行業/業務該技能類別資訊科技職位數目計算。

# Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.  
增長百分率根據 2014 年 5 月該行業/業務資訊科技職位數目計算。

# 增長百分率根據 2014 年 5 月該行業/業務資訊科技職位數目計算。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理	IT/Software Development 資訊科技/ 軟件開發	Telecommunications & Networking 電訊及網絡	Technical <sup>@</sup> Services 技術服務	Operation Services 操作服務	IT Education & Training 資訊科技 教育及訓練	IT Sales & Marketing 資訊科技 銷售及 市場推廣	Total 總計
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*#
	8	Other wholesale and retail (except wholesale and retail sale of computers, computer peripherals and software packages); Accommodation and food service activities 其他批發及零售(電腦、電腦周邊設備及套裝軟件的批發及零售除外); 住宿及膳食服務活動	- (-)	- (-)	- (-)	38 (8.3)	- (-)	- (-)	- (-)	38 (1.3)
Transport and Storage Services 運輸及貨倉 服務業	9	Airline companies 航空公司	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	10	Railway and cable transport; Public bus services; Licensed and franchised ferry services; Vehicular tunnel, bridge and highway operators 鐵路及纜索運輸; 公共巴士服務; 持牌及專營渡輪服務; 汽車隧道、橋樑及高速公路營運者	- (-)	- (-)	- (-)	-2 (-8.0)	- (-)	- (-)	- (-)	-2 (-0.8)
	11	Air cargo forwarding services 航空貨運代理服務	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	12	Other transport and storage services 其他運輸及貨倉服務業	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)

@ Technical services include job categories of IT security, database, systems programming and field support.

@ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* Growth rate as a percentage of number of IT posts in May 2014 by sector/branch by job category.

\* 增長百分率根據 2014 年 5 月該行業/業務該技能類別資訊科技職位數目計算。

# Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.

# 增長百分率根據 2014 年 5 月該行業/業務資訊科技職位數目計算。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理	IT/Software Development 資訊科技/ 軟件開發	Telecommunications & Networking 電訊及網絡	Technical <sup>@</sup> Services 技術服務	Operation Services 操作服務	IT Education & Training 資訊科技 教育及訓練	IT Sales & Marketing 資訊科技 銷售及 市場推廣	Total 總計
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)* <sup>#</sup>
Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及商業 服務業	15	Domestic banking units 本地銀行單位	- (-)	4 (0.1)	- (-)	- (-)	-12 (-0.7)	- (-)	- (-)	-8 (-0.1)
	16	Real estate brokerage and agency 物業經紀及代理	- (-)	8 (8.2)	- (-)	3 (17.6)	- (-)	- (-)	- (-)	11 (4.4)
	17	Others (Financing, Insurance, Real Estate and Business Services) 其他 (金融、保險、房地產 及商業服務行業)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
Medical and Health Care Services 醫療及保健服務	19	Medical, dental, and other health care services (including Hospital Authority) 醫療、牙科及其他保健服務 (包括醫院管理局)	- (-)	22 (2.5)	- (-)	- (-)	- (-)	- (-)	- (-)	22 (1.9)
Community, Social and Personal Services 社區、社會及 個人服務業	20	Universities and post-secondary colleges; Research and scientific institutes; Hong Kong Examinations and Assessment Authority 大學及專上學院、科研機構; 香港考試及評核局	- (-)	- (-)	- (-)	2 (0.5)	- (-)	-10 (-0.9)	- (-)	-8 (-0.2)

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@ 技術服務包括各技能類別的資訊科技保安、資料庫、系統程式編製及實地支援。

+ Branches are classified by industry sector as defined in paragraph 1.26.  
+ 業務按第 1.26 段所列出的行業劃分。

\* Growth rate as a percentage of number of IT posts in May 2014 by sector/branch by job category.  
\* 增長百分率根據 2014 年 5 月該行業/業務該技能類別資訊科技職位數目計算。

# Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.  
# 增長百分率根據 2014 年 5 月該行業/業務資訊科技職位數目計算。

Sector 行業	Branch <sup>+</sup> 業務	Trade Description 行業說明	General IT Management 一般資訊 科技管理	IT/Software Development 資訊科技/ 軟件開發	Telecommunications & Networking 電訊及網絡	Technical <sup>@</sup> Services 技術服務	Operation Services 操作服務	IT Education & Training 資訊科技 教育及訓練	IT Sales & Marketing 資訊科技 銷售及 市場推廣	Total 總計
			(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)*	(%)* <sup>#</sup>
	21	Educational institutes other than universities, post-secondary colleges (excluding Hong Kong Examinations and Assessment Authority) 其他院校(大學及專上學院、香港考試及評核局除外)	- (-)	- (-)	- (-)	- (-)	10 (0.4)	- (-)	- (-)	10 (0.2)
	22	Motion pictures and other entertainment services, and Television / Radio Stations & Studios 電影及其他娛樂服務；電視台、電台及製作室	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	23	Others (Community, Social and Personal Services); HKPC & HKTDC 其他(社區、社會及個人服務業)；香港生產力促進局、香港貿發局	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
Government Bureaux/ Departments 政府部門	25	Government bureaux/ departments 政府部門	- (-)	7 (0.4)	- (-)	2 (1.8)	-4 (-0.6)	- (-)	- (-)	5 (0.2)
		<b>Sub-total 小計</b>	- (-)	<b>40</b> (0.2)	- (-)	<b>43</b> (0.8)	<b>-6</b> (-)	<b>-10</b> (-0.3)	- (-)	<b>67</b> (0.2)
		<b>Grand Total 總數</b>	- (-)	<b>65</b> (0.2)	<b>-6</b> (-0.1)	<b>85</b> (0.5)	<b>2</b> (0.0)	<b>-10</b> (-0.3)	<b>-15</b> (-0.2)	<b>121</b> (0.1)

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+ Branches are classified by industry sector as defined in paragraph 1.26.

+ 業務按第 1.26 段所列出的行業劃分。

\* Growth rate as a percentage of number of IT posts in May 2014 by sector/branch by job category.

