8

# HIGH-QUALIFIED LABOUR AND SKILLS IN GROWING SERVICES INDUSTRIES

In this chapter, we discuss the characteristics of skill demand and supply in the services sub-industries. The pattern of job openings and the responses from firms offer evidence in regard to qualitative and quantitative human capital issues and challenges. How firms mitigate skill deficiencies and skill shortages are also described in this chapter followed by the future skill requirements. The key messages of each industry are provided below.

## 8.1 Advanced producer services

### 8.1.1 Industry overview

#### A fundamental value-added services industry

- Advanced producer services (APS) industry plays a fundamental role in business services of every economic activity. It provides a form of value-added services that streamline service delivery process. In other words, this process, which includes support services activities are contracted out to specialised service firms in the areas of accountancy, advertising, and law.[63]
- According to the 2016 Globalisation and World Cities (GaWC), Penang is ranked as a 'self-sufficient' city,[64] indicating a sufficient degree of services that are not evidently dependent on world cities. Kuala Lumpur is ranked as an Alpha city – a city that links major economic regions into the world economy.
- Penang's APS industry has grown immensely in the past 10 years. Corporate consulting and management firms who are in accounting, taxation, risk management and law are also predicted to grow steadily as all firms – regardless of business activities – would require such business solutions. Four of the top global accounting, audit, and advisory firms have also expanded their operations, with some shifting their facilities to new premises.

#### Industry composition and nature of operations

The industry can be divided into two main sub-industries as follows.

### 8.1.2 High-qualified labour demand

In the first half of 2016, recruitment in APS recorded the second lowest in the services sector. Grant Thornton and Sew & Lee Management Services advertised the most vacancies with each firm contributing 6.6% to the total. This was followed by KHC Chartered Accountant (4.9%), Key Secretarial Services (4.1%) and PKF Malaysia (4.1%).

#### Audit and tax – the largest job openings in APS

While this service industry is large, only 97 job openings or 2.2% of the total number of high-qualified positions are advertised in Penang. The recruitment situation is rather stable. Audit and tax make up over half of the job openings while legal-related positions have nearly one-fourth of the total job vacancies advertised. This suggests that management and consulting firms are more active in job recruitment than legal firms.

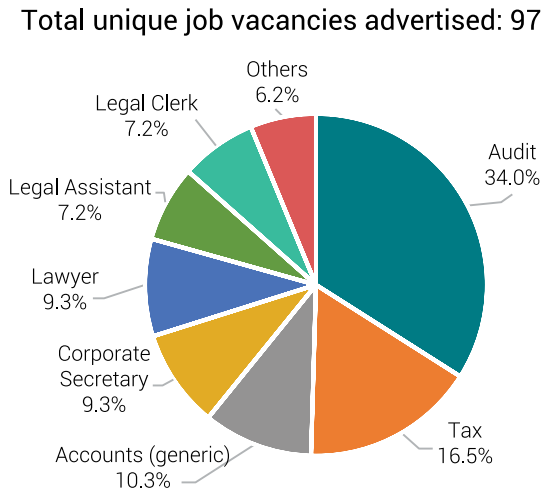
**Table 8.1: Description of sub-industries of advanced producer services**

| Sub-industry | Key industry players | Business activities | Operational activities |
|---|---|---|---|
| 1. Financial Services | Ambank, Bank Islam, Affin Bank Berhad, Bank of China, Bank Muamalat, UOB Bank | Financial institutions, Islamic financial services | Financial institutions, Islamic financial product research & development |
| 2. Professional Business Services | Lexi Consulting (M), EPS Consultants, Boardroom Corporate Services, Penang PwC, Ajmer, Sandhu & Ong, KPMG Chartered Accountants | Software & consulting, Outsourcing accounting services, Consultancy, Recruitment firms, Legal, Corporate secretarial, Taxation | Contract staffing, Recruitment process outsourcing, Accounting, Software research & development, Litigation, Conveyancing, Audit services, Tax advisory |

63 According to the International Standard Industrial Classification (ISIC) Rev. 3, producer services include business and professional services, financial services, insurance services, and real estate services. In this study, we cover only financial services and professional business services, which include recruitment, legal, secretaries, taxation, accounting, and consulting firms, accounting for a total of over 200 firms based in Penang.

64 Globalisation and World Cities (2016). The World according to Globalization and World Cities (GaWC) Research Network 2016. Loughborough University. Retrieved from http://www.lboro.ac.uk/gawc/world2016t.html

**Figure 8.1 Major job titles advertised in advanced producer services**




Source: Vacancy database

### Customer relations – more prevalent at managerial level in financial services

Financial services sub-sector on the other hand sees a large number of vacant positions at the managerial level. Assistant Sales Managers, Relationship Managers and Branch Managers are commonly advertised by banks in Penang. Of the 130 job openings, more than one-quarter are recruited for managers and senior managers. This trend is rarely exhibited in other industries. Critically, out of the 16 high-demand vacancies, approximately one-third concern managerial positions. The educational qualification requirements are less stringent in this sub-sector, where a certificate regardless of field of study is sufficient for a Sales Manager position. Soft skills, however, are the most significant criteria to be considered for these positions, specifically in relationship and service skills such as strong communication and interpersonal skills; a strong inclination towards a sales-driven culture; and result-driven with strong commitment.

The characteristics of high-demand vacancies in APS are summarised as follows.

### Position level: Senior executives

- Despite the majority of job recruitment hinging on junior executive positions, the high-demand vacancies in fact linger at senior executive positions.
- Out of the 24 high-demand vacancies, 41.7% are recruited for senior positions with half requiring 2–5 years of work experience.

### Skill-specificity: Generic accounting and legal vacancies

- Nearly 63% of high-demand positions require specific hard skills.
- Accounting requests relatively higher skill specificities compared with other job positions. This includes relevant audit work experience and the ability to handle full set of accounts.
- Meanwhile, candidates for lawyer positions must have specialisation in law or legal services experience.

### Educational level: Bachelor's degree and professional certificate

- This industry primarily looks for candidates who possess Bachelor's degree and professional certificate in accounting and law such as ACCA, CPA and MAICSA.

### Highly sought-after skills: Soft skills

- As many as 87.5% of the high-demand vacancies require candidates who possess soft skills.
- Specifically, relationship and service skills such as excellent communication skills and good team player are classified as the most sought-after soft skills.
- Soft skills are particularly important for vacancies at entry level, senior executives and managerial positions (Figure 8.2).

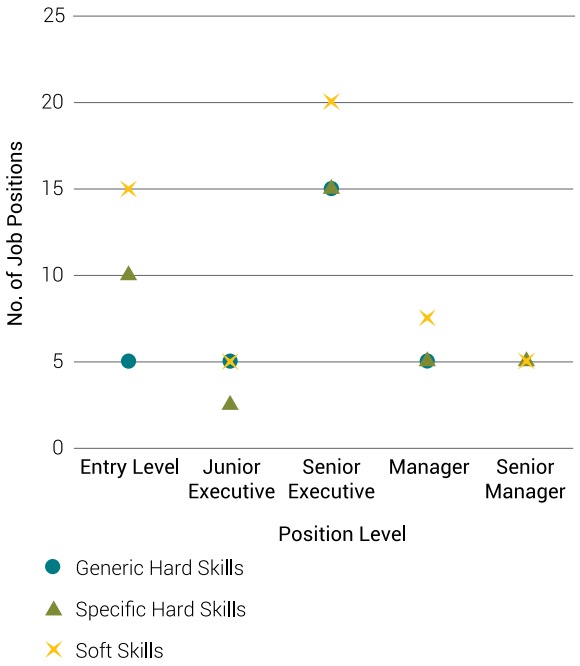
### Generic hard skills: English and non-English languages are equally important

- About 37.5% of the high-demand vacancies require English and non-English languages.
- Proficiency in the English language is widely required by foreign firms. Local firms, however, request candidates to be well-versed in non-English language, namely Bahasa Malaysia and Mandarin.
- This is more prevalent in audit, tax and accounting positions where candidates have an added advantage to be considered for such vacancies.

### Average length of job postings: Slightly over two months

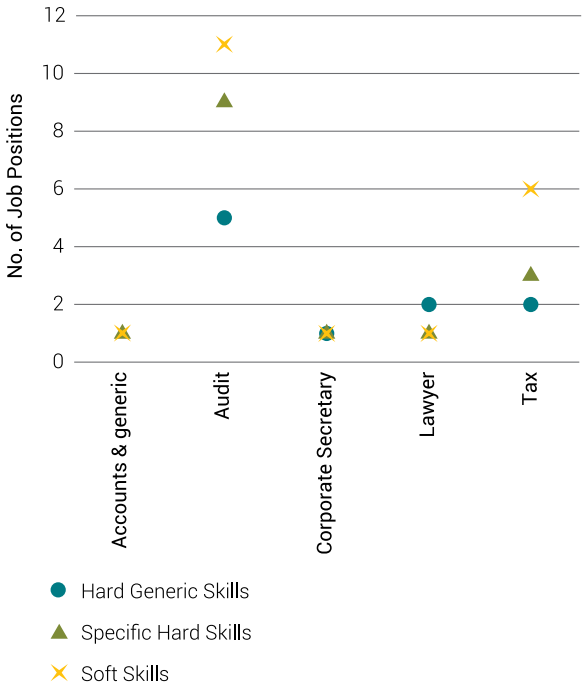
- On average, APS has the shortest duration of 2.5 periods – slightly over one month while high-demand vacancies persist slightly over two months.
- For example, senior executives in the functions of audit take an average posting of nearly three periods. This includes Senior Audit and Senior Associate Audit.

**Figure 8.2: High-demand jobs by types of skills and position levels**




Source: Vacancy database

**Figure 8.3: Top jobs advertised by major job titles and educational requirements**




Source: Vacancy database

## 8.1.3 High-qualified labour supply

### Supply characteristics

#### The supply source

- Firms focus on recruiting candidates in Penang and other states in Malaysia. Primary and secondary supplies of workers are recruited by APS companies. Given a substantial number of private institutions of higher learning in Penang offering programmes in corporate management, accountancy, and audit – firms are expected to have better access to labour in such specialisations through university engagement and career fairs.

#### Abundance of job applications

- The abundance of job applications coincides with the average number of job applications presented by JobStreet.com, where firms in Malaysia have 107 job applications for each job opening in accounts and finance in 2016. According to the employer survey, firms receive close to 100applicants for each job opening, indicating the high ability to attract job applicants. However, the number of job applications received is also dependent on the reputation of recruiting firms. A reputable firm could obtain more than 50 job applications while those less reputable would receive less than 50 for each job vacancy advertised.

### Recruitment profiles

#### Reasons for recruitment: Firm's expansion

- From the employer survey, job openings are mainly attributable to the expansion of firms. This involves small corporate management and consulting firms with a total headcount of no fewer than 30 employees. The recruitment of new employees in part is due to the need to replace workers who have left the companies. Meanwhile, only a number of firms recruit new employees as a result of new focus in company activities; this is more prevalent in banking and finance and legal firms.

Other recruitment channels: Employee network

- Apart from using JobStreet.com as a hiring platform, a majority of firms engage other methods such as employee network, internal recruitment and career fair at educational institutions to recruit high-qualified employees.

### 8.1.4 Human capital issues and challenges

## Quantitative supply constraints

From the vacancies database, nearly 20% of the total vacant positions are defined as persistent. Holding all other assumptions constant, these vacant positions could potentially be hard to fill. On average, the persistent vacancies use about 4.63 periods or equivalent to 2.3 months to fill.

Corporate, business and sales positions require a longer duration to fill in financial services

In the financial services industry, about 12.3% of job openings are hard to fill. Sales positions at managerial level take a longer duration to fill, accounting for an average of 6.7 periods, which is equivalent to more than three months. For instance, Personal Financial Manager is advertised for as long as six consecutive months, implying that this vacancy takes a longer duration to fill. Again, having good interpersonal and communication skills, being independent and resourceful are some of the criteria set for this position. Thus, the shortage in sales-related managerial positions is more critical than other positions.

The characteristics of positions requiring a longer duration to fill in APS are described below.

Position level: Senior executives

- Senior executive positions have the highest level of persistent vacancies (42.1%) followed by entry level (21.1%) and managerial positions (21.1%).
- The majority of job positions require up to five years of work experience (68.4%).
- Among the senior positions, audit functions make up the largest proportion of persistent vacancies.

Hard-to-fill positions require more soft skills than generic and specific hard skills

- About 84% of hard-to-fill vacancies require soft skills while 68.4% look for specific hard skills and 47.4% require generic hard skills.
- Soft skills are highly required in all job functions except lawyers (Figure 8.4).
- In contrast to the high-demand vacancies, hard-to-fill vacancies require achievement skills such as proactivity, self-motivation and high integrity.

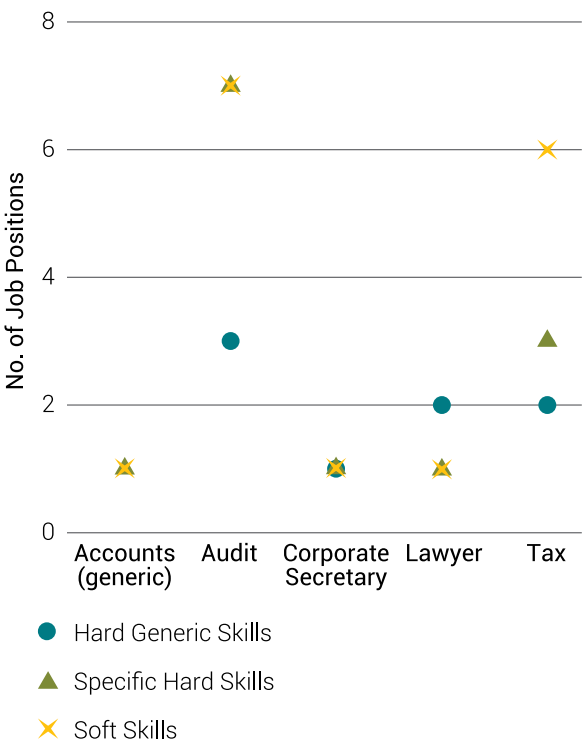
Job functions: Tax-related positions

- Tax-related positions have the highest level of hard-to-fill vacancies with 37.5% of them exceeding two months.
- This is then followed by audit (24%), lawyer (22.2%) and company secretary (11.1%).
- Audit functions take an average of 2.4 months while tax takes 2.2 months.

English language is the hard-to-fill hard skills

- Nearly 37% of hard-to-fill vacancies require a good command of the English language.
- English proficiency is a standard requirement for most job openings, while some firms demand fluency in other languages such as Bahasa Malaysia and Mandarin.

**Figure 8.4: Persistent job vacancies by types of skills and major job titles**




Source: Vacancy database

Partly prepared fresh graduates and "good" skill integration among experienced hires

- Most firms collectively indicate that not all positions filled fully meet the job requirements in advertisements.
- The majority of fresh graduates are partly prepared for the offered positions. The reasons contributing to this include lack of hard skills, soft skills and English language skills. Meanwhile, most employers cite 'good' skill integration among the experienced hires.

**Box 8.1 Employer survey of APS: Hard-to-fill vacancies**

About 47% of respondents do not opine that recruitment differs in the **length of time** taken to fill a vacancy.

- Jobs requiring the least time to fill: Accounts, sales, human resources, audit associate (fresh graduates), junior audit, junior staff and operations.
- Jobs requiring the longest time to fill: Senior auditors/audit managers, lawyers, company secretaries and sales.

