

# **Executive Summary of the Report on the 2014 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 16th biennial manpower survey in April / May 2014. Through stratified random sampling, some 1 600 companies were selected from about 93 000 including 80 government units and 2 newly discovered cases. The effective response rate was 94.2%.

## **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 2014 with total IT employment rose to 82 973 IT employees (including freelancers), representing an increase of 5.4% over May 2012 (78 685 IT employees) and 33.6% 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 2.10% in May 2012 to 2.15% in April 2014.

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

The survey shows that of the 82 973 IT employees (including freelancers), 31 414 (37.9%) were in IT / software development, 19 105 (23.0%) in operation services, 9 148 (11.0%) in field support, 6 710 (8.1%) in IT sales and marketing, 5 923 (7.1%) in telecommunications and networking, 4 103 (4.9%) in systems programming, 3 571 (4.3%) 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 80.0%) of IT employees (including freelancers) have engaged in job nature related to application development / engineering (32.9%), and operation and technical support (46.1%).

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

Employers reported that 65 199 male IT employees and 13 689 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 2012 survey findings, the vacancy rate has increased slightly from 2.2% (1 806) to 2.3% (1 937) of the respective total numbers of IT posts in 2012 and 2014 (the total number of posts being the sum of total employees and total vacancies). The greatest vacancy rate (5.2%) was in the transport and storage services sector.

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

Employers reported that 5 817 IT employees (including freelancers) (or 6.9% of total IT posts) had left their companies in the 12 months preceding the survey. Of these IT employees, 46.0% changed employment within the IT field, 5.7% took up employment in other fields, and 2.1% 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 decreased from 11.4% (9 207) in May 2012 to 6.9% (5 817) in April 2014.

#### **3.3        Internal Promotion**

The survey reveals that the number of internal promotion in respect of new or existing posts has increased from 754 in 2012 to 1 171 in 2014. 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 5 802 IT employees (or 7.0% of total IT employees) were recruited in 2013/14, including 4 345 (5.2%) experienced persons and 1 122 (1.4%) fresh graduates from Hong Kong, and 187 (0.2%) experienced persons and 148 (0.2%) fresh graduates outside Hong Kong. It is observed that the recruitment of non-locally trained and locally trained fresh graduates was in a ratio of 1 to 8 and the recruitment of non-locally and locally experienced persons was in a ratio of 1 to 23. 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.

#### **3.5        Recruitment Difficulties**

The survey also reveals that 40.0% of employers had difficulties in attracting candidates to apply for the existing vacancies and 23.4% had difficulties in offering attractive remuneration package to the candidates during their recruitment exercises in 2013/14.

#### **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, the profile of IT manpower by preferred academic qualification has not varied significantly. 59.4% of IT posts were preferred to have first degree or above qualifications and 23.3% to have associate degree / higher diploma qualification in 2014. 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 19.1% of them require having 2 to 5 years' IT experience in 2014.

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

It is observed that the average annual income range of IT employees is in general on the steady uptrend between May 2012 and April 2014. 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.

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

The survey reveals that 64 859 IT employees (in terms of man-times) were reported by employers to have training needs in 2014/15. The emergence of "Sales and Marketing Skills of IT Products / Services", "Big Data", "Business Process Management", "Server / Computer Maintenance", and "Virtualization and Cloud Computing" on the top of essential skills / knowledge has reflected the situation that systems analysts, programmers, user support / co-ordinators, and field technicians engaged in the IT products and services suppliers; the financing, insurance, real estate and business services sector; and the WRIE, catering and hotels sector are more conscious of deploying relevant technologies for business processes to enhance their competitiveness in the market places. Demand for "Information and System Security" is the top essential skill priority among companies in 2012 and 2014, even in tough economic times.

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

### **5.1 Employers' Forecast of IT Manpower Demand by April 2015**

Employers forecast that there would be 84 935 IT posts by April 2015, an increase of 0.03% (25) over the number of existing IT posts (84 910). Among the job categories, IT sales and marketing recorded the highest growth rate of 1.7%, followed by IT security (0.6%) and IT / software development (0.3%).