\* 增長百分率根據 2014 年 5 月該行業/業務該技能類別資訊科技職位數目計算。

# Growth rate as a percentage of number of IT posts in May 2014 by sector/branch.

# 增長百分率根據 2014 年 5 月該行業/業務資訊科技職位數目計算。

**Employers' Forecast of IT Manpower Demand by April 2017 by Job Category/Title by Sector**  
**僱主預測 2017 年 4 月時資訊科技人力需求 (按行業及技能類別/職稱劃分)**

Job Code 職務編號	Job Title 職稱	Manufacturing 製造業	Electricity, Gas and Water 電力、 氣體燃料 及水務	Construction 建造業	Wholesale, Retail and Import/Export Trades, Hotels 零售批發 及出入口 貿易、飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉 服務業	Communications Services 通訊服務業	Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業	IT Products and Services 資訊科技 產品及服務 供應商	Medical Care and Health Services 醫療及 保健服務	Community, Social and Personal Services 社區、 社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門	Total 總計
<b>General IT Management</b> 一般資訊科技管理														
101	IT Director 資訊科技總監	A 47	11	20	300	56	11	234	375	19	175	12	99	1 359
		B 47	11	20	302	55	11	235	379	18	177	11	99	1 365
		C 47	11	20	302	55	11	235	379	18	177	11	99	1 365
102	CTO 首席技術總監	A 11	2	-	-	4	4	46	34	-	11	-	1	113
		B 11	2	-	-	3	4	50	34	-	11	-	1	116
		C 11	2	-	-	3	4	50	34	-	11	-	1	116
<b>IT/Software Development</b> 資訊科技/軟件開發														
201	201 Systems Development Manager	A 26	9	6	286	64	8	557	286	78	180	8	94	1 602
		B 26	8	6	296	66	8	586	286	77	187	8	95	1 649
		C 26	8	6	296	66	8	586	286	81	187	8	99	1 657
202	IT Architect 資訊科技建築師	A 13	27	2	166	74	126	322	294	6	38	-	151	1 219
		B 13	27	2	273	65	206	331	307	9	38	-	153	1 424
		C 14	26	2	273	65	206	335	308	9	38	-	155	1 431
203	Project Manager 項目經理	A 62	20	39	305	246	98	1 014	1 537	5	170	46	272	3 814
		B 63	22	39	474	264	113	1 014	1 535	7	182	45	277	4 035
		C 63	21	39	474	264	113	1 018	1 537	7	182	45	274	4 037
204	Systems Analyst 系統分析員	A 208	84	28	869	316	114	3 082	2 093	315	172	12	493	7 786
		B 209	83	28	896	313	119	3 147	2 138	324	177	12	518	7 964
		C 209	83	28	896	313	119	3 147	2 138	330	177	12	516	7 968
205	Programmer 程式編製員	A 258	84	43	1 172	321	118	2 670	7 260	433	708	98	631	13 796
		B 267	84	43	1 243	322	115	2 837	7 605	468	779	98	687	14 548
		C 267	84	43	1 243	322	115	2 841	7 615	480	779	100	693	14 582
206	Web Designer/Developer 網站設計員/開發員	A 77	4	-	121	2	127	181	736	-	19	16	4	1 287
		B 77	2	-	121	2	207	181	811	-	18	16	5	1 440
		C 77	2	-	121	2	207	181	811	-	18	16	5	1 440
207	Quality Assurance Specialist 品質檢查專責經理	A 33	-	-	38	7	29	266	190	-	7	10	-	580
		B 36	-	-	33	7	34	272	206	-	7	11	-	606
		C 36	-	-	33	7	34	272	206	-	7	11	-	606

A = 2015 Manpower Demand  
2015 年人力需求

B = 2016 Manpower Demand  
2016 年人力需求

C = 2017 Forecast Manpower Demand  
2017 年預測人力需求



Job Code 職碼	Job Title 職稱	Manufacturing 製造業		Electricity, Gas and Water 電力、 氣體燃料 及水務		Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發 及出入口 貿易、飲食 業及酒店業		Transport and Storage Services 運輸及 貨倉 服務業		Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業		IT Products and Services Suppliers 資訊科技 產品及服務 供應商		Medical Care Services 醫療及 保健服務		Community, Social Services 社區、 社會及 個人服務業		Digital Creative 數碼 創意業		Government Bureaux/ Departments 政府部門	Total 總計
		Construction 建造業	Manufacturing 製造業	Gas and Water 電力、 氣體燃料 及水務	Electricity, Gas and Water 電力、 氣體燃料 及水務	Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發 及出入口 貿易、飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉 服務業	Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業	IT Products and Services Suppliers 資訊科技 產品及服務 供應商	Medical Care Services 醫療及 保健服務	Community, Social Services 社區、 社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門								
208	Research and Development Engineer 研究及開發工程師	A	87	1	-	14	-	54	-	10	384	-	2	10	10	572					
		B	89	2	-	14	-	37	-	12	384	-	2	10	10	560					
		C	89	2	-	14	-	47	-	12	389	-	2	10	10	575					
209	Software/Firmware Product Designer 軟件/固件產品設計員	A	109	-	20	117	-	356	-	152	491	-	5	17	40	1 307					
		B	117	-	20	139	-	401	-	156	604	-	5	17	39	1 498					
		C	117	-	20	139	-	401	-	156	604	-	5	17	39	1 498					
210	Technical Writer 技術撰稿員	A	-	-	-	-	-	-	-	10	27	-	19	2	-	58					
		B	-	-	-	-	-	-	-	10	27	-	19	2	-	58					
		C	-	-	-	-	-	-	-	10	27	-	19	2	-	58					
211	Computer Game Designer/ Artist/Developer 電腦遊戲設計/ 美術/開發員	A	197	-	-	-	-	-	-	60	346	3	349	321	-	1 276					
		B	207	-	-	-	-	-	-	60	371	7	349	286	-	1 280					
		C	207	-	-	-	-	-	-	60	364	7	349	288	-	1 275					
<b>Telecommunications &amp; Networking</b> 電訊及網絡																					
301	Telecommunications Manager 電訊經理	A	-	1	-	17	2	145	71	225	-	33	1	13	508						
		B	-	1	-	18	2	156	81	225	-	34	1	13	531						
		C	-	1	-	18	2	156	85	225	-	34	1	13	535						
302	Telecommunications Consultant 電訊顧問	A	14	1	7	43	3	117	30	565	-	21	-	1	802						
		B	14	1	7	43	3	126	30	586	-	19	-	1	830						
		C	14	1	7	43	3	126	30	580	-	19	-	1	824						
303	Telecommunications Engineer 電訊工程師	A	91	16	15	59	7	856	176	1 213	3	68	4	49	2 557						
		B	91	16	15	52	7	872	160	1 242	7	68	4	49	2 583						
		C	91	16	15	52	7	872	160	1 242	7	68	4	49	2 583						
304	Network Administrator 網絡管理主任	A	33	3	26	219	31	96	258	1 680	7	103	1	95	2 552						
		B	33	3	26	224	31	108	275	1 679	9	105	1	94	2 588						
		C	33	3	26	224	31	108	271	1 679	9	105	1	94	2 584						
<b>Technical Services – IT Security</b> 技術服務 — 資訊科技保安																					
401	IT Security Specialist 電腦保安專責經理	A	17	15	2	56	8	12	303	219	1	106	-	15	754						
		B	17	15	2	48	8	12	313	245	1	109	-	17	787						
		C	17	15	2	48	8	12	313	245	1	109	-	17	787						
<b>Technical Services – Database</b> 技術服務 — 資料庫																					
402	Database Administrator 資料庫管理主任	A	-	-	10	145	4	15	364	241	2	21	-	4	806						
		B	-	-	10	147	4	38	373	242	2	22	-	4	842						
		C	-	-	10	147	4	38	373	242	2	22	-	4	842						