The key **reasons** for the inability to fill vacancies are attributed to quantitative and qualitative issues where there is a lack of applicants due to stiff competition from other employers; positions are considered too specialised; or applicants are found to be too demanding.

**Conclusion:** The shortage is mainly from the accounting or taxation sector. Most vacant positions require senior and managerial level.

## Skill gaps

Proficiency levels: Deficiency in generic hard skills

- In a scale of one to five with five being highly proficient, current employees, on average, are relatively more proficient in soft and transferable skills (3.67) than in specific hard skills (3.33) and generic hard skills (3.29). At the lowest average scores of skills proficiency, generic hard skills seem to be sufficient for the needs of employers in terms of foreign language communication and advanced IT skills. In contrast, basic computer literacy or IT has the highest average scores of skills proficiency among generic hard skills (3.74). This shows that while the higher education system is able to produce workers with high competencies in basic computer skills, they still lack competencies in other languages such as Bahasa Malaysia and Mandarin, and advanced IT/software.

Positions where skills need the most improvement – accounts, tax and sales

- Accounting positions need the most improvement in soft skills such as problem-solving and communication skills; only 60% of current employees are fully skilled. Specifically, sales and business developers rate hired employees as fully skilled at 80%, although employees are still required to improve on industry knowledge, communication skills, strategic management and negotiation skills. In contrast, skill proficiency of employees in Audit seems to meet employers' requirement.

### 8.1.5 Moving forward: Future skill requirements

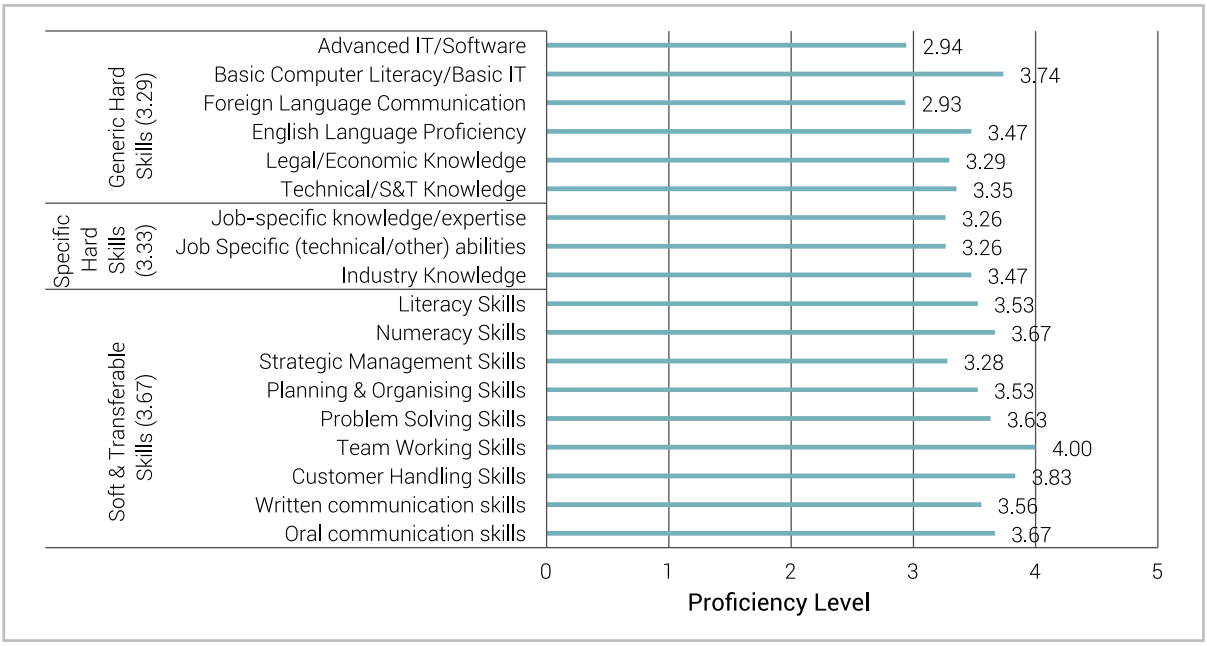
Acquiring new skills due to newly emerging tasks

- Current employees need to acquire new skills as a result of newly emerging tasks in the next 12 months. The emerging tasks are primarily attributed to "the development of new goods and services", "the introduction of new technologies", and "new legislative or regulatory requirements". Banking and finance services are likely to see new products and services emerging in the next 12 months. Meanwhile, new legislative and regulatory requirements are expected to influence corporate consulting, management and law firms.

Ability to meet future needs – soft and specific hard skills

- Most of the required soft skills will be met in the near future compared with specific hard skills. Specific hard skills include knowledge in Malaysian Financial Reporting Standard (MFRS)/Malaysian Private Entity Reporting (MPER), GST training, and legal knowledge, Real Property Gains Tax (RPGT) and big data analytics. Soft skills include problem-solving, communications, customer-handling and analytical skills. Additionally, positions in high demand in the next two years include **Programme Managers, Supply Chain Managers, Operations, Consultants and Senior Recruiters.**

**Figure 8.5: The skills proficiency level of current high-qualified employees by types of skills**




Note: 1=Very low proficiency; 2=Low proficiency; 3=Satisfactory; 4=Proficient; 5=High proficiency
Source: Employer survey

## 8.2 Global business services

### 8.2.1 Industry overview

#### Increasing presence in ASEAN market

- While Business Process Outsourcing (BPO) is still significant, Information Technology Outsourcing (ITO) and Knowledge Process Outsourcing (KPO) are the investment emphasis in the region, which target to create high value-added jobs.
- According to the 2017 Shared Services & Outsourcing Network (SSON), the global business services (GBS) establishments in Malaysia have grown more than three-fold since 2007. Specifically, Malaysia has the largest number of shared service centres (SSCs) in ASEAN, constituting about 36% of the total ASEAN SSCs. Philippines and Singapore come next, where they are respectively home to 32.8% and 20.6% of the total SSCs in the region.
- Malaysia leads in IT-related job functions, standing at about 46% of total SSCs in the ASEAN market. Within the functions, a total of 27.8% are located in Kuala Lumpur and 4.4% SSCs in Penang. This positive growth is attributed to the low cost of doing business, where utility costs are lower in Malaysia than Singapore and the Philippines.

#### A growing value-added shared services industry

- With MSC status, multilingual workforce and strategic location, Penang has attracted over 50 new GBS operations during 2005–2016, ranging from global knowledge management; finance, accounting and administrative processes to business analytics and IT system solutions. However, Penang remains far behind Kuala Lumpur as a GBS location of choice.
- As the second largest state contributing towards services investment after Kuala Lumpur, Penang's GBS industry has incrementally expanded in the past two years with approved investment projects proliferating from RM0.37 billion in 2015 to RM4.1 billion in 2016.

- Many firms build on competitive advantage of their existing manufacturing facilities by locating global shared services centres nearby. These include Citigroup Transaction Services, Intel, Jabil, Celestica and AMD. Third-party outsourcing is another form of GBS where third-parties provide services solutions to companies globally such as Thomson Reuters, IHS Markit and others.
- In April 2017, the state government announced the refurbishment of Mayang Mall in Bayan Baru into a GBS centre by January of 2018. Subsequently, "GBS by the sea" is the second phase of the project announced in May 2017. It is estimated to create at least 3,000 new jobs upon completion in 2020. The project is envisioned as an integrated centre for GBS, IT and R&D activities.

#### Industry composition and nature of operations

GBS can be classified into two sub-categories – shared services centre (SSC) and third-party outsourcing. The nature of business and operational activities are presented in Table 8.2.

### 8.2.2 High-qualified labour demand

GBS registers the largest number of high-qualified job vacancies advertised in the services sector. Out of 416 job vacancies, Dell Global Business Center has the highest number of vacancies in Penang (22.5%), followed by Jabil Global Business Center (15.4%), Celestica (11.5%) and Seagate IT Shared Resource Center (7.3%).

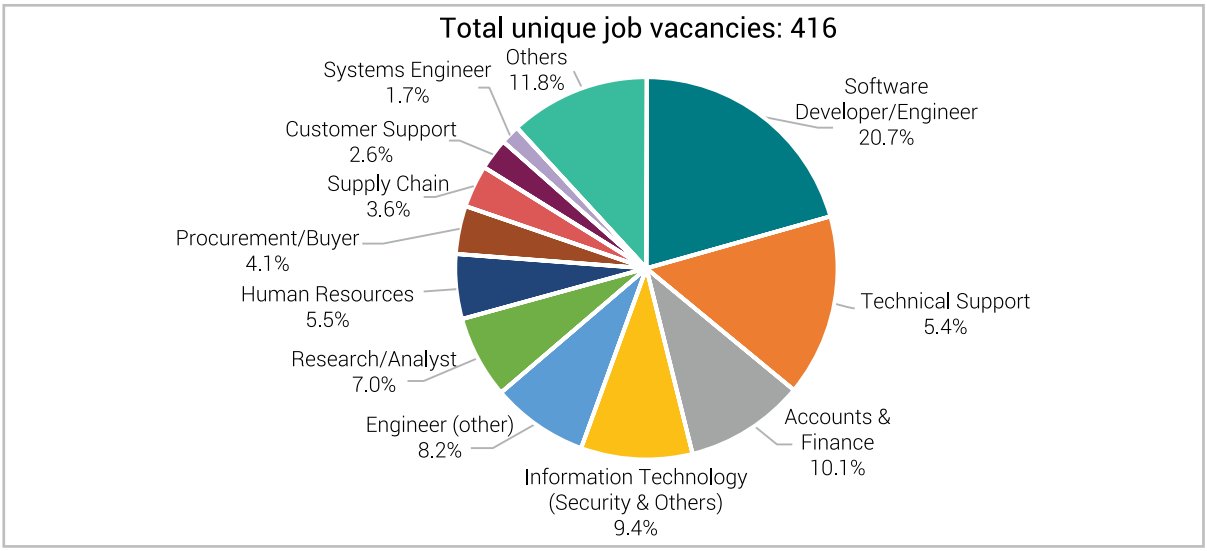
#### Software related functions – the key high-qualified positions

In tandem with the state's aspiration, GBS hiring pattern gears towards mid- to high- value-added business processes such as business analytics, system development and process management. Recruitment is widely concentrated in specialisations of BPO and ITO. Out of the 416 high-demand job vacancies, software developers/engineers constitute the largest share in this industry. This is then followed by technical support (15.4%), accounts and finance (10.1%) and IT (9.4%).

**Table 8.2: Description of sub-industries of global business services (GBS)**

| Sub-industry | Key industry players | Business activities | Operational activities |
|---|---|---|---|
| 1. Shared Services Centres (SSC) | AirAsia Global Shared Services, Atmel, Citigroup Transaction Services, Jabil (GBS), Wilmar Global Services, Dell Global Business Center, Seagate IT Shared Resource Centre, Celestica | BPO, GBS, Banking support & Processing | Transaction processing; IT; HR, Procurement; Refund operations; Credit control; technical support; call centre |
| 2. Third-party Outsourcing | Thomson Reuters, Tricor Corporate Services, Resoft Synergy, Fusion Data, Mesiniaga Berhad | Risk management, corporate services | Scholar & scientific research, Risk management solutions, Payroll, Contenting, IT services, Infrastructure management |

## Figure 8.6: Major job titles advertised in global business services




Source: Vacancy database

GBS companies have the largest number of job vacancies across services sub-sectors. Out of the 416 vacant positions, 10.8% or 48 positions are high in demand. The characteristics of high-demand positions advertised are illustrated below.

### Position level: Junior and senior executives

- Unlike other industries, GBS is recruiting heavily on junior and senior executive positions.
- Junior and senior executive positions make up 40% and 37.8% respectively of the high-demand vacancies, and the majority of the senior positions require at least five years of work experience.

### Skill-specificity

- About 61% of high-demand job positions require specific hard skills.
- Candidates who apply for senior positions must equip themselves with specific skills.
- Software developers relatively need more specificity in skills and knowledge compared with other job positions whereas human resources require the least skill specificity.

### Educational level: Bachelor's degree and professional certificate

- This industry primarily requires a minimum Bachelor's degree and/or professional certificate in the relevant fields of study specifically in accounts and finance, and software engineers/developers.

### Highly sought-after skills: Soft skills

- In terms of highly sought-after skills, 82.2% of the high-demand vacancies require soft skills especially in relationship and services skills such as excellent communication skills and good team player.
- Soft skills are particularly important for junior positions (Figure 8.7).

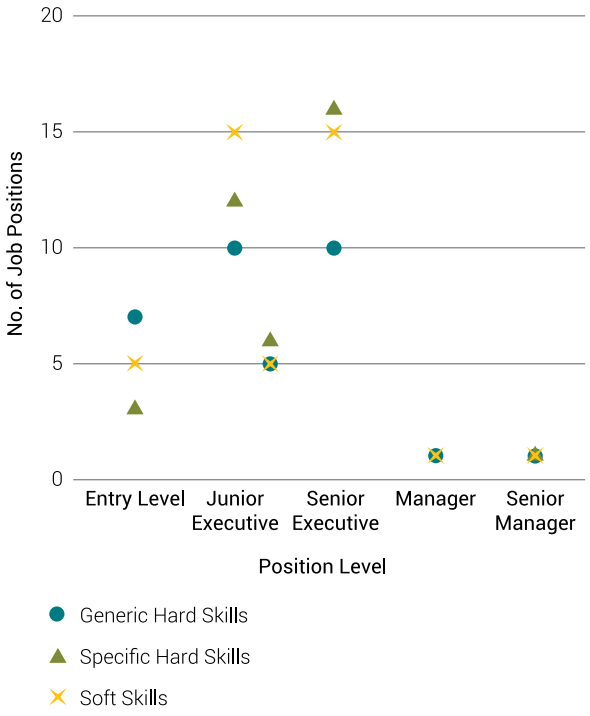
### Generic hard skills: English language

- The majority of high-demand vacancies require proficiency in the English language.
- This is more prevalent in technical support positions.
- Additionally, legislative and regulatory awareness is highly required in research and human resources.
- Fluency in Mandarin and Bahasa Malaysia has absolute advantage in accounts and finance positions.

### Average length of job postings: Exceeding three months

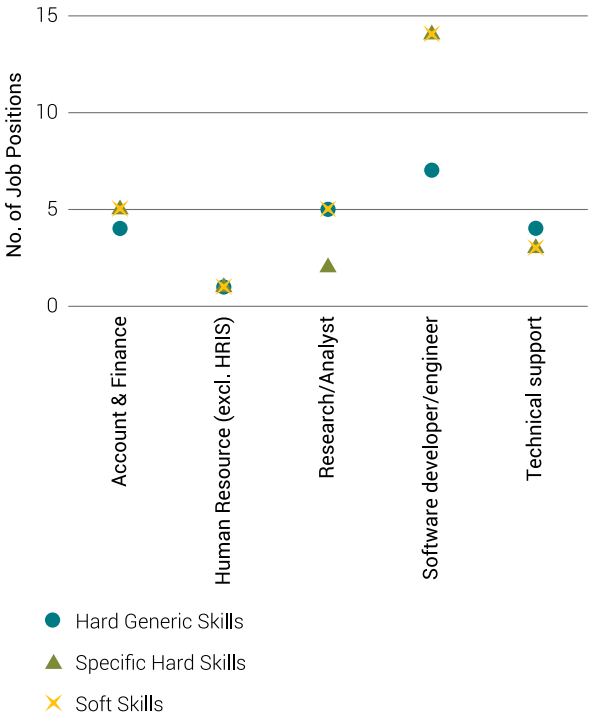
- For high-demand vacancies, GBS companies on average have the longest duration across manufacturing and services industries. The vacancies present as long as seven periods corresponding to 3.5 months.
- These vacancies include buyers, software developers and application management/business network analysts.
- This reflects business expansion in relation to demand, leading to continuous hiring.