### **5.2 Projected Annual Additional Manpower Requirement from 2015 to 2018 by Preferred Academic Qualification**

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. The projected annual additional manpower requirement from 2015 to 2018 by preferred academic qualification is estimated to be 2 888 IT employees with degree or above qualifications and 1 107 with associate degree / higher diploma.

### **5.3 Estimated Average Annual Supply of Graduates in IT or Computing Programmes from 2015 to 2018 by Educational Level**

The average annual supply of graduates in IT or computing programmes joining the IT sector from local educational institutions from 2015 to 2018 by educational level is estimated to be 3 395 with degree or above qualifications (including 1 611 at full-time mode and 1 784 at part-time or distance learning mode) and 1 088 with associate degree / higher diploma.

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

It can be concluded that the average annual supply of 3 395 local degree graduates from IT or computing programmes would be able to meet the forecast annual additional manpower demand for 2 888 IT employees with such qualification. At the associate degree or higher diploma level, the forecast annual additional manpower demand for 1 107 IT employees would almost be able to meet by the average annual supply of 1 088 IT or computing graduates with such qualification. The forecast annual shortfall of 19 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***

### **6.1 *Impact of Further Transition to Knowledge Society***

It is believed that as the IT sector continues its shift towards big data storage and cloud computing, and companies continue to implement public, private and hybrid clouds at an increasing rate, the typical IT architects, project managers, network / database administrators and even the CIO will need to develop a much broader skill set. This trend will help to create a new job market that is ripe for those who have a generalized skill set as well as those who have deep experience within one specialized area. IT / software development, operation services, and sales / marketing skills remain in strong demand, particular for IT architects, systems analysts, programmers, web designers / developers, field technicians, computer / systems operators, 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.

### **6.2 *Impact of Mainland's Development***

One of the focuses of the National Twelfth Five-year Plan is to uplift the Mainland's overall information-based level, including e-business, logistics and cloud computing. This provides ample opportunities for the development of IT in Hong Kong. Business opportunities arising from the specific initiatives included, among others, the signing of Supplement X to the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) in August 2013 to provide 73 services liberalisation and trade and investment facilitation measures. Under these measures, contractual service providers employed by the Hong Kong service suppliers in the IT sector are allowed to provide software implementation services on the mainland in the mode of natural person movements.

## **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 2015 to 2018 is estimated to be about 4 800 in the IT sector.
- (ii) With the rise in social media accesses through mobile phones, 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.

- (iii) The changing role of IT employees today requires them to acquire the relevant skills / knowledge (such as information and system security, mobile computing, networking / data communications, Windows platform technology, virtualization and cloud computing, Internet / Intranet / web development, .Net development, application development tools / languages, and IT applications in customer relationship management) of which the training demand would increase substantially.
- (iv) Employers should understand the attitude and behaviour differences of the young IT employees and adopt suitable measures to bridge the generation gap (by attending relevant technology and management workshops / courses). Besides, employers could appoint mentors with relevant work experience and management skills to guide the young IT employees throughout on-the-job training.
- (v) Young IT employees are expected to acquire relevant accomplishment training and self-management skills (such as working attitude, concentration on work, team work, interpersonal communication skills, punctual, protection of company's tangible & intangible assets (or intellectual property right), and crisis consciousness) so that they can have greater contributions to the company.
- (vi) 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 82.7% of IT posts are preferred to have associate degree / higher diploma or above qualifications.
- (vii) 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.
- (viii) More workplace attachment programmes could be offered to those students who are studying courses related to the IT Discipline by collaborating with the organizations / institutions inside and outside Hong Kong. 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) VTC should continue the offer of certification programmes for the target segments in collaboration / partnership with prominent IT companies, trade associations and professional bodies to help those trainees acquire professional qualifications upon completion of training. This kind of in-service training courses / seminars could continue to be offered with more emphasis on advanced technology, management skills, and the latest trend of best practices in the IT sector.