A = 2015 Manpower Demand  
2015 年人力需求

B = 2016 Manpower Demand  
2016 年人力需求

C = 2017 Forecast Manpower Demand  
2017 年預測人力需求

Job Code 職碼 編號	Job Title 職稱	Manufacturing 製造業	Electricity, Gas and Water 電力、 氣體燃料 及水務	Construction 建造業	Wholesale, Retail and Import/Export Trades, Hotels 零售批發 及出入口 貿易、飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉 服務業	Communications Services 通訊服務業	Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業	IT Products and Suppliers 資訊科技 產品及服務 供應商	Medical Care and Health Services 醫療及 保健服務	Community, Social and Personal Services 社區、 社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門	Total 總計
<b>Technical Services – Systems Programming</b> 技術服務 — 系統程式編製														
<b>403 Systems Programmer (in-house/vendor environment)</b> 系統程式編製員 (機構內部/電腦供應商)														
A		190	26	21	1 267	151	51	1 306	884	21	200	3	45	4 165
B		204	26	21	1 200	154	51	1 352	884	21	201	3	47	4 164
C		204	26	21	1 238	152	51	1 352	884	21	203	3	49	4 204
<b>Technical Services – Field Support</b> 技術服務 — 實地支援														
<b>404 Customer Engineering Manager</b> 客戶工程經理														
A		20	12	1	238	4	51	141	379	1	37	-	4	888
B		21	12	1	220	3	58	145	378	1	39	-	4	882
C		21	12	1	218	3	58	145	378	1	39	-	4	880
<b>405 Customer Service Engineer</b> 客戶服務工程師														
A		108	-	13	1 648	8	124	166	1 172	8	32	3	25	3 307
B		110	-	13	1 479	7	133	166	1 190	8	31	3	22	3 162
C		110	-	13	1 479	7	133	169	1 191	8	31	3	22	3 166
<b>406 Field Technician</b> 實地服務技術員														
A		464	4	50	655	6	1 086	113	3 448	23	252	-	15	6 116
B		499	4	51	709	7	1 046	115	3 481	23	314	-	16	6 265
C		514	4	51	709	7	1 046	115	3 509	23	314	-	16	6 308
<b>Operation Services</b> 操作服務														
<b>501 Computer Operations Manager</b> 電腦操作經理														
A		50	5	16	245	76	37	338	72	6	89	5	26	965
B		50	5	16	241	76	37	341	72	7	89	6	26	966
C		50	5	16	241	76	37	341	72	7	89	6	23	963
<b>502 Help Desk Supervisor</b> 求助台主任														
A		2	1	1	5	6	50	215	100	-	21	1	7	409
B		2	1	1	7	5	56	217	102	-	18	1	7	417
C		2	1	1	7	5	56	217	102	-	18	1	7	417
<b>503 Help Desk Representative</b> 求助台服務員														
A		64	15	3	190	68	207	198	559	-	53	21	93	1 471
B		64	15	3	236	69	231	223	625	-	54	21	92	1 633
C		64	15	3	236	69	231	215	629	-	54	21	93	1 630
<b>504 Computer Operations Supervisor</b> 電腦操作主任														
A		122	24	13	160	62	52	396	118	5	276	4	66	1 298
B		122	24	13	174	62	55	437	130	5	281	4	69	1 376
C		122	24	13	174	62	55	437	130	5	281	4	68	1 375
<b>505 Computer Operator</b> 電腦操作員														
A		122	29	35	771	91	185	954	664	33	440	1	378	3 703
B		117	29	35	757	92	194	976	694	31	454	1	379	3 759
C		117	29	35	757	92	194	972	694	31	454	1	378	3 754

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2015年人力需求

B = 2016 Manpower Demand  
2016年人力需求

C = 2017 Forecast Manpower Demand  
2017年預測人力需求

Job Code 職碼	Job Title 職稱	Manufacturing 製造業	Electricity, Gas and Water 電力、 氣體燃料 及水務	Wholesale, Retail and Import/Export Trades, Hotels 零售批發 及出入口 貿易、飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉 服務業	Communications Services 通訊服務業	Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業	IT Products and Services Suppliers 資訊科技 產品及服務 供應商	Medical Care Services 醫療及 保健服務	Community, Social Services 社區、 社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門	Total 總計	
														Construction 建造業
506	User Support/Co-ordinator 用戶支援/統籌員	A	-	4 019	367	170	2 010	1 839	93	2 706	19	89	11 959	
		B	116	3 767	367	170	2 040	1 848	108	3 016	18	91	12 058	
		C	116	3 767	367	172	2 040	1 850	108	3 026	18	91	12 072	
<b>IT Education &amp; Training</b> 資訊科技教育及訓練														
601	Lecturer 講師	A	-	-	-	-	-	7	-	2 092	-	-	2 099	
		B	-	-	-	-	-	14	-	2 169	-	-	2 183	
		C	-	-	-	-	-	14	-	2 169	-	-	2 183	
602	IT Trainer 資訊科技訓練員	A	-	45	3	-	1	101	-	1 051	-	-	1 201	
		B	-	44	3	1	1	101	-	1 058	-	-	1 207	
		C	-	44	3	1	1	101	-	1 048	-	-	1 197	
603	IT Researcher (in a tertiary educational institution) 資訊科技研究員 (大專院校)	A	-	-	-	-	-	-	-	324	-	-	324	
		B	-	-	-	-	-	-	-	341	-	-	341	
		C	-	-	-	-	-	-	-	341	-	-	341	
<b>IT Sales &amp; Marketing</b> 資訊科技銷售及市場推廣														
701	Sales/Marketing Director 銷售/市場總監	A	-	577	-	169	4	644	-	-	20	-	1 438	
		B	-	613	-	168	3	671	-	-	20	-	1 500	
		C	-	613	-	168	3	674	-	-	20	-	1 503	
702	Sales/Marketing Representative 銷售/市場代表	A	-	2 747	-	610	-	1 996	-	4	42	-	5 436	
		B	-	2 890	-	650	-	2 186	-	4	40	-	5 806	
		C	-	2 890	-	660	-	2 157	-	4	41	-	5 788	
Total 總計		A	3 017	16 494	1 987	5 078	15 648	30 179	1 062	9 784	677	2 720	87 527	
		B	3 084	16 660	1 997	5 416	16 139	31 282	31 282	1 133	10 377	639	2 815	90 423
		C	3 100	16 696	1 995	5 438	16 142	31 296	31 296	1 155	10 379	644	2 820	90 544

A = 2015 Manpower Demand  
2015年人力需求

B = 2016 Manpower Demand  
2016年人力需求

C = 2017 Forecast Manpower Demand  
2017年預測人力需求

Notes:  
註: (1) Manpower demand includes the number of existing employees and vacancies.  
(1) 人力需求包括現有僱員人數及空缺數目。

(2) Figures may not add up to the total due to rounding.  
(2) 因四捨五入關係，各項數字相加或與總計數字略有出入。