**Figure 8.7: High-demand jobs by types of skills and position levels**




Source: Vacancy database

**Figure 8.8: High-demand major job titles by types of skills**




Source: Vacancy database

## 8.2.3 High-qualified labour supply

### Supply characteristics

#### The supply source

- The labour recruitment activity is primarily focused on Penang, followed by other states in Malaysia. Recruitment encompasses primary, secondary and tertiary supply of high-qualified labour. Secondary supply – those who are employed – is relatively large, and tertiary supply is also needed when the required skills are not available in the domestic workforce. In general, firms focus on hiring fresh graduates and applicants with more than two years of work experience in high-qualified segments.

#### Abundance of job applications

- The majority of GBS firms receive close to 100 job applications for each job opening. Accounts and Finance vacancies have more than 100 job applications compared with IT-related vacancies (close to 50 job applications). Meanwhile, a small number of firms obtain as many as 300 applications per job opening.

### Recruitment profiles

#### Reasons for recruitment: Replacement of employees and firm's expansion

- From the employer survey, the main reason contributing to job openings is replacement of employees who have left the company, followed by company expansion. This finding is consistent with the nature of high-qualified job vacancies advertised where about 47.8% of hard-to-fill vacancies are posted by existing companies to replace employees who have left; 17.4% of hard-to-fill vacancies are advertised by companies who are in the midst of expansion; and 34.8% are advertised by new companies.

Other recruitment channels: Employment agencies and employee network

- Apart from using JobStreet.com as a hiring platform, the majority of firms also use employment agencies and other online advertisements such as LinkedIn and employee network.

### 8.2.4 Human capital issues and challenges

## Quantitative supply constraints

As for positions that require a longer duration to fill, 16.6% of vacant positions are open for more than two consecutive months; these are demarcated as persistent vacancies – or hard-to-fill vacancies. On average, the persistent vacancies take about 5.8 periods or equivalent to nearly three months. The characteristics of positions that require a longer duration to fill are described below.

Position level: Senior executives

- Nearly half of the persistent vacancies are constituted by senior executives followed by junior executives (33.3%) and entry-level (13%).
- The majority of job vacancies require at least five years of work experience (43.5%).
- Among the senior positions, software developers make up the largest proportion of persistent vacancies.

Hard-to-fill positions require more soft skills than specific hard skills but very little on generic skills

- About 87% of the hard-to-fill vacancies ask for soft skills while 76.8% require specific hard skills and 58% ask for generic hard skills.
- Soft skills are required in all job functions except technical support (Figure 8.9).
- In contrast to the high-demand vacancies, hard-to-fill vacancies mainly require relationship and service skills such as communication and interpersonal skills and good teamwork.

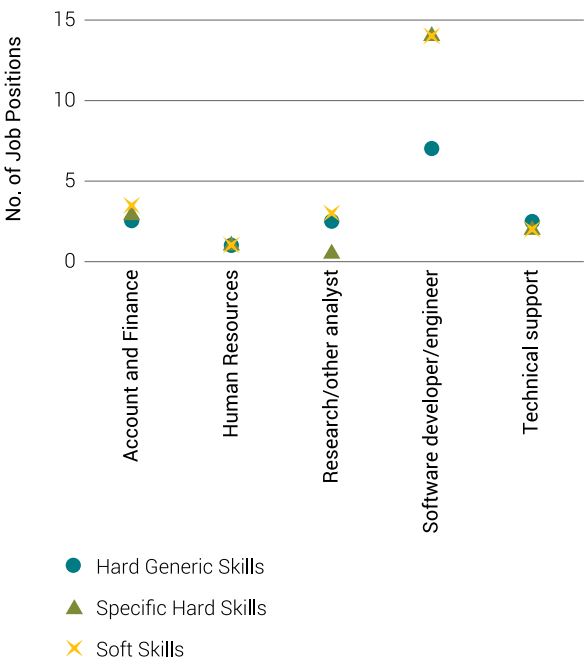
Job functions: Software developers

- Software developers form the largest hard-to-fill vacancies with about 33.7% taking 2.5 months to fill. This includes Software Developers – Google App Engine (GAE) Development and SAP PP and SD Functional Consultants.
- The top vacancies are then followed by accounts and finance (23.4%) with an average of nearly 3.5 months and researchers/analysts (19.4%), which advertise for 3.35 months.

English language proficiency

- About 41% of hard-to-fill vacancies require good command of the English language.
- In the GBS industry, most job positions require a higher degree of proficiency in verbal and written English.
- Software developers and technical support are the two main functions that demand a strong command of English.

### Figure 8.9: Persistent job vacancies by types of skills and major job titles




Source: Vacancy database

**Box 8.2: Employer survey of global business services: Hard-to-fill vacancies**

A staggering 91% of respondents are of the opinion that there are differences in terms of the **length of time** taken to fill a vacancy.

- Jobs requiring the least time to fill: Junior accountant positions, finance, analysts, buyers, financial analysts, human resource, SAP (IT), workflow CRM (IT), infrastructure (IT), supply chain and other entry level positions.
- Jobs requiring the longest time to fill: Senior accountant positions, analytics, customer service, commercial cards, business command centre, risk & control/governance, product engineers, information technology, specialists in KYC, project management, finance (Thai and Japanese speaking) as well as maritime and trade.

Employers cite lack of applicants as of the key **reasons** for failing to fill vacancies as the positions are too knowledge- or skill-specific. Other reasons include unrealistic salary expectations and lack of experience. Due to hiring difficulties, employers are finding it challenging to meet the quality standards or customer services objectives.

Conclusion: High-qualified labour shortage is more likely to affect senior positions across all job functions, but IT-related functions concern junior and senior positions.

Partly prepared fresh graduates, and "satisfactory" skill integration among experienced hires

- Fresh graduates are partly prepared for the offered positions. Poor attitude is the reason contributing to this Most employers cite "good" skill integration among the experienced hires.

## Skill gaps

Proficiency levels: Satisfactory in soft skills but not in generic and specific hard skills

- Unlike other industries, GBS shows a different perspective in skill deficiencies. In a scale of one to five with five being highly proficient, current employees are relatively more proficient in soft skills (3.28) than specific hard skills (3.15), and generic hard skills (3.19).
- While English language proficiency scores the highest at 3.27, higher skill deficiencies are found in foreign language communication than in English language and basic IT skills.
- Within soft and transferable skills, the ability to handle customers seems lacking, which is then followed by strategic management skills (3.1). Nevertheless, employers are satisfied with the teamwork skills, which are appraised at the highest score of 3.64.

Positions where skills need the most improvement – accounts and finance, research, and software programmers

- Data analysts/researchers need the most improvement in analytical skills where attention to detail and communication skills are lacking. Programmers need to enhance their skills in programming and IT such as SAP. Some employees in accounts and finance positions have to improve on soft skills such as communication, problem-solving, and teamwork skills.
- Two main reasons for low levels of proficiency: first, lack of experience/new to the company or business operation; and second, employees have inadequate on-the-job training.

Applicants' characteristics

- Some of the less favourable characteristics of applicants include: demand for high salaries and work flexibility, lack of preparation for interviews, lack of good communication skills and unwillingness to learn.

### 8.2.5 Moving forward: Future skill requirements

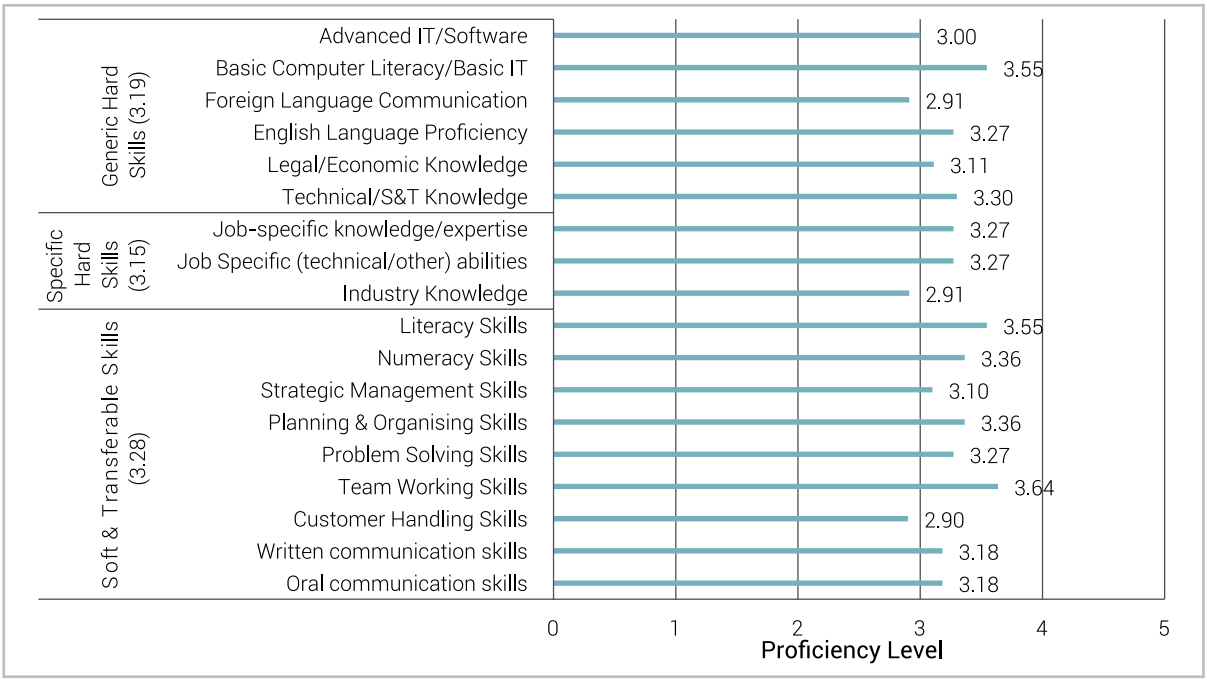
Acquiring new skills due to newly emerging tasks

- The main reasons for acquiring new skills, leading to newly emerging tasks in the next 12 months include "the development of new products and services" and "introduction of new technologies".

Ability to meet future needs – soft and specific hard skills

- The skills required can be classified into specific

**Figure 8.10: The skills proficiency level of current high-qualified employees by types of skills**




Note: 1=Very low proficiency; 2=Low proficiency; 3=Satisfactory; 4=Proficient; 5=High proficiency
Source: Employer survey

hard and soft skills. Specific hard skills include accounting, local interconnect network, advanced data analytics, system development, automation, process improvement, English language and ASP. Soft skills constitute communication skills, creative thinking, adaptability and public relations. All GBS firms are optimistic towards the ability to meet future skill requirements. Job functions that are in high demand in the next two years include **Analysts, IT Programmers and Finance (accountants)**.

## 8.3 Hospitality services

### 8.3.1 Industry overview

**An industry that maintains income generation**

- Penang continues to experience promising growth as one of the leading states in the tourism and hospitality services. This is evident during the financial crisis when the Malaysian economy suffers from currency depreciation. Domestic travels become more affordable.
- Based on the latest figures, Penang has received increasing attention from domestic visitors. In particular, the number of hotel guests in Penang grew by about 1.3% annually from 2011 to 2015 with domestic guests constituting more than half since 2013. By nationality, Indonesia, Singapore and China are the top three leading countries arriving via Penang International Airport during that period.
- Since the inception of Unesco World Heritage status, the number of hotel establishments have escalated from 2008 to 2015. The number of hotels doubled from 126 hotels in 2008 to 260 hotels in 2015 with the quantity of hotel rooms rising at 8.7% annually. This expansion offers more job opportunities in the hospitality services industry.
- Penang is also recommended by many international travel channels. These include CNN's "the second-best street food destinations"; Condé Nast's "The Best Places in the World to Retire", Yahoo Travel's "10 Islands to explore before you die" and many more.

### Industry composition and nature of operations

Penang has nearly 200 hotels and resorts catering to a wide range of tourists and business travellers. Five star hotels include Eastern & Oriental Hotel, Equatorial Hotel and Shangri La Rasa Sayang Resort. Boutique hotels include Ren-I Tang Inn, Yeng Kang Hotel and The Campbell Times, to name a few. Budget hotels cover The Container Hotel and Kim Haus Loft. All hotels provide hospitality services along with food and beverages. Operational activities include accommodation, spa, entertainment, restaurants and banquet services.

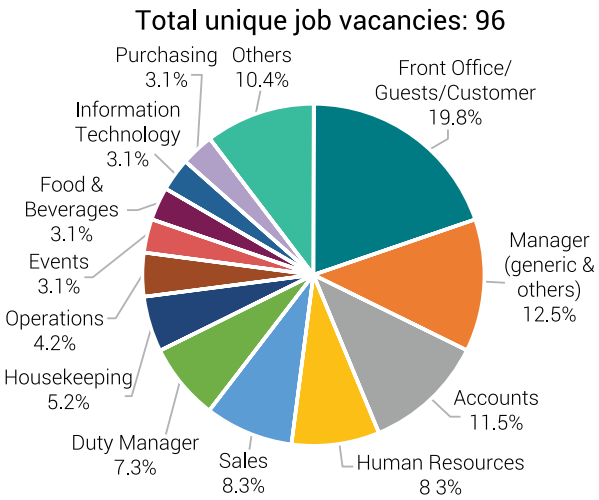
## 8.3.2 High-qualified labour demand

Out of the 96 job openings, Hotel Equatorial has the highest number of job vacancies in Penang, accounting for 15.7% of the total job vacancies in this industry followed by Glow Hotel (7.1%) and Clans Hotel (6.1%).

### Customer-related positions – key functions recruiting in hospitality services industry

The hiring is in large part in job function of front office/ guests/customers. Customer service officers, front office assistance and hotel managers are the typical positions advertised in this function. These job functions make up nearly 20% of job vacancies advertised, with 12.5% constituting managerial positions. This is then followed by accounts (11.5%), human resources (8.3%), sales (8.3%) and duty managers (7.3%).

**Figure 8.11: Major job titles advertised in hospitality services**

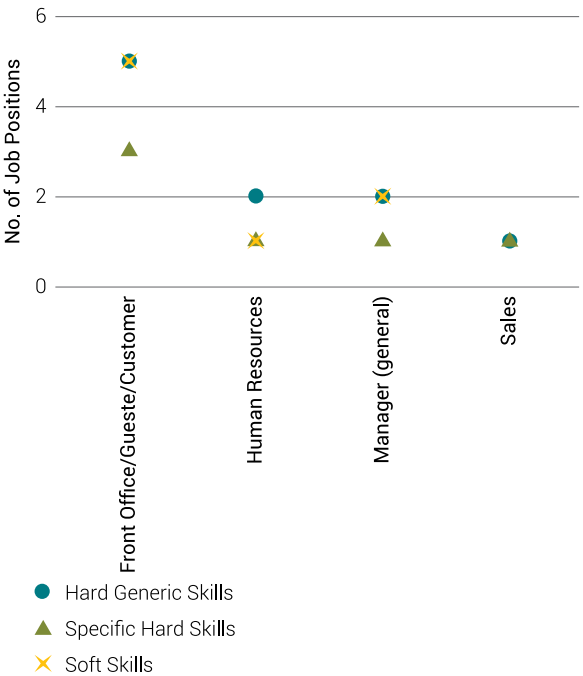



Source: Vacancy database

**Figure 8.12: High-demand jobs by types of skills and position levels**

Source: Vacancy database

**Figure 8.13: High-demand jobs by types of skills and major job titles**




Source: Vacancy database

About 18.8% of high-qualified positions are high-demand. The characteristics of these vacancies are illustrated below.