**Planned Output of Graduates from UGC/Government-Funded IT or Computing Programmes  
獲大學教育資助委員會／政府資助開辦的資訊科技／電腦課程的預計畢業人數**

Institute	院校	2016		2017		2018		2019		2020	
		HD	DEG	HD	DEG	HD	DEG	HD	DEG	HD	DEG
<b>The Hong Kong Polytechnic University</b> Computing/Enterprise Information Systems/Information Technology/ Computing and Management/Electronic and Information Engineering/Internet and Multimedia Technologies/Information Security	<b>香港理工大學</b> 電子計算／企業信息管理／資訊科技／電子計算及管理／電子及資訊工程學／互聯網及多媒體科技／資訊安全	-	330	-	307	-	332	-	328	-	319
<b>HD/D</b> Electronic and Information Engineering	<b>HD</b> 電子及資訊工程學	111	-	118	-	118	-	118	-	118	-
<b>City University of Hong Kong</b> Information Management/Electronic Commerce/Global Business Systems Management/Marketing Information Management/Computer Science/ Creative Media/e-Logistics and Technology Management/Computer Engineering/Information Engineering/Electronic and Communication Engineering	<b>香港城市大學</b> 資訊管理／電子商貿／環球商業系統管理／營銷資訊管理／電腦科學／創意媒體／電子物流及科技管理／電子計算機工程學／資訊工程學／電子及通訊工程學	-	713	-	659	-	670	-	667	-	630
<b>The University of Hong Kong</b> Computer Science/Computer Engineering	<b>香港大學</b> 計算機科學／計算機工程學	-	60	-	60	-	80	-	80	-	80
			23		23		23		23		23



Institute	院校	2016		2017		2018		2019		2020			
		HD	DEG	PgD	HD	DEG	PgD	HD	DEG	PgD	HD	DEG	PgD
Hong Kong Institute of Vocational Education/Hong Kong Design Institute	香港專業教育學院／香港知專設計學院												
<u>HD</u> Cloud and Data Centre Administration/ Computer Engineering/Creative Media and Entertainment Technology/Digital Entertainment/Digital Entertainment - Games and Animation/Digital Music and Media/Game Software Development/ Information and Network Security/ Information Technology for Multimedia Design/Mobile Applications Development/Mobile Computing/ Multimedia/Multimedia Advertising and Visual Effects/ Multimedia Web Development and Digital Entertainment/ Network and Mobile Computing/Network Applications/Software Engineering/ Telecommunications and Networking	<u>HD</u> 雲端系統及數據中心管理 ／電腦工程／創意媒體及 娛樂科藝／數碼娛樂／數 碼娛樂-遊戲及動畫／數 碼音樂及媒體／電子及通 訊工程／遊戲軟件開發／ 資訊及網絡安全／物流資 訊科技／多媒體設計資訊 科技／智能手機軟件開發 ／流動電算／多媒體創作 ／多媒體廣告及視覺特效 ／多媒體網頁創作及數碼 娛樂／網絡及流動電算／ 網絡應用／軟件工程／電 訊及網絡科技	990	-	-	795	-	-	855	-	-	855	-	-
<b>Total</b>	<b>總數</b>	<b>1 101</b>	<b>1 846</b>	<b>185</b>	<b>913</b>	<b>1 927</b>	<b>181</b>	<b>973</b>	<b>1 926</b>	<b>175</b>	<b>973</b>	<b>1 739</b>	<b>176</b>
<b>Year Total</b>	<b>全年總數</b>	<b>3 132</b>		<b>3 021</b>		<b>3 074</b>		<b>2 946</b>		<b>2 888</b>			

HD - Higher Diploma 高級文憑

DEG - First Degree 學士學位

PgD - Postgraduate Degree/Diploma/Certificate 研究院學位／文憑／證書

**Planned Output of Graduates from Self-Financed IT or Computing Programmes**  
以自負盈虧方式開辦的資訊科技/電腦課程的預計畢業人數

Institute	院校	2016			2017			2018			2019			2020		
		HD/AD	DEG	PgD	HD/AD	DEG	PgD	HD/AD	DEG	PgD	HD/AD	DEG	PgD	HD/AD	DEG	PgD
<b>The Hong Kong Polytechnic University</b> Computing/Electronic Engineering/Information Systems/Information Technology/Software Technology/E-Commerce/Electronic and Information Engineering	<b>香港理工大學</b> 電子計算/電子工程學/信息系統學/資訊科技/軟件科技/電子商貿/電子及資訊工程學	-	92	225	-	137	222	-	80	224	-	100	228	-	100	222
<b>City University of Hong Kong</b> Information Management/Computer Studies/Business Information Systems/Electronic Business and Knowledge Management/Information Systems Management/Computer Science/Electronic Commerce/Information Security/Electronic and Information Engineering/Multimedia Information Technology/Networking and Information Engineering/Optical Communications/RF Circuits and Applied Electromagnetics/Wireless Communications	<b>香港城市大學</b> 資訊管理/電腦學/商務資訊系統/電子商業及知識管理/資訊系統管理/電腦科學/電子商貿/資訊保安/電子及資訊工程學/多媒體資訊科技/網絡及資訊工程學/光通訊/射頻電路設計及應用電磁學/無線通訊	-	1	534	-	-	525	-	-	524	-	-	530	-	-	530
<b>AD</b> Information Systems Development/Network and Systems Administration	<b>AD</b> 資訊系統/網絡及系統管理	93	-	-	131	-	-	125	-	-	125	-	-	125	-	-





Institute	院校	2016		2017		2018		2019		2020					
		HD/AD	DEG	PgD	HD/AD	DEG	PgD	HD/AD	DEG	PgD	HD/AD	DEG	PgD		
<b>Lingnan University</b> <b>HD</b> Computer Studies/Computer Studies (PC System and Network Administration)/Information System (Application Support)/Creative Multi-media Design/PC System and Networking	<b>嶺南大學</b> <b>HD</b> 電腦學/電腦學(個人電腦及網絡管理)/資訊系統(應用程式支援)/創意多媒體設計/個人電腦系統及網絡	19	-	-	17	-	50	-	-	50	-	-	50		
<b>The Open University of Hong Kong</b> Information Technology with Internet Applications/Electronic Commerce/Internet Technology and Applications/Multimedia and Internet Technology/Internet Technology/Computer Engineering/Computing and Networking/Communications Technology/Computing/Electronics and Computer Engineering/Web Technologies	<b>香港公開大學</b> 資訊科技與互聯網應用/電子商業/互聯網科技及應用/多媒體與互聯網科技/互聯網科技/電腦工程學/電腦及網絡學/通訊科技學/電腦學/電子及電腦工程/萬維網科技	-	407	20	-	399	20	-	367	16	-	356	18	350	16
<b>HD/AD</b> Digital Communication/Mobile Communications Technology/Information Technology/Electronic Commerce/Applied Computing	<b>HD/AD</b> 數碼通訊/流動通訊科技/資訊科技/電子商業/應用電腦	3	-	-	4	-	-	3	-	-	2	-	-	2	-