Position level: Junior executives and managers

- Recruitment in the hospitality services presents different perspectives where it is more prevalent at junior executives as well as managerial positions.
- Managerial positions are widely needed in sales and marketing, front office/customer services and human resources while junior positions are largely seen in accounts and finance.

Skill-specificity: Accounts and Finance

- Unlike other industries, specific skills are the least required skills by hotels in Penang.
- Among others, accounts and finance seeks specific skills in Opera System, cost accounting and revenue management system.

Educational level: Diploma and above

- This industry primarily shortlists candidates who possess at least a Diploma and above. Only front officers and customer service officers along with managerial vacancies require graduates in tourism, hotel management and hospitality services.

Highly sought-after skills: Generic hard skills

- Recruitment in the hospitality services places the importance of generic hard skills across all levels of job positions and job functions, registering a high 89% of the high-demand vacancies requiring generic hard skills (Figure 8.12 and Figure 8.13).
- Fluency in multi-languages including local dialects is highly demanded across all job positions except generic managerial positions.

Soft skills: Relationship and service

- A total of 78% of positions require fluency in communication, with including attributes such as keen learner and excellent team player.
- These are especially important for customer-related positions such as front office and guest relations.

Average length of job postings: nearly two months

- Hospitality services record the shortest length of job postings among the entire industries.
- On average, high-demand vacancies are posted for nearly two months. However, a typical job vacancy posts for only one month.
- The high-demand vacancies include Event Managers, Front Office Associates and Guest Relations Officers.

### 8.3.3 High-qualified labour supply

## Supply characteristics

The supply source

- Hotel establishments aim to hire applicants with or without work experience. They recruit workers from Penang as well as other parts of Malaysia. Given the rise in the number of hotel establishments, some firms import foreign workers to fill job vacancies that have limited supply locally such as front officers and guest relations.

Relatively low number of job applications

- On average, the majority of hotel establishments receive not more than 50 job applications for each job opening advertised. While it is rarely encountered by hotel establishments in Penang, some prominent establishments would receive over 100 job applications for each job opening compared with their counterparts. According to JobStreet.com, the average number of job applications in the hospitality and F&B industry is 126 in Malaysia.

## Recruitment profiles

Reasons for recruitment: Replacement of employees and firm's expansion

- From the employer survey, job openings are mainly attributable to the replacement of employees who have left the company. Company expansion comes next. This seems sensible when there is growing number of new hotels located in the region. As the labour market continues to tighten, employers are increasingly concerned about maintaining a stable workforce as they are vulnerable to competitive forces.

Other recruitment channels: Employee network

- Apart from using JobStreet.com as a hiring platform, hotels also recruit workers through employee network. Word-of-mouth advertising continues to be the most effective practice and the quickest method in recruitment.

## 8.3.4 Human capital issues and challenges

### Quantitative supply constraints

#### Only front office takes a longer duration to fill (hard-to-fill vacancies)

The hospitality services industry has the lowest number of hard-to-fill vacancies. Only three vacancies are hard to fill, with advertisements posted for not less than six periods or three months. These positions include front office assistants, front office managers and guest relations officers. This also implies the lack of front officers in the hotel industry. In terms of required skill-set, candidates must have good written and spoken English and Bahasa Malaysia and able to communicate in multiple languages, namely Mandarin and Japanese.

**Box 8.3: Employer survey of hospitality services: Hard-to-fill vacancies**

A majority of the hotels believe that the **length of time** taken to fill a vacancy differs across job functions as following.

- Jobs requiring the least time to fill: Chefs and receptionists.
- Jobs requiring the longest time to fill: Sales including managers and marketing managers, as well as front office managers.

A large number of **hard-to-fill** vacancies come from departments that have high customer interaction. For example, food and beverage (F&B) managers, front office, duty managers, housekeepers, sales and hotel managers. The industry faces difficulty in filling various chef positions including sous chef, pastry and station chef.

Only a small 22.2% of employers succeed in filling all the vacant positions. Key **reasons** for the inability to fill vacant positions are attributed to lack of applicants; stiff competition from other employers, mismatch of educational qualifications, skill gaps, and lack of experience. As a **consequence**, 55.6% experience increased operating cost and have difficulties meeting quality standards. Besides these, other key implications cited are difficulties in introducing new working practices (44.4%) and increased workload for other staff (33.3%).

**Conclusion:** These hard-to-fill positions vary across job functions and job levels with the most common positions being senior executives.

#### Well-prepared inexperienced workers, and "good" skill integration among experienced hires

- Interestingly, a majority of hotel operators believe that inexperienced workers are well-prepared for the offered positions. However, only a small number of hotel operators cite poorly prepared inexperienced workers with poor attitude and lack the required English language skills. With reference to experienced hires, most employers are satisfied with their skills integrating into the establishment.

### Skill gaps

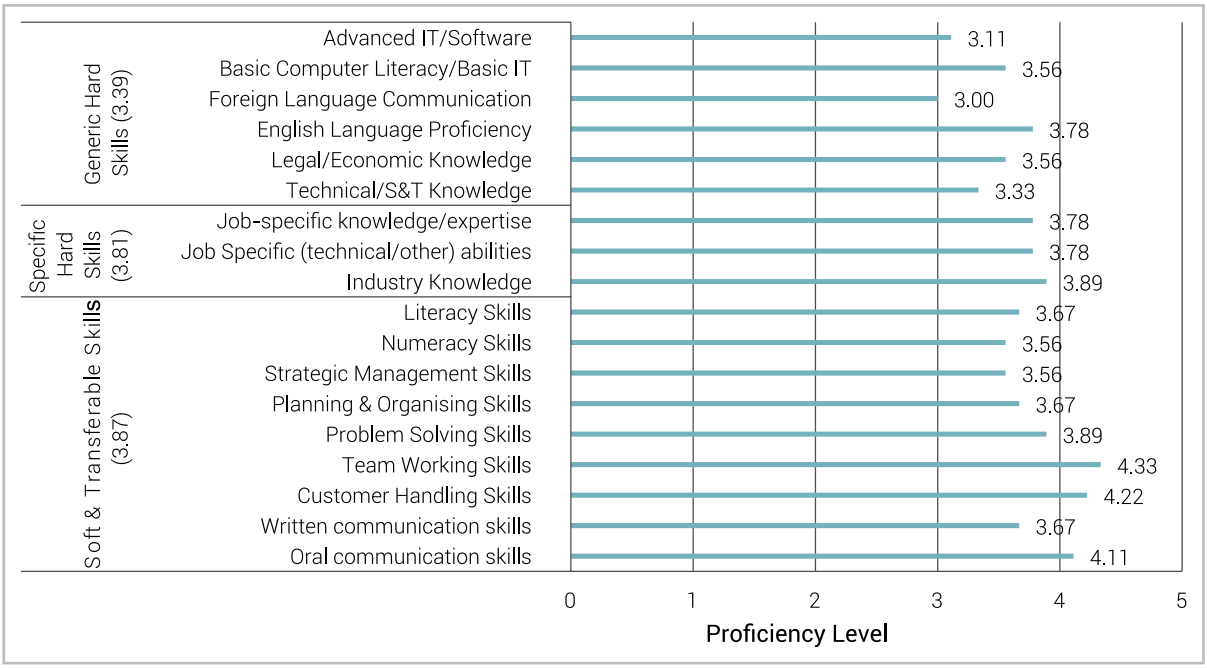
#### Skill deficiencies: Less satisfactory in generic hard than specific hard and soft skills

- Skill deficiencies are more prevalent in generic hard skills than specific hard and soft skills. Given the scale of one to five with five being highly proficient, generic hard skills score the lowest at 3.39 followed by specific skills (3.81) and soft skills (3.87).
- Among the generic hard skills, foreign language communication and advanced IT literacy are less satisfactory compared with English language proficiency, basic IT and economic knowledge.
- All specific hard skills seem to be sufficient for the needs of employers with industry knowledge being rated as the highest, scoring at 3.89 while job-specific knowledge and technical abilities are rated at 3.78 by employers.
- Within the categories of soft skills, employers rate their employees beyond proficiency in teamwork, customer-handling and oral communication skills.

#### Positions where skills need the most improvement – managerial positions

- Skill deficiencies are more evident in managerial positions. Managers in general are required to enhance their knowledge in hospitality management skills, training, planning and problem-solving skills; about 70% of current employees are fully skilled. Specifically, human resource managers need to improve on problem-solving and communication skills; Food and beverages (F&B) managers have to enhance leadership and communication skills; and sales managers need to upgrade their persuasive communication skills. Two main reasons for the low levels of proficiency: lack of experience/ new to the company or business operation; and employees are not sufficiently motivated.

**Figure 8.14: The skills proficiency level of current high-qualified employees by types of skills**




Note: 1=Very low proficiency; 2=Low proficiency; 3=Satisfactory; 4=Proficient; 5=High proficiency
Source: Employer survey

### 8.3.5 Moving forward: Future skill requirements

**Acquiring new skills due to newly emerging tasks**

- A majority of firms indicate that employees should expect new tasks in the next 12 months due to "the development of new product and services" and "new technologies and equipment". Room reservation procedures may undergo upgrading process that will elevate operation efficiency. New promotional packages for room reservation may change over time and hotel employees are required to learn new policies.

**Ability to meet future needs – hard and soft skills**

- Soft and hard skills are the prospective skills needed in the future. Hospitality service providers project that prospective skills are able to meet future needs, which include hard skills (English, mobile reservation skills, IT skills, international standard services and technical skills) and soft skills (marketing skills, creativity, leadership and customer-handling skills). Besides that, jobs in high demand in the next two years include **Managers, Chefs and Technicians**.

## 8.4 Medical tourism

### 8.4.1 Industry overview

**The most promising services industry in Penang**

- Penang has emerged as the key medical destination in the region for decades. Despite the fact that it has about 10 private hospitals, it attracts nearly 80% of the total medical tourism in the country with Indonesians dominating the highest number of medical tourists, followed by Japanese, Britons, Americans and Australians.
- Penang tops the list in medical tourism as it has a complete eco-system in place: excellent hospitals, an end-to-end service and an active medical tourism association.[65]
- In addition, several expansion plans have been lined up. Sunway Medical Centre has announced plans to expand two new hospitals in Penang within the next five years from 2017.[66] Besides, a Syariah-compliant hospital is expected to be in operations by early 2020 in Bayan Baru. The Penang Islamic Hospital will cost RM280 million, and will be operated

[65] The Business Year (TBY, 2017). *Healthy Destination*. VIP Interview with CEO of Malaysia Healthcare Travel Council, Health and Education. Retrieved from https://www.thebusinessyear.com/malaysia-2017/healthy-destination/vip-interview
[66] The Star Online (2017, June 14). *Sunway to inject up to RM1billion healthcare business*. Business News. Retrieved from http://www.thestar.com.my/business/business-news/2017/06/14/sunway-to-inject-up-to-rm1bil-into-healthcare-business/

by the An-Nur Specialist Hospital in Selangor.

- Furthermore, Penang aims to reinforce its position as a medical city. Island Hospital has invested in an Island Medical City project worth RM2 billion in which it will expand its current bed capacity by double, thus making it the first 600-bed private hospital in Penang. The project is expected to take five years to complete and will create approximately 2,000 job opportunities for locals in addition to attracting local medical practitioners back to Penang to set up long-term practices.

#### Industry composition and nature of operations

To date, there are 11 hospitals in Penang. These include Adventist Hospital, Gleneagles, Island Hospital, Loh Guan Lye Specialist Centre, and among others Infokinetics. Most of these hospitals are private healthcare and clinical outsourcing. Operational activities may include clinical and non-clinical, healthcare and education (teaching hospital).

### 8.4.2 High-qualified labour demand

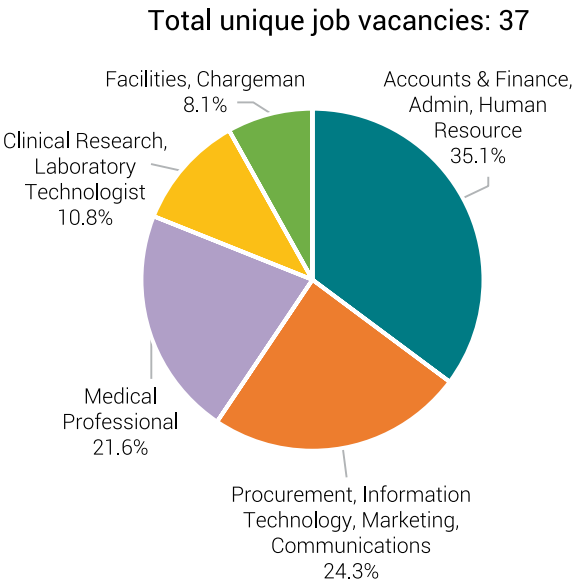
This industry has the least number of job openings across the services sub-industries. Out of 37 job openings, Bagan Specialist Centre has posted the largest number of job vacancies where it makes up 41.1% of the total job vacancies, followed by Island Hospital (31.1%) and Penang Adventist Hospital (6.7%).

#### Non-medical positions – key high-qualified workers needed

Recruitment in the medical tourism industry focuses mainly on non-medical positions pertaining to support services functions. These include accounts and finance, human resources, procurement, information technology and marketing, which represent nearly 60% of the total jobs advertised in this industry. Recruitment for medical professionals on the other hand constitutes nearly one-fifth of the total vacancies. These are Embryologists, Nurses, Sonographers, Optometrists and Medical Officers.

Meanwhile, clinical research and laboratory technologists are the next favourable medical-related positions advertised by hospitals in Penang. The functions involve Medical Laboratory Technologists, Clinical Research Assistant Managers and Clinical Study Coordinators.

**Figure 8.15: Major job titles advertised in medical tourism**

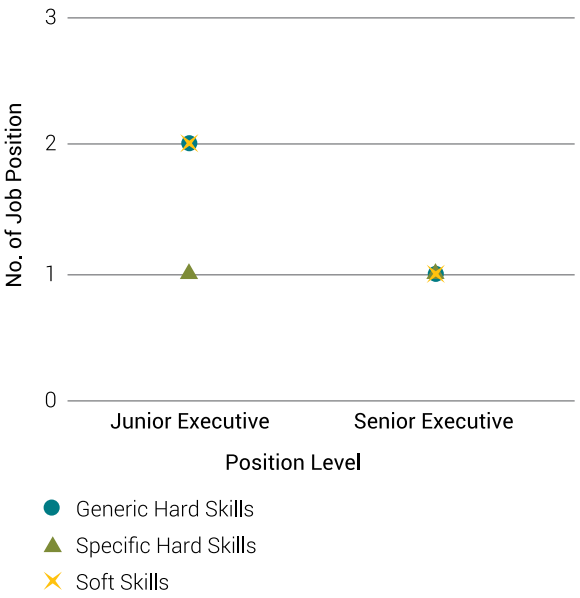



Source: Vacancy database

#### Human resources, nurses and pharmacists – high-demand vacancies

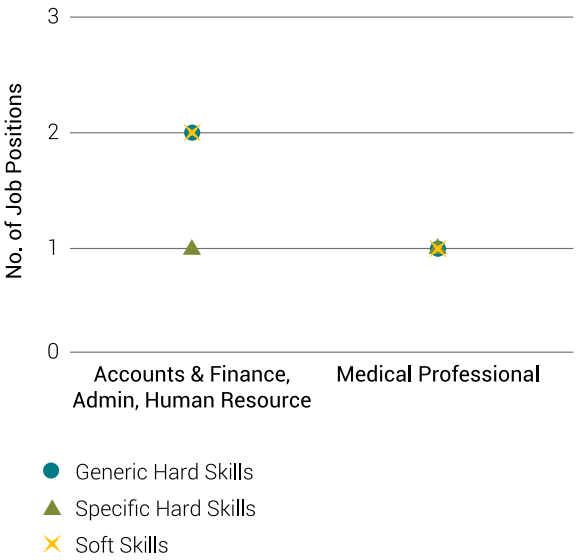
Medical tourism has the smallest number of job openings across all industries. A total of 37 job openings are advertised through job portal. Of this, only 10.8% or four positions are high in demand. These include medical and non-medical positions. Hospitals recruit medical positions (pharmacists and staff nurses) at senior level while recruitment for non-medical positions (human resources) involves junior level. Specifically, staff nurses require basic qualifications in ICU/CCU/Emergency and trauma care with at least two years of work experience. Meanwhile, candidates applying for non-medical positions must be familiar with current labour regulations in Malaysia as well as any regulations related to employment such as EPF Act, SOCSO, income tax and HRDF; must be able to communicate in Bahasa Malaysia and English, and have high tolerance for stress. These positions are posted for about two and a half months.