Institute	院校	2016		2017		2018		2019		2020			
		HD/AD	DEG	PgD	HD/AD	DEG	PgD	HD/AD	DEG	PgD	HD/AD	DEG	PgD
Technological and Higher Education Institute of Hong Kong/Hong Kong Institute of Vocational Education/Hong Kong Design Institute	香港高等科技教育學院/香港專業教育學院/香港知專設計學院	-	-	-	20	-	30	-	25	-	105	-	
Multimedia Technology and Innovation/Information and Communications Technology	創新及多媒體科技/資訊及通訊科技	-	-	-	-	-	-	-	-	-	-	-	
HD Computer Games and Animation/Computer Systems Administration/Information Technology for Business (Web Design and Development)/Audio-Visual Entertainment Technology/Web Design and Development	HD 電腦遊戲及動畫/電腦系統管理/商業資訊科技(網頁設計及開發)/視聽娛樂科藝/網頁設計及開發	90	-	65	-	60	-	60	-	60	-	-	
<b>Total</b>	<b>總數</b>	<b>316</b>	<b>518</b>	<b>1 681</b>	<b>358</b>	<b>574</b>	<b>1 799</b>	<b>294</b>	<b>495</b>	<b>1 852</b>	<b>293</b>	<b>499</b>	<b>1 863</b>
<b>Year Total</b>	<b>全年總數</b>	<b>2 515</b>		<b>2 731</b>		<b>2 641</b>		<b>2 655</b>		<b>2 721</b>		<b>1 855</b>	

D - Diploma 文憑  
 HD - Higher Diploma 高級文憑  
 AD - Associate Degree 副學士  
 DEG - First Degree 學士學位  
 PgD - Postgraduate Degree/Diploma/Certificate 研究院學位/文憑/證書

**Number of IT Employees (including Freelancers) by Job Category of the HKITPC by Job Code/Title by Sector**  
**各行業資訊科技僱員人數 (包括自由工作者)**  
**(按「香港資訊科技專業認證局」各技能類別及職務編號／職稱劃分)**

Job Code 職務編號	Job Title 職稱	Manufacturing 製造業	Electricity, Gas and Water 電力、 氣體燃料 及水務	Construction 建造業	Wholesale, Retail and Import/Export Trades, Hotels 零售批發 及出入口 貿易、飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉服務業	Communicat- ions Services 通訊 服務業	Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業	IT Products and Services 資訊科技 產品及服務 供應商	Medical and Health Care Services 醫療及 保健服務	Community, Social and Personal Services 社區、社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門	Total 總計 (%)*
<b>Software Engineering/Software Development 軟件工程 (或軟件開發)</b>														
201	Systems Development Manager 系統開發經理	26	8	6	294	65	8	580	286	76	187	8	95	1 639 (1.9)
204	Systems Analyst 系統分析員	209	83	27	896	312	119	3 095	1 923	321	176	12	507	7 680 (8.7)
205	Programmer 程式編製員	255	82	41	1 174	321	115	2 737	7 101	437	734	92	644	13 733 (15.6)
208	Research and Development Engineer 研究及開發工程師	86	2	-	14	-	37	12	334	-	2	10	10	507 (0.6)
209	Software/Firmware Product Designer 軟件／固件產品設計員	107	-	20	129	-	371	156	577	-	5	17	39	1 421 (1.6)
210	Technical Writer 技術撰稿員	-	-	-	-	-	-	10	27	-	19	2	-	58 (0.1)
403	Systems Programmer (in-house/vendor environment) 系統程式編製員 (機構內部／電腦 供應商)	190	26	21	1 200	152	51	1 322	872	19	198	3	47	4 101 (4.7)
<b>Sub-total 小計</b>		<b>873</b>	<b>201</b>	<b>115</b>	<b>3 707</b>	<b>850</b>	<b>701</b>	<b>7 912</b>	<b>11 120</b>	<b>853</b>	<b>1 321</b>	<b>144</b>	<b>1 342</b>	<b>29 139 (33.2)</b>

\* As a percentage of number of IT employees (including Freelancers) in all job categories of the HKITPC/titles.  
 \* 佔資訊科技僱員總數 (包括自由工作者) 的百分率 (按「香港資訊科技專業認證局」所有技能類別／職稱計算)。

Job Code 職務編號	Job Title 職稱	Manufacturing 製造業	Electricity, Gas and Water 電力、 氣體燃料 及水務	Construction 建造業	Wholesale, Retail and Import/Export Trades, Hotels 零售批發 及出入口 貿易、飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉服務業	Communicat- ions Services 通訊 服務業	Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業	IT Products and Services Suppliers 資訊科技 產品及服務 供應商	Medical and Health Care Services 醫療及 保健服務	Community, Social and Personal Services 社區、社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門	Total 總計 (%)*
<b>IT Architecture 資訊科技架構</b>														
202	IT Architect 資訊科技建築師	12	26	2	271	65	192	331	297	9	38	-	152	1 395 (1.6)
302	Telecommunications Consultant 電訊顧問	14	1	7	43	3	120	30	573	-	19	-	1	811 (0.9)
303	Telecommunications Engineer 電訊工程師	91	16	15	52	7	847	158	1 225	5	68	4	49	2 537 (2.9)
402	Database Administrator 資料庫管理主任	-	-	10	147	4	36	366	233	2	22	-	4	824 (0.9)
<b>Sub-total 小計</b>		<b>117</b>	<b>43</b>	<b>34</b>	<b>513</b>	<b>79</b>	<b>1 195</b>	<b>885</b>	<b>2 328</b>	<b>16</b>	<b>147</b>	<b>4</b>	<b>206</b>	<b>5 567 (6.3)</b>
<b>Software Quality Assurance 軟件質量保證</b>														
207	Quality Assurance Specialist 品質檢查專責經理	35	-	-	33	7	32	272	201	-	7	10	-	597 (0.7)
<b>Sub-total 小計</b>		<b>35</b>	<b>-</b>	<b>-</b>	<b>33</b>	<b>7</b>	<b>32</b>	<b>272</b>	<b>201</b>	<b>-</b>	<b>7</b>	<b>10</b>	<b>-</b>	<b>597 (0.7)</b>
<b>Project Management (IT) 項目管理 (資訊科技)</b>														
203	Project Manager 項目經理	63	22	39	459	264	111	986	1 518	7	180	45	271	3 965 (4.5)
<b>Sub-total 小計</b>		<b>63</b>	<b>22</b>	<b>39</b>	<b>459</b>	<b>264</b>	<b>111</b>	<b>986</b>	<b>1 518</b>	<b>7</b>	<b>180</b>	<b>45</b>	<b>271</b>	<b>3 965 (4.5)</b>

\* As a percentage of number of IT employees (including Freelancers) in all job categories of the HKITPC/titles.  
 \* 佔資訊科技僱員總數 (包括自由工作者) 的百分率 (按「香港資訊科技專業認證局」所有技能類別/職稱計算)。

Job Code 職務編號	Job Title 職稱	Manufacturing 製造業	Electricity, Gas and Water 電力、 氣體、 燃料 及水務	Construction 建造業	Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發 及出入口 貿易、 飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉服務業	Communicat- ions Services 通訊 服務業	Financing, Insurance, Real Estate and Business Services 金融、 保險、 房地產及 商業服務業	IT Products and Services Suppliers 資訊科技 產品及服務 供應商	Medical and Health Care Services 醫療及 保健服務	Community, Social and Personal Services 社區、 社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門	Total 總計 (%)*
<b>Service Management and Operation 服務管理及營運</b>														
101	IT Director 資訊科技總監	47	11	20	300	55	11	235	378	18	177	11	98	1 361 (1.6)
102	CTO 首席技術總監	11	2	-	-	3	4	50	34	-	11	-	1	116 (0.1)
301	Telecommunications Manager 電訊經理	-	1	-	18	2	151	75	225	-	34	1	13	520 (0.6)
304	Network Administrator 網絡管理主任	33	3	26	224	31	104	262	1 673	7	102	1	92	2 558 (2.9)
404	Customer Engineering Manager 客戶工程經理	20	12	1	220	3	58	145	376	1	37	-	4	877 (1.0)
405	Customer Service Engineer 客戶服務工程師	106	-	13	1 457	7	133	165	1 184	8	28	3	22	3 126 (3.6)
406	Field Technician 實地服務技術員	491	4	50	709	7	975	115	3 301	23	312	-	16	6 003 (6.8)
501	Computer Operations Manager 電腦操作經理	50	5	16	241	74	37	340	72	7	89	6	25	962 (1.1)
502	Help Desk Supervisor 求助台主任	2	1	1	5	5	56	217	100	-	16	1	7	411 (0.5)
503	Help Desk Representative 求助台服務員	64	15	3	234	69	229	221	609	-	54	21	90	1 609 (1.8)
504	Computer Operations Supervisor 電腦操作主任	122	24	13	154	62	55	392	125	5	280	4	67	1 303 (1.5)
505	Computer Operator 電腦操作員	117	29	35	755	92	193	932	690	31	441	1	376	3 692 (4.2)
506	User Support/Co-ordinator 用戶支援/統籌員	516	-	105	3 757	367	170	1 971	1 835	95	2 765	17	90	11 688 (13.3)
<b>Sub-total 小計</b>		<b>1 579</b>	<b>107</b>	<b>283</b>	<b>8 074</b>	<b>777</b>	<b>2 176</b>	<b>5 120</b>	<b>10 602</b>	<b>195</b>	<b>4 346</b>	<b>66</b>	<b>901</b>	<b>34 226 (39.0)</b>

\* As a percentage of number of IT employees (including Freelancers) in all job categories of the HKITPC/titles  
估資訊科技僱員總數(包括自由工作者)的百分率(按「香港資訊科技專業認證局」所有技能類別/職稱計算)。

Job Code 職務編號	Job Title 職稱	Manufacturing 製造業	Electricity, Gas and Water 電力、 氣體、燃料 及水務	Construction 建造業	Wholesale, Retail and Import/Export Trades, Hotels 零售批發 及出入口 貿易、飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉服務業	Communicat- ions Services 通訊 服務業	Financing, Insurance, Real Estate and Business Services 金融、保險、 房地產及 商業服務業	IT Products and Services Suppliers 資訊科技 產品及服務 供應商	Medical and Health Care Services 醫療及 保健服務	Community, Social and Personal Services 社區、社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門	Total 總計 (%)*
<b>Information Security 資訊保安</b>														
401	IT Security Specialist 電腦保安專員經理	17	15	2	48	8	12	306	238	1	105	-	17	769 (0.9)
<b>Sub-total 小計</b>		<b>17</b>	<b>15</b>	<b>2</b>	<b>48</b>	<b>8</b>	<b>12</b>	<b>306</b>	<b>238</b>	<b>1</b>	<b>105</b>	<b>-</b>	<b>17</b>	<b>769 (0.9)</b>
<b>Multimedia 多媒體</b>														
206	Web Designer/Developer 網站設計員 / 開發員	77	2	-	121	2	193	181	765	-	18	16	4	1 379 (1.6)
211	Computer Game Designer/ Artist/Developer 電腦遊戲設計 / 美術 / 開發員	197	-	-	-	-	-	60	364	5	347	275	-	1 248 (1.4)
<b>Sub-total 小計</b>		<b>274</b>	<b>2</b>	<b>-</b>	<b>121</b>	<b>2</b>	<b>193</b>	<b>241</b>	<b>1 129</b>	<b>5</b>	<b>365</b>	<b>291</b>	<b>4</b>	<b>2 627 (3.0)</b>
<b>IT Education and Training (Excluded by the HKITPC) 資訊科技教育及訓練 (不包括在「香港資訊科技專業認證局」的認證計劃內)</b>														
601	Lecturer 講師	-	-	-	-	-	-	-	14	-	2 166	-	-	2 180 (2.5)
602	IT Trainer 資訊科技訓練員	-	-	-	44	3	-	1	100	-	1 058	-	-	1 206 (1.4)
603	IT Researcher (in a tertiary educational institution) 資訊科技研究員 (大專院校)	-	-	-	-	-	-	-	-	-	341	-	-	341 (0.4)
<b>Sub-total 小計</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>44</b>	<b>3</b>	<b>-</b>	<b>1</b>	<b>114</b>	<b>-</b>	<b>3 565</b>	<b>-</b>	<b>-</b>	<b>3 727 (4.2)</b>

\* As a percentage of number of IT employees (including Freelancers) in all job categories of the HKITPC/titles.  
\* 佔資訊科技僱員總數 (包括自由工作者) 的百分率 (按「香港資訊科技專業認證局」所有技能類別/職稱計算)。

Job Code 職務編號	Job Title 職稱	Manufacturing 製造業	Electricity, Gas and Water 電力、 氣體、 燃料 及水務	Construction 建造業	Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發 及出入口 貿易、 飲食 業及酒店業	Transport and Storage Services 運輸及 貨倉服務業	Communicat- ions Services 通訊 服務業	Financing, Insurance, Real Estate and Business Services 金融、 保險、 房地產及 商業服務業	IT Products and Services Suppliers 資訊科技 產品及服務 供應商	Medical and Health Care Services 醫療及 保健服務	Community, Social and Personal Services 社區、 社會及 個人服務業	Digital Creative 數碼 創意業	Government Bureaux/ Departments 政府部門	Total 總計 (%)*
<b>IT Sales and Marketing (Excluded by the HKITPC) 資訊科技銷售及市場推廣 (不包括在「香港資訊科技專業認證局」的認證計劃內)</b>														
701	Sales/Marketing Director 銷售 / 市場總監	24	-	-	611	-	168	3	665	-	-	20	-	1 491 (1.7)
702	Sales/Marketing Representative 銷售 / 市場代表	26	-	-	2 885	-	635	-	2 098	-	4	38	-	5 686 (6.5)
	<b>Sub-total 小計</b>	<b>50</b>	<b>-</b>	<b>-</b>	<b>3 496</b>	<b>-</b>	<b>803</b>	<b>3</b>	<b>2 763</b>	<b>-</b>	<b>4</b>	<b>58</b>	<b>-</b>	<b>7 177 (8.2)</b>
	<b>Total 總計</b>	<b>3 008</b>	<b>390</b>	<b>473</b>	<b>16 495</b>	<b>1 990</b>	<b>5 223</b>	<b>15 726</b>	<b>30 013</b>	<b>1 077</b>	<b>10 040</b>	<b>618</b>	<b>2 741</b>	<b>87 794 (100.0)</b>

\* As a percentage of number of IT employees (including Freelancers) in all job categories of the HKITPC/titles.