**Figure 8.16: High-demand jobs by types of skills and position levels**




Source: Vacancy database

**Figure 8.17: High-demand major job titles by types of skills**




Source: Vacancy database

## 8.4.3 High-qualified labour supply

### Supply characteristics

#### The supply source

- The healthcare services firms prioritise their recruitment on local high-qualified workforce throughout Malaysia. While the high-qualified workers could be sourced directly from other countries, this is more prevalent in nurses than other medical professionals where the nurses are already trained within the healthcare services firms in Penang.

#### The lowest number of job applications

- Among all services sub-sectors, this industry receives the lowest number of job applications for each job vacancy advertised in which an average number of not more than 20 job applications are obtained for each job opening. In this relation, the low number of job applications could be due to the rise of brain drain where local nurses are recruited by healthcare services in the Middle East countries due to competitive remuneration package.

### Recruitment profiles

#### Reasons for recruitment: Firm's expansion

- It is evident that job vacancies in firms are primarily attributable to the expansion of company activities. As we can observe, Adventist Hospital, Island Hospital, Loh Guan Lye Specialists Centre and Gleneagles have vastly expanded the physical facilities implying more jobs are created.

#### Other recruitment channels: Employee network and newspaper advertisements

- To speed up the recruitment process, healthcare services firms embark on various recruitment avenues. The majority of firms also use employee network, newspaper advertisements and employment agencies to source potential applicants. Newspaper advertisements are also more popular in this industry than many other industries.

## 8.4.4 Human capital issues and challenges

### Quantitative supply constraints

#### Only human resources and pharmacists take a longer duration to fill (hard-to-fill vacancies)

The recruitment challenges plaguing this industry are less severe than other industries. From the job vacancies advertised, only two are found to be hard to fill with positions being posted slightly over two months. These two hard-to-fill positions are human resources and pharmacists at junior level. Besides being registered with the Malaysian Pharmaceutical Board, applicants for pharmacist positions must possess soft skills such as good interpersonal skills, computer literacy, and purchasing and inventory management skills.

**Box 8.4: Employer survey of medical tourism: Hard-to-fill vacancies**

A job vacancy can take a varying duration to fill compared with another job vacancy. Vacancies that take the shortest time and the longest time to fill are summarised below.

- Jobs requiring the shortest time to fill: Administrative clerks, physiotherapists, dieticians and pharmacists.
- Jobs requiring the longest time to fill: Management positions and nurses.

**Hard-to-fill positions** require some knowledge of technical know-how, indicating the need for specific skills and experiences. Some of the hard-to-fill positions are related to clinical operations, nursing (operations) and sonographers. It is to be noted, the position of sonographer cuts across both junior and senior positions.

Among the key **reasons** employers are unable to fill vacant positions include stiff competition from other employers, positions are considered too specialised, and applicants have unrealistic demands and expectations. It is observed that 75% of the respondents have not succeeded in filling such positions. As a **consequence**, 75% experience increased operational cost, increased workload for other staff, delays in developing new products or services and difficulties in meeting customer service objectives.

**Conclusion:** Shortages in medical tourism hover around the high skill nature of the industry.

#### Partly prepared fresh graduates and "good" in skill integration among experienced hires

- It is understood that not all filled positions completely meet job requirements in advertisements. Lack of English language skills and poor attitude are two reasons for the dismal work performance among fresh graduates. However, this is minimal. Experienced hires on the other hand integrate their skills relatively well in the establishment.

#### Applicants' characteristics

- The less favourable behavioural traits of high-qualified employees are similar to that of employees in many industries, which include: demand for high salary, request for time flexibility and unsatisfied attitude.

### Skill gaps

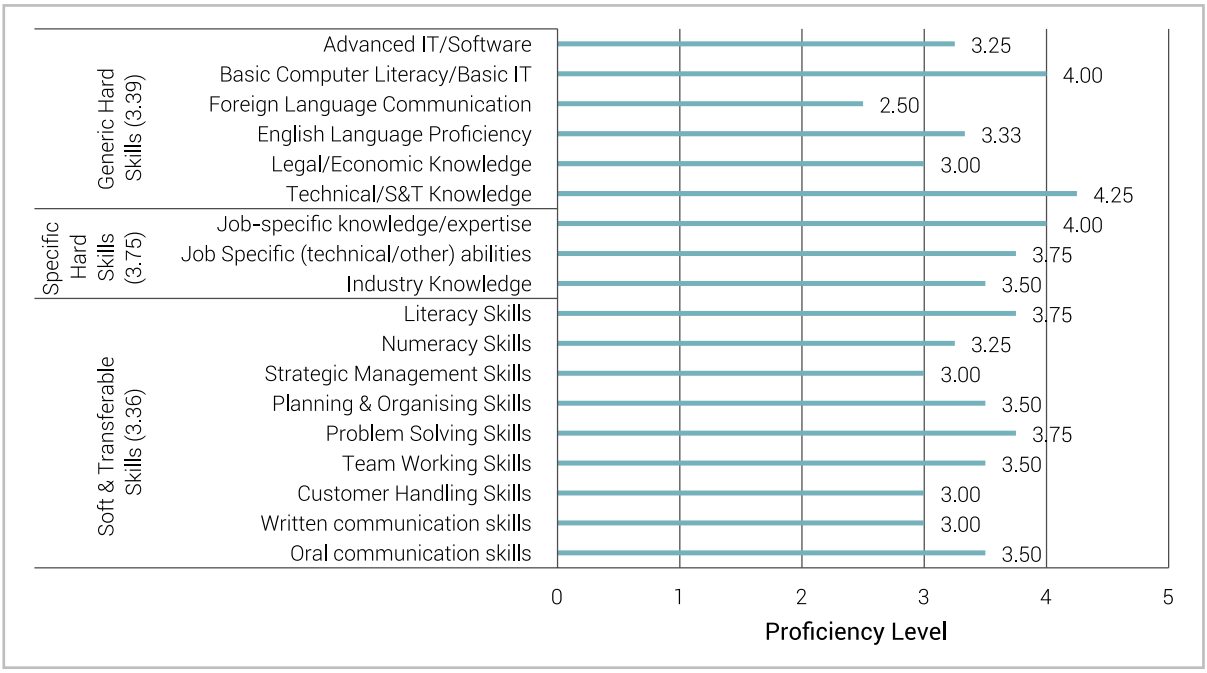
#### Skill deficiencies: Less satisfactory in generic hard skills than soft skills and specific hard skills

- Skill deficiencies are more prevalent in generic hard skills than soft and specific skills.
- All specific hard skills seem to be sufficient for the needs of employers with job-specific knowledge, scoring at a higher rate than industry knowledge.
- Among the generic hard skills, current employees should put in more effort to improve on foreign language communication, legal knowledge and advanced IT compared with basic computer literacy and technical knowledge being less problematic.
- In terms of soft skills, skill deficiencies in strategic management, customer-handling and writing skills are more prevalent than planning and organisational, problem-solving and communication skills.

#### Positions where skills need the most improvement – nurses, pharmacists and scientists

- Skill deficiencies in the medical tourism industry is in fact less prevalent than other industries. The employer survey reveals that at least 90% of current employees fully meet the ideal skill-set. This refers to nurses, pharmacists, chemists, scientists and research physicians. Nevertheless, employers state that some nurses would need to improve on soft skills, attitude and passion.

**Figure 8.18: The skills proficiency level of current high-qualified employees by types of skills**




Note: 1=Very low proficiency; 2=Low proficiency; 3=Satisfactory; 4=Proficient; 5=High proficiency
Source: Employer survey

### 8.4.5 Moving forward: Future skill requirements

**Acquiring new skills due to newly emerging tasks**

- Current employees need to acquire new skills in anticipation of newly emerging tasks in the next 12 months. Reasons for the emerging tasks are due to "the development of new products and services" and "the introduction of new technology". New pharmaceutical products and medical technology are certainly areas in which employees can acquire new skills.

**Ability to meet future needs – soft and technical skills**

- The prospective skills needed in the future concern soft and technical skills. These skills include leadership, lab testing skills and strategic management skills. Firms predict that the required needs will be met in the near future. Meanwhile, positions in high demand in the next two years include **Nurses and Clinical Operation**.

## 8.5 Information technology

### 8.5.1 Industry overview

**Key economic catalyst gearing towards digital economy**

- The Information Technology (IT or info-tech) industry is presently identified as the key economic catalyst in Malaysia. The 11th Malaysia Plan 2016–2020 has set to achieve the industry's GDP contribution of 17% by 2020, a 7% increase from the 10th Malaysia Plan 2011–2015.
- Industry 4.0 may become instrumental in shaping Penang's IT industry by bringing it to the forefront of the development of manufacturing technologies as the Internet of Things (IoT) and Big Data Analytics (BDA) stand out.
- The potential of IoT and BDA in the manufacturing sector is huge. It is forecast that by 2019, more than 40% of global devices and connections will be

contributed by machine-to-machine connections (MGI, 2016).

- The IT industry has the potential to grow global microenterprises through e-commerce (MGI, 2016). Taking note of this, Malaysia recently launched the world's first Digital Free Trade Zone (DFTZ), which will act as a clearing facility meant to boost e-commerce participation among small and medium enterprises (SMEs).
- Despite the potential and developments in this sub-sector, one major concern has been the lack of relevant local talent, particularly data scientists and programmers in relation to this subsector. The ASEAN Data Analytics Exchange (ADAX) is introduced by MDEC to address the shortage of data professionals. In addition, specific programmes are being tailored within the Malaysian education system. For example, the Penang Skills Development Centre (PSDC) has recently initiated certification programmes that aim to support companies to transition from Industry 2.0 to Industry 4.0.

#### Industry composition and nature of operations

This industry consist of four branches, which include information and communications Technology (ICT), multimedia production, advertising and graphic design, and web-hosting. The nature of business and operational activities are presented in Table 8.3.

### 8.5.2 High-qualified labour demand

Penang's IT firms post 278 job vacancies. Of this, Zebra Technologies has the largest number of job vacancies where it makes up 12.1% of the total job vacancies followed by Easibook (6.6%) and Toshiba Tec Malaysia (4.2%).

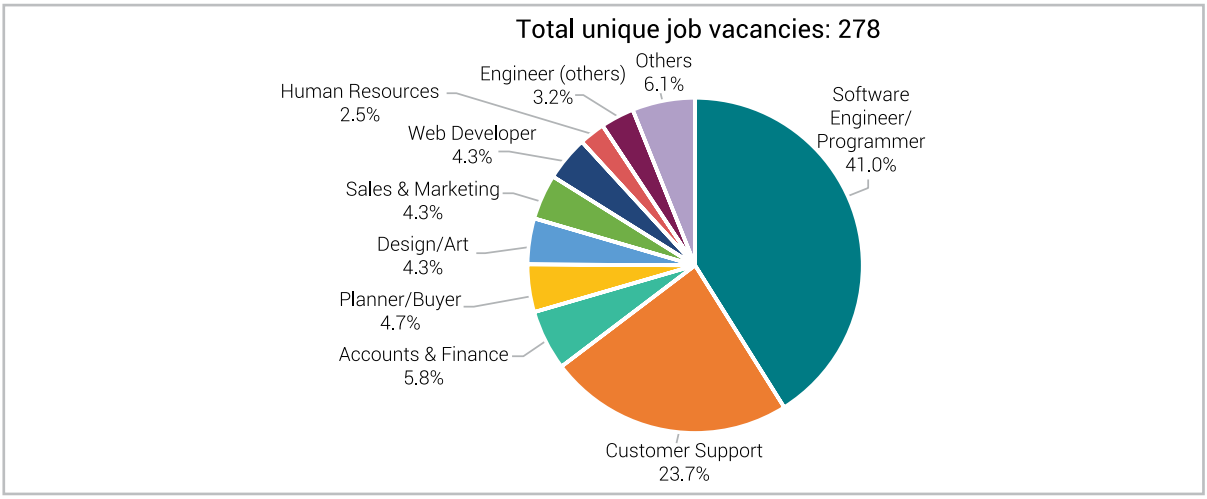
#### Software Engineers/Programmers – the key scarceness functions

IT industry is the services sub-sector that has posted the second-largest number of high-qualified job vacancies in the market after GBS. A total of 278 job vacancies have been posted from January to June 2016. Of this, software engineers/programmers constitute 41% followed by customer support (23.7%), and accounts and finance (5.8%). This vacancy composition also reflects the scarcity of skilled labour in the core IT-related functions whereas the recruitment for non-IT-related functions, which are related to business support services (accounts and finance, buyers, human resources, sales and marketing) are comparatively much smaller than core IT functions.

**Table 8.3 Description of sub-industries of information technology**

| Sub-industry | Key industry players | Business activities | Operational activities |
|---|---|---|---|
| 1. Information and Communications Technology (ICT) | Piktochart, Brightree Solutions, Weaver Orb, Green Room, MCSB Systems (PG) | Template service, Infographic software services, IT outsourcing, E-commerce software provider, Web & mobile apps | SAP consulting, Engineering, HTML-publishing, Training, Outsourcing, Software support, R&D Operation and support service, Programming apps |
| 2. Multimedia Production | Image Farm Production, Akeetoons, Soundmaker Studio, Kakitoon Animation | Corporate video | Video editing, Video directing, administration |
| 3. Advertising, Graphic Design, Media/Design | Emanon, J Print Studio, Shinaji, Aeiou Studio, Go Graphics, IS Eleven | Graphic design, Web design, Event management, Advertising, Branding, Design & printing | Graphic design, Web design, Service, Event management |
| 4. Web-hosting & Other web-related services | SiteGiant, Rapidcloud (M), Eko Solution, Exabytes Networks, Operion | E-commerce platform (online shopping; connect to market access) | R&D activities |

## Figure 8.19: Major job titles advertised in information technology

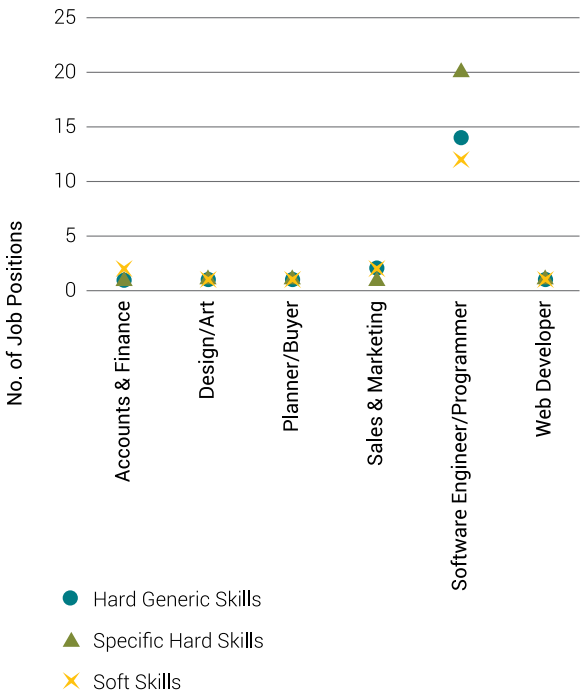



Source: Vacancy database

## Figure 8.20: High-demand jobs by types of skills and position levels

Source: Vacancy database

## Figure 8.21: High-demand jobs by types of skills and major job titles




Source: Vacancy database

As the second largest number of job openings in the services sub-sector, digital industry focuses on recruitment of junior high-qualified employees. Out of the 278 high-demand job openings, nearly 15% of the advertised vacancies are frequently posted by info-tech companies. The characteristics of these high-demand vacancies are illustrated below.

Position level: Entry-level and junior executives

- Over half of the high-demand job vacancies search for entry level and junior executive positions.
- A majority of these positions require no less than two years of work experience.

Soft skills: Achievement skills

- Nearly 57% of the high-demand positions require achievement skills.
- Similarly, soft skills are equally important as the position level goes higher.
- Candidates who are self-motivated, proactive and result-oriented are more likely to be considered for software programmers, technical support, accounts and finance, planners and buyers, and sales and marketing.

Educational level: Bachelor's degree for all positions except technical support

- The IT industry mainly focuses on recruiting candidates with Bachelor's degree except technical support.
- Computer Science and Information Technology are the typical educational qualifications required.
- Some job vacancies do not state the education required but emphasise more on relevant work experience.

Highly sought-after skills: Specific hard skills

- For high-demand vacancies, 78.6% require specific hard skills especially at entry-level and junior executive positions (Figure 8.20).
- For example, software engineers/programmers require more specific skills than the rest of the job functions. These skills include knowledge in programming language such as C#, Java Script, WebLogic and mobile operating systems such as Android and Windows CE etc.

Generic hard skills: Non-English languages are as important

- Although English language is a must-have skill across IT positions, fluency in Bahasa Malaysia and Mandarin is also important. These requirements are more evident in smaller local firms and MNCs.
- Nearly 60% of the high-demand vacancies prefer candidates who are able to communicate in Bahasa Malaysia and Mandarin.
- Meanwhile, few technical support positions require candidates who can speak Thai and Korean.

Average length of job postings: Exceeding two months

- The IT industry takes the second-longest time to fill high-demand vacant positions after GBS.
- While the industry itself advertises an average of 2.4 periods – slightly more than one month to fill the vacancies, the high-demand job postings can stay longer than two months.
- A few specific software developer positions take as long as four months.

### 8.5.3 High-qualified labour supply

## Supply characteristics

The supply source

- IT firms recruit experienced and inexperienced hires through various sources of supply. For junior executive vacancies, inexperienced hires are primarily drawn from Penang talent pool, followed by talent from other parts of Malaysia. For senior executive positions, the majority of firms consider applicants from other states in Malaysia as well as abroad, if firms have sufficient resources.

Abundance of job applications

- On average, the majority of firms obtain over 100 job applicants for each job opening. Nevertheless, some prominent IT firms receive an average of over 200 job applicants. This result is consistent with JobStreet.com analysis, where the average number of job applications for computer and IT is 122 in Malaysia.

## Recruitment profiles

Reasons for recruitment: Firm's expansion

- Company expansion turns out to be the main reason for the recruitment in most IT companies. Only a small number of them recruit new employees due to replacement of employees who have left the company. This implies that the job market in IT industry is relatively volatile.

Other recruitment channels: Employee network

- Similar to other firms, the majority of the firms embark on employee network as an alternative

avenue to recruit high-qualified employees. Some firms incentivise employees to disseminate information pertaining to available job vacancies. This could help employers to reduce the time taken for recruitment, and at times, the best candidates can be gathered through this channel.

### 8.5.4 Human capital issues and challenges

#### Quantitative supply constraints

A total of 12% hard-to-fill vacancies have been reported from the IT industry. On average, the persistent vacancies have taken about 5.5 periods – equivalent to more than two months. The detailed characteristics of hard-to-fill high-qualified positions are presented as follows.

**Position level: Junior executives**

- Recruitment is highly dispersed at junior positions and the majority of them are advertised by small companies with a headcount of no less than 50.
- Likewise, candidates with less than two years work experience are preferable.

**Technical support takes a longer time to fill than others**

- About 15% of the vacant positions in technical support and software developers have taken more than two months to fill.
- C# and ASP.Net Developer are advertised for three consecutive months while .Net Software Engineer takes about 4.5 consecutive months.

**Most affected skills: Specific skills**

- Due to the advent of digital technology, some skill requirements are rather job-specific. The skills could be new in the workforce, and expertise could be lacking given the stiff competition.
- Among the persistent positions, 76.5% ask for requirement in specific skills followed by soft skills (73.5%) and generic hard skills (67.6%).

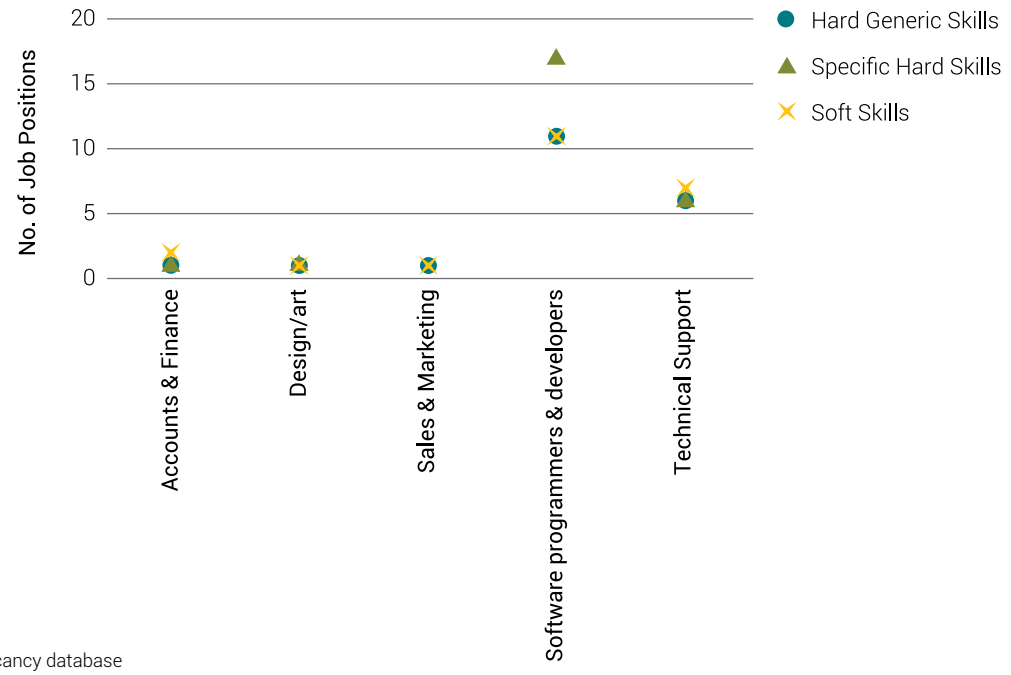
**Foreign language is the hard-to-fill hard skills**

- About 56% of the hard-to-fill vacancies require good command of foreign languages.
- In the IT industry, positions in technical support and software programmer look for English proficiency along with other languages such as Mandarin and Thai.

**Partly prepared inexperienced hires, and "good" skill integration among experienced hires**

- From the employer survey, not all advertised positions that have been successfully filled fully meet job requirements in advertisements. Specifically, fresh graduates are partly prepared for the offered positions. Lack of hard and soft skills are the reasons for this.

**Figure 8.22: Persistent vacancies by types of skills and major job titles**




Source: Vacancy database

- As for the integration of experienced hires in the establishments, most firms are satisfied with the skills brought by the experienced hires.

## Skill gaps

### Skill deficiencies: Less satisfactory in soft skills than hard skills

- Skills proficiency rate above average across all types of skills. Within the industry, skill deficiencies relatively concern soft skills rather than hard skills.
- All specific hard skills seem to be sufficient for the needs of employers who are more on job-specific knowledge and technical abilities than industry knowledge.
- Among the generic hard skills, it is reasonable to find basic computer literacy and advanced IT/ software skills outperform in this industry. Skill deficiencies are more prevalent in economic knowledge and English language proficiency.
- Within the categories of soft skills, team working skills have outperformed written and oral communication skills and customer-handling skills.

### Positions where skills need the most improvement – software programmers

- Skill deficiencies are evident in software programmers. Employees are required to be alert to new technologies and be proactive to learn new programming skills such as JavaScript, ruby on rails, Angular2, web programming, etc. They also need to improve on project management and communications skills.
- Two main reasons for the low levels of proficiency: first, proficient and experienced employees leave for other companies; second, rapid technological changes, making it difficult to keep pace.

### Applicants' characteristics

- The less positive traits of high-qualified employees include: high salary expectations, lack of passion, insufficient practical and industry knowledge, and undesirable attitude.

## 8.5.5 Moving forward: Future skill requirements

### Acquiring new skills due to newly emerging tasks

- Current employees need to acquire new skills in anticipation of newly emerging tasks in the next 12 months. There are several reasons entailing the emerging tasks. This is mainly attributable to the "introduction of new technologies", followed by the "development of new products and services". This is sensible in this industry as digital technologies keep evolving and new products and services are expected to emerge within a short time.

**Box 8.5: Employer survey of IT industry: Hard-to-fill vacancies**

Only a small proportion of respondents has found the different **time length taken** to fill a vacancy.

- Jobs requiring the least time to fill: Sales and marketing, programmers and technical support.
- Jobs requiring the longest time to fill: Programmers, designers and UI developers or designers.

Most **hard-to-fill** positions require a certain extent of technical expertise or skill specificities. Vacancies for programmers and web designers cut across both junior and senior positions.

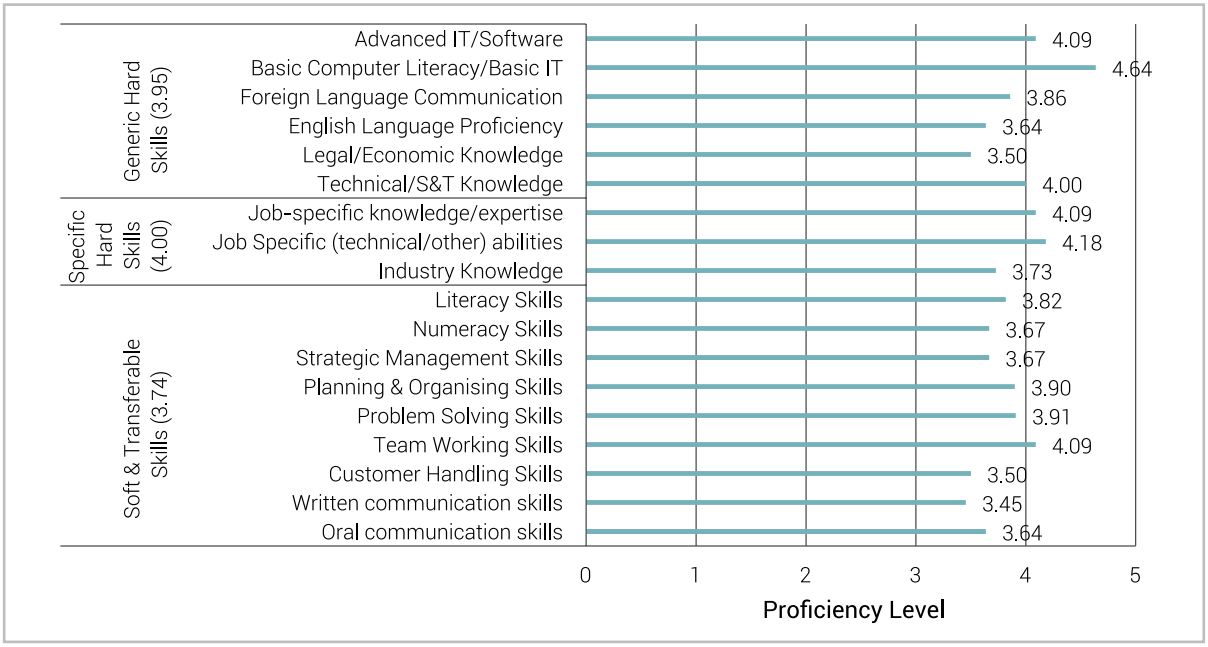
Over half of the respondents have been successful in filling the vacant positions. For those who do not succeed, they have cited lack of applicants due to stiff competition from other employers and lack of experience as the key **reasons** among others. **Consequently**, difficulties in labour recruitment lead to increased workload for other staff, difficulties in meeting quality standards, as well as the need to outsource workload.

**Conclusion:** The shortage of IT-related positions is prevalent where programmers and web designers cut across both junior and senior positions.

### Ability to meet future needs – soft and specific hard skills

- The prospective skills needed in the future concentrate on specific hard skills and soft skills. Specific hard skills include cloud technology, industry know-how, web technologies, SAP-cloud ERP system, Angular2, data analytics, market awareness and new releases from Google on Android platform. Soft skills include learning, adaptability and communication skills. Employers predict that the requirements will be met except Ruby on Rails. Furthermore, the positions in high demand in the next two years include Data Scientists, Data Analysts, Web and Mobile Designers.