\* 佔資訊科技僱員總數 (包括自由工作者) 的百分率 (按「香港資訊科技專業認證局」所有技能類別/職稱計算)。

Note: Figures may not add up to the total due to rounding.

註：因四捨五入關係，各項數字相加或與總計數字略有出入。

**2016 Manpower Survey of the Information Technology Sector**  
**Sampling Plan**  
**(Company Level Based on Q3 2015)**  
**資訊科技業2016年人力調查**  
**抽樣細則**  
**(根據2015年第3季公司資料)**

Sector 行業	Branch 業務	Trade Code 行業編號 (HSIC v2.0)	Trade Description 行業說明	Employment Size 僱員 人數	Stratum Code 層級 編號	Sampling Fraction 抽樣 比率	(N) Size of Frame 機構 數目	(n) Sample Size 抽樣 數目	New Discovery
1. Manufacturing 製造業	1	2611, 262, 9521	Manufacture and repair of computers and peripheral equipment; Manufacture of electronic parts and components for computer and telecommunications equipment 電腦及其周邊設備的製造及修理 ; 電腦及電訊設備用電子零件及組件的製造	1-9	1-2	0.063	580	37	-
				10-49	3-4	0.823	29	24	-
				50-99	5	1.000	1	1	-
				>=100	>=6	1.000	1	1	-
				Sub-total 小計			611	63	-
	2	10 - 33, 581, 3831, 9522 (except 2611, 262, 3252)	Other manufacturing (non-IT products) 其他製造業 (非資訊科技產品)	5-9	2	0.002	1 745	3	-
				10-19	3	0.004	847	3	-
				20-49	4	0.005	518	3	-
				50-99	5	0.015	155	2	-
				100-499	6-7	0.100	134	13	-
>=500	>=8	0.500	17	9	-				
Sub-total 小計			3 416	33	-				
3	-	Supplementary samples (Other manufacturing of non-IT products with embedded software) (其他有內置軟件的非資訊科技產品製造)	-	-	1.000	40	40	-	
			Sub-total 小計			40	40	-	
2. Electricity, Gas and Water 電力、氣體燃料及水務	4	35 - 36	Electricity, gas and water supply 電力、燃氣及自來水供應	5-9	2	0.500	1	1	-
				10-19	3	0.330	3	1	-
				20-49	4	-	-	-	-
				50-99	5	-	-	-	-
				>=100	>=6	1.000	3	3	-
				Sub-total 小計			7	5	-
3. Construction 建造業	5	41 - 43	Construction 建造	5-9	2	0.001	3 782	4	-
				10-19	3	0.003	1 466	4	-
				20-49	4	0.005	781	4	-
				50-99	5	0.020	131	3	-
				100-499	6-7	0.100	121	12	-
				>=500	>=8	1.000	29	29	-
				Sub-total 小計			6 310	56	-
4. Wholesale, Retail and Import/Export Trades, Catering and Hotels 零售批發及出入口貿易、飲食業及酒店業	6	451601, 451602, 452601, 452602, 460601, 460602, 474102, 474103	Export trading, import for wholesale, wholesale and retail sale of computers, computer peripheral equipment and computer software packages 電腦、電腦周邊設備及套裝軟件的出口貿易、進口批發、批發及零售	5-9	2	0.050	336	17	-
				10-19	3	0.100	139	14	-
				20-49	4	0.100	89	9	-
				50-99	5	0.500	19	10	-
				>=100	>=6	1.000	17	17	-
				Sub-total 小計			600	67	-
	7	45 (except 451601, 451602, 452601, 452602)	Other import and export trades (except import and export trades of computers, computer peripherals and software packages) 其他出入口貿易 (電腦、電腦週邊設備及套裝軟件的出入口貿易除外)	5-9	2	0.001	13 868	14	-
				10-19	3	0.002	5 637	11	-
				20-49	4	0.004	2 768	11	-
				50-99	5	0.010	445	4	-
				100-499	6-7	0.050	216	11	-
	>=500	>=8	0.500	17	9	-			
	Sub-total 小計			22 951	60	-			
8	46 - 47, 55 - 56 (except 460601, 460602, 474102, 474103)	Other wholesale and retail (except wholesale and retail sale of computers, computer peripherals and software packages) ; Accommodation and food service activities 其他批發及零售 (電腦、電腦週邊設備及套裝軟件的批發及零售除外) ; 住宿及膳食服務活動	5-9	2	0.001	9 756	10	-	
			10-19	3	0.001	4 658	5	-	
			20-49	4	0.004	2 657	11	-	
			50-99	5	0.010	908	9	-	
			100-499	6-7	0.050	473	24	-	
			>=500	>=8	0.500	87	44	-	
Sub-total 小計			18 539	103	-				