**Figure 8.23 The skills proficiency level of current high-qualified employees by types of skills**




Note: 1=Very low proficiency; 2=Low proficiency; 3=Satisfactory; 4=Proficient; 5=High proficiency
Source: Employer survey

## 8.6 Transport and logistics

### 8.6.1 Industry overview

#### Unwavering growth driver coupled with challenges

- The transport and logistics industry is an unwavering economic growth driver in Penang. It is a backbone for trade stimulation and business efficiency facilitation. In 2016, Penang Port recorded a 6.8% growth in gross registered tonnage while Penang International Airport saw a 0.1% growth in handled cargo – a huge improvement given the negative growth rate of 7.7% in 2015. Penang Port is fully equipped to handle all types of cargo such as containers, liquid, dry bulk, break bulk, and other goods and operates various terminals and facilities. In that respect, Penang Port remains an important gateway for logistics, handling 6% of total cargo in 2016.
- Despite its "limited channel depth and wharf length, inefficient cranes and limited direct sea connectivity", Penang Port should take advantage of its proximity to Indonesia and Thailand to gain access to raw materials and finished products.
- According to the 11th Malaysia Plan 2016–2020, the shortage of skilled human capital covers supply chain network design, sophisticated crane operations, and supply chain network design.[67]

#### Industry composition and nature of operations

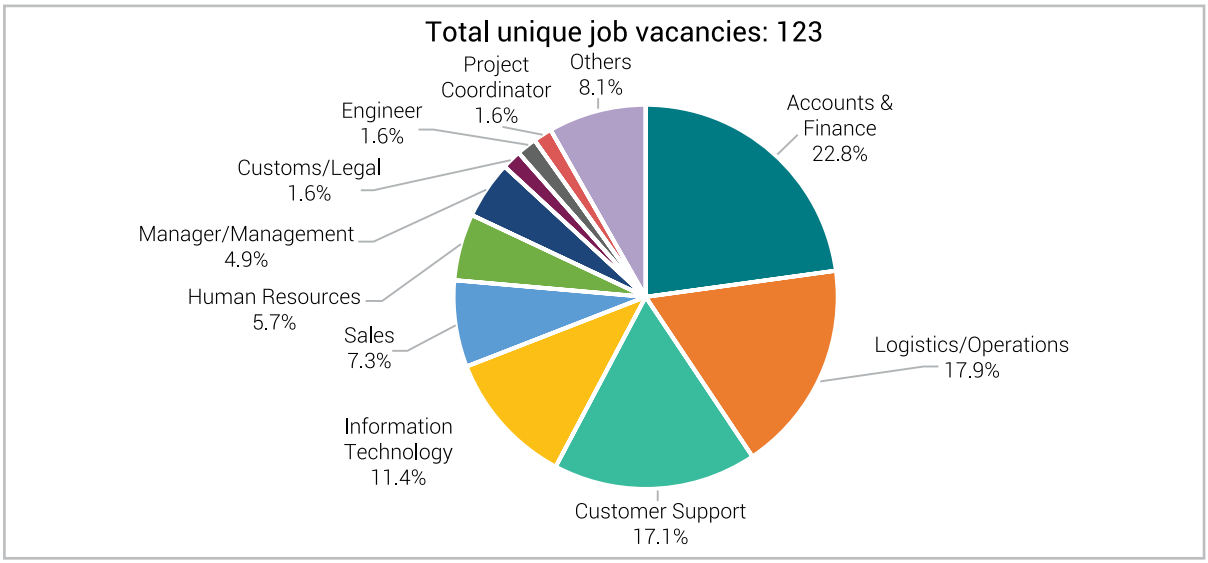
Some of the key industry players in this industry are Era Baru Business Systems, Citylink Express, Schenker Logistics, and TAS Shipping & Transport. These firms constitute courier services, logistics and supply chain management. Their operational activities may include but not limited to, warehousing, freight forwarding, business development and shipping.

### 8.6.2 High-qualified labour demand

A total of 123 vacant positions have been advertised in Penang. Of this, Penang Port has advertised the highest number of job vacancies in Penang, accounting for 7.1% of the total job vacancies in this industry followed by DHL Express (6.8%), Kerry Logistics (6.8%), YCH DistriPark (5.3%) and Agility Logistics (4.9%).

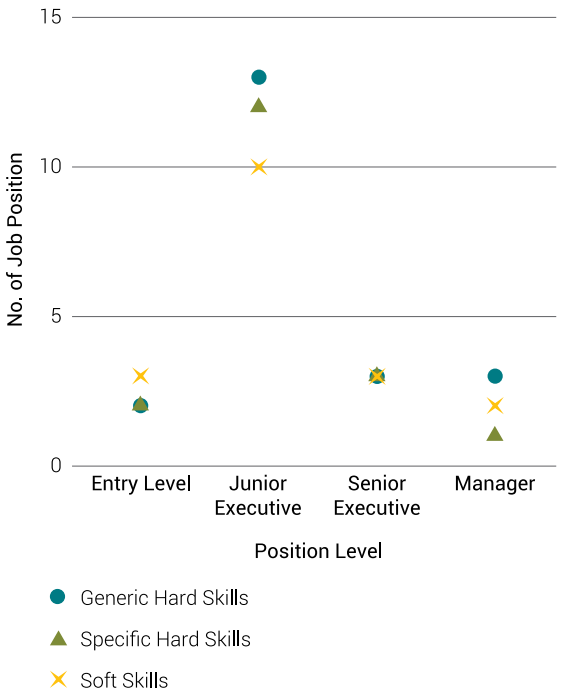
[67] Economic Planning Unit (EPU, 2015). Unleashing Growth of Logistics and Enhancing Trade Facilitation. Eleventh Malaysia Plan 2016–2020: Strategy Paper 14. Kuala Lumpur/Putrajaya: Prime Minister's Department.

## Figure 8.24: Major job titles advertised in transport and logistics



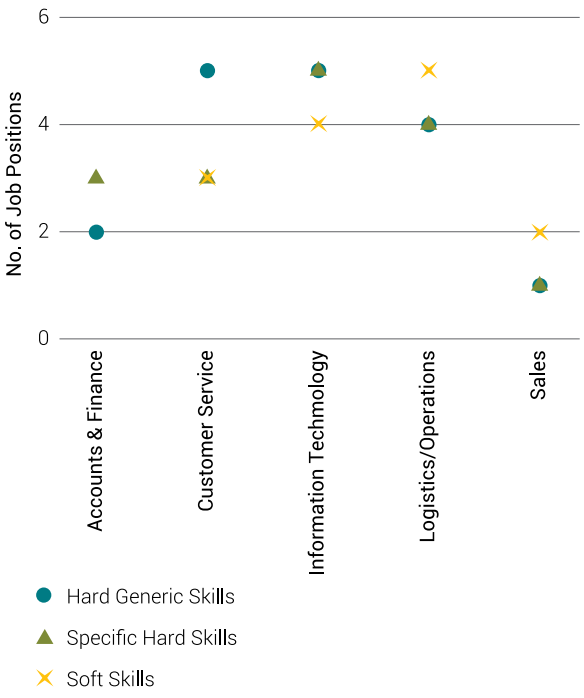

Source: Vacancy database

## Figure 8.25: High-demand job positions by types of skills and position levels




Source: Vacancy database

## Figure 8.26: High-demand job positions by types of skills and major job titles




Source: Vacancy database

Logistics/Operations – the core recruiting functions after accounts and finance

Similar to the recruitment in medical tourism, accounts and finance turn out to be the largest vacancies advertised in the transport and logistics industry. Logistics and related operations functions follow suit. These functions are shipping executives, logistics specialists and airfreight forwarding export operation executives, to name a few. Accounts and finance represents 23% of the total high-qualified positions posted in this industry. This is then followed by logistics/operations (17.9%), customer support (17.1%) and information technology (11.4%).

Customer relations and logistics – highly in demand positions

About 20% of positions are high-demand. Recruitment is largely scattered at junior positions, which account for 60% of the total high-demand vacancies. These positions include customer relations, logistics and operations where the majority of them require a minimum of two years of work experience.

Unlike the vacancies in other industries, this industry requires generic hard skills more than soft and specific skills where English language proficiency is a prerequisite. About 58.3% of the high-demand vacancies demand a good command of English along with half requiring their prospective hires to be able to speak other languages such as Bahasa Malaysia and Mandarin. Besides, basic IT skills such as computer literacy in MS Word, MS PowerPoint and MS Excel are also required. The needed generic skills cut across all levels with junior positions and managers requiring more.

In terms of soft skills, relationship and service skills have the greatest importance. Excellent interpersonal skills, customer-oriented and the ability to articulate are critical soft skills required in this industry. Personal effectiveness skills are also as important as the ability to work under pressure and under tight deadlines. A positive personality and approachable attitude are vital prerequisites for a customer service coordinator in this industry.

Although customer relations positions highly demand skill requirements, on average, they do not take as long to fill as positions in logistics, operations and IT. Specifically, the former position has posted about 1.5 months on the job portal compared with 2.5 months for operation officers and 3.5 months for system architect.

### 8.6.3 High-qualified labour supply

## Supply characteristics

The supply source

- Transport and logistics companies recruit primarily workers from Penang and to some extent, also source workers from other parts of Malaysia. Recruitment in this industry largely focuses on a lower segment of high-qualified workers where a substantial number of job vacancies can be filled within the shortest time compared with other industries. This segment of workers may come without work experience.

Moderate number of job applications

- The transport and logistics firms obtain about 60 job applications for each job opening. While the number of job applications can be smaller than many other industries, the possibility of being hired is higher than other industries. Less specific skill requirements can also be attributed to this compared with skill requirements in the upper segment of high-qualified job vacancies.

## Recruitment profiles

Reasons for recruitment: Replacement of employees

- In general, this industry relatively experiences stable growth where workers are recruited as a result of employees leaving the companies. There is little evidence to deduce that the purpose of recruitment is due to the expansion of existing companies or the arrival of new companies. To our best knowledge, Kerry Logistics Network is by far the only new logistics company landed in the region. However, this has not been raised as a major concern for skill shortages.

Other recruitment channels: Online advertisement and banners

- Transport and logistics firms engage in different ways of advertising job vacancies Apart from using online advertisement, they also advertise job vacancies using banners and boards. But this method is often used by companies to recruit the junior segment of high-qualified workers.

## 8.6.4 Human capital issues and challenges

### Quantitative supply constraints

**A mix of logistics and non-logistics related positions take a longer duration to fill (hard-to-fill vacancies)**

In this industry, recruitment difficulties are less severe than other industries. According to the job advertisements posted, only five vacancies are found to be hard to fill with postings at slightly over two months. These vacant positions are customer service, operation executives, human resources managers, inventory assistants and system architects, which are advertised for about 5.6 periods, equivalent to nearly three months. Similar to the positions in ICT industry, IT-related positions have taken a longer time to fill compared with non-IT-related positions. In this industry, for instance, system architects, take about 3.5 months to fill. Apart from understanding the legislative and regulatory requirement for import/export operational (air/sea) and custom-related matters, operation executives must also be able to work independently with minimum supervision, have good analytical skills, and able to work well under pressure to meet tight deadlines.

**Box 8.6 Employer survey for transport and logistics: Hard-to-fill vacancies**

Interestingly, only 25% of employers opine that there are differences between specific functions in terms of **length of time taken** to fill a vacancy.

- Jobs requiring the least time to fill: Non-executives
- Jobs requiring the longest time to fill: Executives and above

As for **hard-to-fill positions**, this industry appears to face difficulty filling the position of senior operations. Failure to fill vacant positions has resulted in the increase of workload for other staff, difficulties in meeting quality standards, increased operating cost, delay in developing new products or services, difficulties in introducing technological changes, as well as difficulties in meeting customer services objectives.

**Conclusion:** Vacancies in this industry centre around junior positions. But the shortage is not as severe as other industries.

**Partly prepared inexperienced hires, and "good" skill integration among experienced hires**

- A majority of the inexperienced hires are partly prepared for the offered positions. However, firms opine that candidates need to upgrade their English language skills. Furthermore, most of the experienced hires are "good" in integrating their previous work experience with the tasks assigned by current employees.

### Skill gaps

**Skill deficiencies: Less satisfactory in generic hard than specific hard and soft skills**

- Skill deficiencies are more prevalent in generic hard skills than specific hard and soft skills. Deficiency in written and oral communication skills are more evident than other soft skills, and economic and English language are more deficient than basic and advanced computer skills. These skills need the most improvement.

**Positions where skills need the most improvement – customer service and operation management**

- Skill deficiencies are more evident in customer service and operational management positions. Warehouse management skills, ability to "read customers' needs", people and IT skills need the most improvement.
- Main reasons for low levels of proficiency: proficient and experienced employees leave for other companies; lack of experience/new to the company; and rapid technological changes, making it difficult to keep pace.
- Skill deficiencies can potentially lower firms' productivity, making it difficult to upgrade business operations and diversify into new products and services.
- The less positive traits of prospective applicants include: unprepared for job interviews with no due diligence done on the company.

## 8.6.5 Moving forward: Future skill requirements

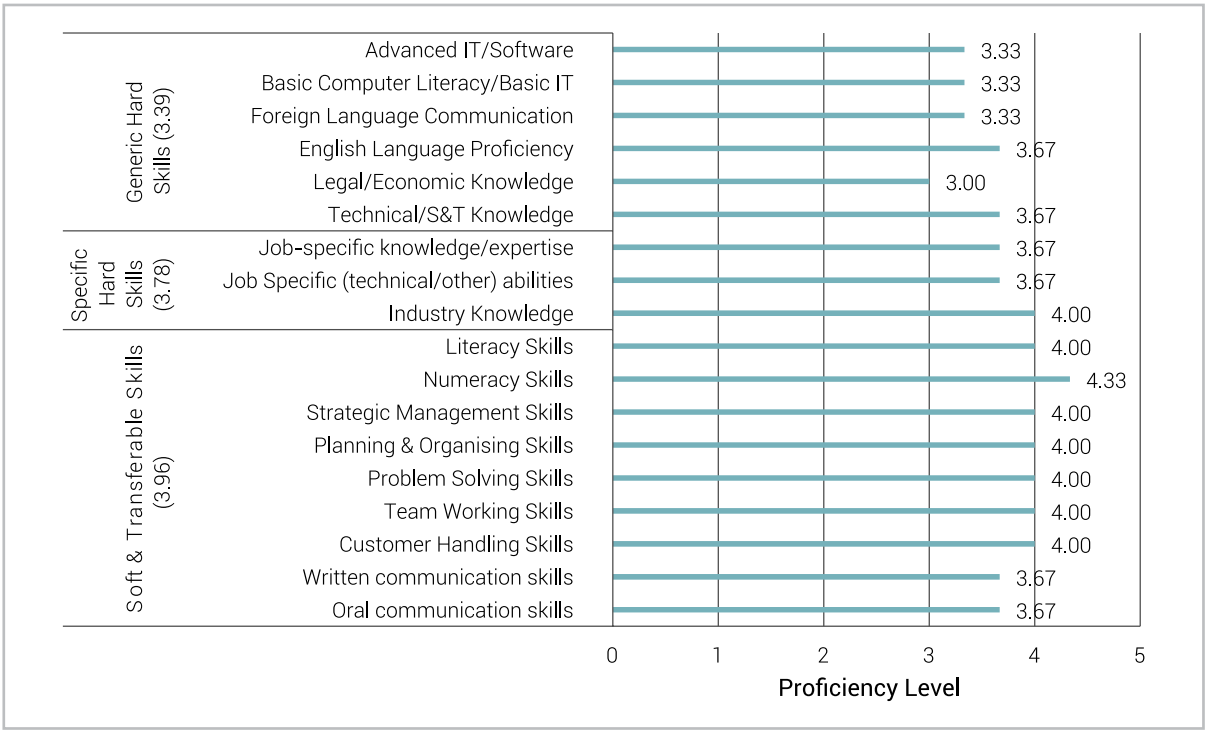
**Acquiring new skills due to newly emerging tasks**

- Among the new skills to be acquired in the next 12 months may include digital technological advances that smoothen service deliverables, and new rules and regulations introduced by customs.

**Ability to meet future needs – selected soft and specific hard skills**

- The prospective skills needed in the near future include soft and specific skills. Soft skills cover communication and performance management skills whereas specific hard skills include IT skills, SCM and logistics, and time management skills.

**Figure 8.27: The skills proficiency level of current high-qualified employees by types of skills**




Note: 1=Very low proficiency; 2=Low proficiency; 3=Satisfactory; 4=Proficient; 5=High proficiency
Source: Employer survey

Most firms believe that their employees can meet these skill requirements in the near future. Furthermore, positions that are in high demand in the next two years include Supervisors and Senior Operations.