Sector 行業	Branch 業務	Trade Code 行業編號 (HSIC v2.0)	Trade Description 行業說明	Employment Size 僱員 人數	Stratum Code 層級 編號	Sampling Fraction 抽樣 比率	(N) Size of Frame 機構 數目	(n) Sample Size 抽樣 數目	New Discovery
5. Transport and Storage Services 運輸及貨倉 服務業	9	5101 - 5102	Airline companies 航空公司	5-49	2-4	0.100	46	5	-
				50-99	5	0.200	12	2	-
				>=100	>=6	1.000	10	10	-
				Sub-total 小計			68	17	-
	10	491, 4921, 502101, 522102	Railway and cable transport; Public bus services; Licensed and franchised ferry services; Vehicular tunnel, bridge and highway operators 鐵路及纜索運輸 ; 公共巴士服務 ; 持牌及專營渡輪服務 ; 汽車隧道、橋樑及高速公路營運者	1-49	1-4	1.000	5	5	-
				50-99	5	-	-	-	-
				>=100	>=6	1.000	21	21	-
	Sub-total 小計			26	26	-			
	11	522901	Air cargo forwarding services 航空貨運代理服務	1-9	1-2	0.010	842	8	-
				10-19	3	0.050	165	8	-
				20-49	4	0.100	108	11	-
50-99				5	0.250	27	7	-	
>=100				>=6	0.500	34	17	-	
Sub-total 小計			1 176	51	-				
12	49 - 50, 5109, 52, 79 (except 491, 4921, 502101, 522102, 522901)	Other transport and storage services 其他運輸及貨倉服務業	5-9	2	0.001	2 522	3	-	
			10-19	3	0.003	1 185	4	-	
			20-49	4	0.006	618	4	-	
			50-99	5	0.020	170	3	-	
			100-499	6-7	0.060	127	8	-	
			>=500	>=8	0.350	23	8	-	
Sub-total 小計			4 645	30	-				
6. Communications Services 通訊服務業	13	619100	Internet access services 互聯網接駁服務	1-4	1	0.500	9	5	-
				5-9	2	0.500	2	1	-
				10-19	3	1.000	1	1	-
				20-49	4	1.000	6	6	-
				50-99	5	1.000	2	2	-
				>=100	>=6	1.000	4	4	-
	Sub-total 小計			24	19	-			
	14	53, 61, 822 (except 619100)	Communications services (except internet access services) 通訊服務 (互聯網接駁服務除外)	5-9	2	0.050	132	7	-
				10-19	3	0.100	97	10	-
				20-49	4	0.200	68	14	-
50-99				5	0.500	23	12	-	
100-199	6	1.000	15	15	-				
200-499	7	1.000	10	10	-				
>=500	>=8	1.000	14	14	+1				
Sub-total 小計			359	82	+1				
7. Financing, Insurance, Real Estate and Business Services 金融、保險、房地產及商業 服務業	15	6412	Domestic banking units 本地銀行單位	1-19	1-3	0.050	40	2	-
				20-49	4	0.050	47	2	-
				50-99	5	0.100	20	2	-
				100-499	6-7	0.500	44	22	-
				>=500	>=8	1.000	35	35	-
	Sub-total 小計			186	63	-			
	16	6821	Real estate brokerage and agency 地產經紀及代理	5-9	2	0.010	453	5	-
				10-19	3	0.017	145	2	-
				20-49	4	0.024	58	1	-
				50-99	5	0.333	14	5	-
	>=100	>=6	1.000	19	19	-			
	Sub-total 小計			689	32	-			
	17	639, 64 - 71, 74 - 75, 77 - 78, 80, 82 (except 6412, 6821, 752, 772, 822)	Others (Financing, Insurance, Real Estate and Business Services) 其他 (金融、保險、房地產及商業服務業)	5-9	2	0.002	6 364	13	-
10-19				3	0.003	2 911	9	-	
20-49				4	0.005	1 757	9	-	
50-99				5	0.020	410	8	-	
100-499				6-7	0.050	405	20	+1	
>=500				>=8	0.350	118	41	-	
Sub-total 小計			11 965	100	+1				

Sector 行業	Branch 業務	Trade Code 行業編號 (HSIC v2.0)	Trade Description 行業說明	Employment Size 僱員 人數	Stratum Code 層級 編號	Sampling Fraction 抽樣 比率	(N) Size of Frame 機構 數目	(n) Sample Size 抽樣 數目	New Discovery
8. IT Products and Services Suppliers 資訊科技產品 及服務供應商	18	582, 62, 631	IT related products and services (including consultancy, software development, software products, software support and maintenance services; data processing and tabulation services; engineering and technical services of computer facilities management ) 與資訊科技相關的產品及服務 (包括顧問、軟件開發、軟件產品、 軟件支援及修護服務； 資料處理及編纂服務； 電腦設備管理活動的工程及技術服務)	1-9	1-2	0.010	7 611	76	-
				10-19	3	0.150	475	71	-
				20-49	4	0.450	270	122	-
				>=50	>=5	1.000	112	112	+1
				Sub-total 小計			8 468	381	+1
9. Medical and Health Care Services 醫療及保健服務	19	3252, 86	Medical, dental, and other health care services (including Hospital Authority) 醫療、牙科及其他保健服務 (包括醫院管理局)	5-9	2	0.002	1 510	3	-
				10-19	3	0.006	438	3	-
				20-49	4	0.020	171	3	-
				50-99	5	0.100	40	4	-
				100-499	6-7	1.000	16	16	-
				>=500	>=8	1.000	8	8	-
				Sub-total 小計			2 183	37	-
10. Community, Social and Personal Services 社區、社會及 個人服務業	20	853, 72	Universities and post-secondary colleges; Research and scientific institutes 大學及專上學院、科研機構	1-49	1-4	0.100	161	16	-
				50-99	5	1.000	6	6	-
				>=100	>=6	1.000	20	20	-
							187	42	-
				1.000	1	1	-		
	Sub-total 小計			188	43	-			
	21*	85 (except 853, 8541)	Educational institutes other than universities, post-secondary colleges (excluding Hong Kong Examination and Assessment Authority) 其他院校(大學及專上學院、 香港考試及評核局除外)	5-9	2	0.002	1 670	3	-
				10-19	3	0.003	1 022	3	-
				20-49	4	0.006	836	5	-
				50-99	5	0.020	740	15	-
100-499				6-7	0.200	123	25	-	
Sub-total 小計			4 391	51	-				
22	59 - 60, 7722, 90	Motion pictures and other entertainment services; and Television / Radio Stations & Studios 電影及其他娛樂服務； 電視台、電台及製作室	5-9	2	0.020	283	6	-	
			10-19	3	0.035	89	3	-	
			20-49	4	0.100	76	8	-	
			50-99	5	0.200	18	4	-	
			100-499	6-7	0.500	19	10	-	
			>=500	>=8	1.000	4	4	-	
Sub-total 小計			489	35	-				
23	37 - 39, 73, 752, 7721, 7729, 81, 84, 8541, 87 - 88, 91 - 99, (except 813, 952, 3831)	Others (Community, Social and Personal Services) 其他(社區、社會及個人服務業)	5-9	2	0.002	3 189	6	-	
			10-19	3	0.003	1 364	4	-	
			20-49	4	0.006	883	5	-	
			50-99	5	0.020	230	5	-	
			100-499	6-7	0.080	199	16	-	
			>=500	>=8	0.400	72	29	-	
						5 937	65	-	
			1.000	2	2	-			
Sub-total 小計			5 939	67	-				
11. Digital Creative 數碼創意業	24	-	Supplementary samples (Digital Creative) (數碼創意)	-	-	1.000	84	84	-
				Sub-total 小計			84	84	-

Sector 行業	Branch 業務	Trade Code 行業編號 (HSIC v2.0)	Trade Description 行業說明	Employment Size 僱員 人數	Stratum Code 層級 編號	Sampling Fraction 抽樣 比率	(N) Size of Frame 機構 數目	(n) Sample Size 抽樣 數目	New Discovery
12. Government Bureaux/ Departments 政府部門	25	-	Government Bureaux/Departments	-	-	1.000	80	80	-
			政府部門	Sub-total 小計			80	80	-
<b>Grand Total 總計</b>							<b>93 434</b>	<b>1 625</b>	<b>+3</b>

\* Data to be collected at establishment level  
資料以機構單位整理