## 8.7 Education and training services

### 8.7.1 Industry overview

**A stable services industry with state promotion initiative**

- Given that Penang is the second smallest state in Malaysia, it is home to many private and public educational institutions. As of 2016, it has 381 public schools, 11 international schools ranging from pre-school to secondary level, two public universities – Universiti Sains Malaysia (USM) and Universiti Teknologi MARA (UiTM) Pulau Pinang, six community colleges, three polytechnics, two teachers' training colleges and 34 private higher educational and training institutions.
- Public universities produce a total of 8,415 graduates in 2015, which is equivalent to 6.87% of total graduates from public universities in Malaysia. As high as 33.4% of the graduates in Penang are from engineering, manufacturing and construction fields.
- Given the ample opportunities for employment in hospitals, hotels and multinational manufacturing companies, Penang Centre of Education Tourism (PCET) plays a pivotal role to promote Penang as a centre of education excellence with world-class facilities as well as increase awareness and recognition in the education industry.

**Industry composition and nature of operations**

The industry is made up of public and private institutions of higher learning, private corporate and skills training providers. Examples of key industry players include Wawasan Open University, The Coding Shophouse, Penang Japanese School, Pelita International School and Dream Catcher Consulting. Operational activities include training services, distance learning, consultancy as well as facilitate learning or educational activities.

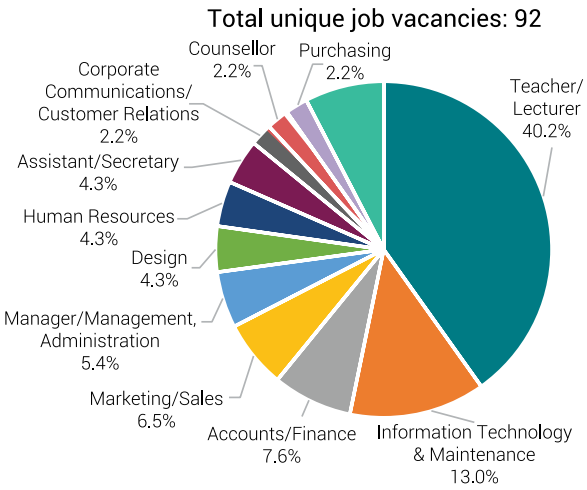
## 8.7.2 High-qualified labour demand

The education and training services industry has the second-smallest number of job vacancies among manufacturing and services industries. This industry has posted a total of 92 job openings in the first six months of 2016. Of this, SG Straits International Education has the highest number of job vacancies in Penang, constituting 15.2% of total high-qualified job vacancies followed by KDU University College (10.9%) and Disted Pulau Pinang (8.7%).

### Teachers/lecturers – the core functions lacking in the education and training industry

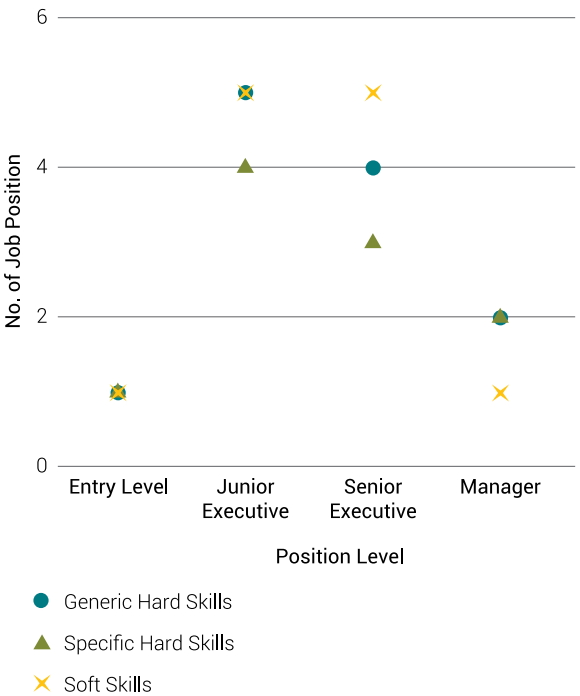
The recruitment for teachers/lecturers is relatively higher than the hiring of other job functions. This also means that this industry lacks teachers/lecturers in the areas of business studies, accounting, web design and creative media development, fashion design and public health medicine, to name a few. As can be seen from Figure 8.28, teachers/lecturers form 40.2% followed by information technology and maintenance (13.0%), accounts and finance (7.6%), sales and marketing (6.5%) and management (5.4%).

**Figure 8.28: Major job titles advertised in education and training services**




Source: Vacancy database

**Figure 8.29: High-demand job positions by types of skills and position levels**




Source: Vacancy database

**Figure 8.30: High-demand job positions by types of skills and major job titles**

Source: Vacancy database

#### Academic-related positions – high in demand

Given a total of 15 high-demand vacant positions, a majority of them stand at junior and senior executive positons. Higher educational institutions and private schools each make up 40% of the high-demand job vacancies. On average, these vacancies have been posted for about 4.7 periods, which is equivalent to over two months. The majority of the positions are academic-related, which include music teachers, lecturers in public health medicine, head of mathematics and lecturers/senior lecturers in general. Other high-demand vacancies are related to marketing and education advisory.

For academic positions, candidates are expected to deliver practical-oriented topics and be a team player, good communicator and computer literate with the highest educational attainment of at least a Bachelor's degree and preferably well-versed in English and conversational Bahasa Malaysia.

With reference to non-academic positions, candidates for marketing positions can possess any degree qualifications but must have the ability to plan, market and execute events, branding and promotional activities.

### 8.7.3 High-qualified labour supply

## Supply characteristics

#### The supply source

- The academic and non-academic-related recruitment is sourced from all states in Malaysia. Candidates must be willing to work in Penang, with or without work experience depending on job categories. Institutions of higher learning have a greater range of labour supply in non-academic positions such as sales and marketing, corporate communications and IT, but it is not the case for academic-related positions. Non-academic vacancies can be filled by drawing the supply from other industries that require similar job experience.

#### A modest number of job applications

- On average, a majority of the institutions have obtained about 50 job applications per vacant position. However, the majority of applications do not meet the criteria. It is practical for institutions of higher learning to have some strict criteria for the advertised vacancies as the quality of academic persons is a determinant in the quality of skill supply.

## Recruitment profiles

#### Reasons for recruitment: Replacement of employees

- It is reported that job openings are mainly attributed to the replacement of employees who have left the company. This means that employed teachers or lecturers may have left their employment for better remuneration package offered by another institution of higher learning, resulting in employers looking to fill the gaps.

#### Other recruitment channels: Employee network and newspaper advertisements

- Apart from using JobStreet.com as a hiring platform, the majority of firms use employee network and newspaper advertisements to recruit high-qualified employees. Employee network through talks and conferences is an alternative avenue to recruit lecturers and teachers from the same circles of specialisations. Although newspaper advertisements are rather conventional, universities and colleges are still recruiting employees through this channel.

### 8.7.4 Human capital issues and challenges

## Quantitative supply constraints

#### Non-academic positions take a longer duration to fill (hard-to-fill vacancies)

- Only four vacancies appear to be hard to fill. Marketing executives cum education advisors are posted for seven consecutive periods, which is equivalent to 3.5 months, while geography teachers, swimming coaches and head of mathematics are advertised for about two months. Candidates for the positions must be enthusiastic, adaptable and highly committed to ensure the quality of teaching and learning is maintained. Excellent command of the English language is required.

#### Well-prepared fresh graduates, and "good" skill integration among experienced hires

- Despite the fact that it is rather difficult for successful candidates to fully fulfill the job requirements

**Box 8.7: Employer survey of education and training services: Hard-to-fill vacancies**

At 75%, the majority of respondents cite that recruitment can be different in terms of the **length of time taken** to fill a vacancy.

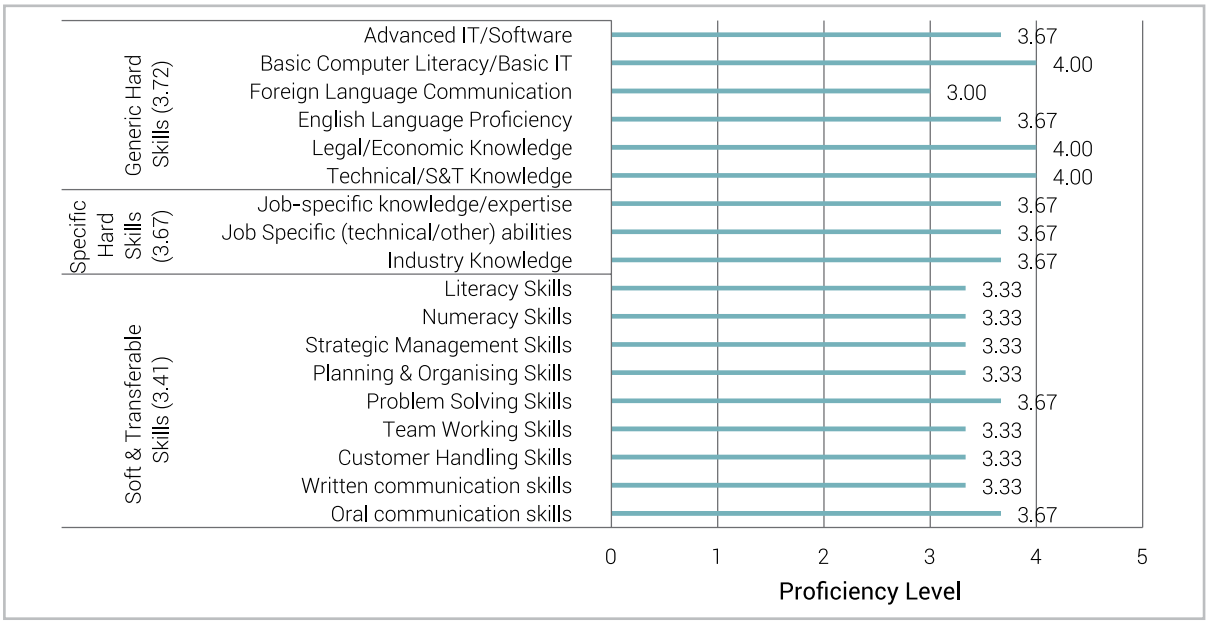
- Jobs requiring the least time to fill: Administrative positions and operations.
- Jobs requiring the longest time to fill: Academic and sales positions.

All the six **hard-to-fill positions** lean towards academic positions. They are deans, vice-chancellors, deputy vice-chancellors, professors, senior lecturers and lecturers.

As half of the employers succeed in filling all vacant positions, we do not have enough data to support the **reasoning** behind the failure to fill such highly qualified vacant positions. **Consequently**, difficulties to fill vacant positions have led to increased workload for other staff (75%), difficulties to meet standard of quality (50%) and delays in developing new products or services (25%).

**Conclusion:** Hard-to-fill vacancies are dispersed at academic related positions.

## Figure 8.31: The skills proficiency level of current high-qualified employees by types of skills




Note: 1=Very low proficiency; 2=Low proficiency; 3=Satisfactory; 4=Proficient; 5=High proficiency
Source: Employer survey

stipulated in advertisements, the majority of employers believe that fresh graduates are relatively well-prepared for the academic and non-academic-related positions. Likewise, a large proportion of training and services providers are satisfied with the skills brought by the experienced hires.

## Skill gaps

### Skill deficiencies: Less satisfactory in soft skills than hard skills

- Foreign language communication is less satisfactory than English language proficiency, basic IT and advanced IT. Within soft skills, problem-

solving and oral communication skills outperform other skills. Therefore, strategic management, planning, along with organisational skills and teamworking skills need to be upgraded.

Skills that need the most improvement – soft skills

- Skills that require the most improvement include soft skills, which are communication, teamwork, customer-handling and project management skills.

### 8.7.5 Moving forward: Future skill requirement

Acquiring new skills due to newly emerging tasks

- "The development of new programmes" and "the introduction of new technologies or equipment" are two main factors leading to newly emerging tasks in the next 12 months. Digital technology is now a form of interactive learning tool used by higher educational institutions. It helps to improve learning process, and therefore access to this would require academicians to master the technology.

Ability to meet future needs – job-specific and non job-specific skills

- Non job-specific and job-specific skills are the prospective skills needed in the near future. Non job-specific skills include project management skills, administrative, sales, industry knowledge and new technology trends while job-specific skills include coding knowledge specifically in Ruby on Rails, JavaScript and mobile development (iOS. and Android). The providers predict that requirement for non job-specific skills will be met in the near future whereas requirements for job-specific skills will be more difficult due to the absence of trainers in Penang. Furthermore, positions that are in high demand in the next two years include **Lecturers, Senior Lecturers and Marketing**.

## 8.8 Comparative analysis across growing services industries

### 8.8.1 High-qualified demand structure

The growth of Penang's professional services sector has been gaining momentum in recent years. However, labour intake in high-qualified positions in the core sub-sectors is still smaller than core manufacturing industries. The growth of GBS industry is evident as it makes up the highest share of job openings (9.3% of the total). The growth of medical tourism is not as evident from job openings. The majority of vacancies in professional services are advertised by large companies with 100–500 employees[68].

With reference to the level of positions, the services sector presents a different picture compared with manufacturing. Junior executives are widely demanded in most services sub-sectors except in the advanced producer services sub-sector. Only in financial services and hospitality services there is a sizeable share of positions at managerial level. Furthermore, high-demand positions in GBS, education and training services, and advanced producer and financial services sub-sectors lean towards senior executives. In quite a few cases, this is associated with the recent establishment of firms.

### 8.8.2 Supply characteristics

The notion of more reputable (often foreign) companies attracting more job applicants appears to hold in these services industries. It is quite evident in advanced producer services (APS) and GBS companies. For each job vacancy advertised, more reputable management, corporate consulting and audit firms such as KPMG, Deloitte and PwC receive at least 100 job applications from all over Malaysia. However, GBS firms show a varying vacancy response across job categories. While an average of over 100 applications are received for functions such as accounts, finance, and human resources, more specialised positions such as IT and SAP draw significantly fewer applications. Firms here rely also on employees' referrals. Also in the services industries, the high number of job applicants is not a guarantee that all positions can be filled. Specifically, while firms in education and training services and medical tourism receive a substantial number of applications for each job position advertised, the majority of applications do not meet the requirements specified in advertisements. Vacancies often take a longer time to fill.



[68] Economic Planning Unit (2015). Unleashing Growth of Logistics and Enhancing Trade Facilitation. Eleventh Malaysia Plan 2016–2020: Strategy Paper 14. Prime Minister's Development. Putrajaya.

### 8.8.3 Recruitment profiles

A large number of positions advertised in medical tourism, IT, as well as advanced producer and financial services are derived from business expansion. While the necessity to replace employees who have left the company contributes to vacancies, in GBS and hospitality services the larger proportion is due to new establishments and expansion of operations. This result is consistent with the growth of the sector in Penang.

For critical positions (IT-related, managers and director positions), some companies engage recruitment agencies to accelerate the hiring process. Education and training services providers, however, still employ conventional methods.

### 8.8.4 Positions that require a longer duration to fill (hard-to-fill vacancies)

Notwithstanding their attractiveness, APS and GBS paradoxically show higher percentages of vacancies that are hard to fill compared with the overall average. In fact, of all industries, APS has the largest share of hard-to-fill vacancies, accounting for 19.6%. As noted, the share for GBS is 16.6%. Hospitality services, transport and logistics, education and training services, and medical tourism score relatively well in this regard. The paradox can be explained from several factors. One is the rather specialised profile of some of the positions. Illustrative is the fact that software developers/ engineers/programmers constitute the largest share of hard-to-fill functions in GBS and info-tech. Another factor is the competition among establishments within the same industry (illustrated by new establishments in GBS), stemming from limited quantitative and qualitative availability of specialised skills vis-à-vis demand. Furthermore, the arrival of GBS has made the situation more difficult for APS (especially accounting and audit) firms. Again, patterns and characteristics appear on one side to prompt and on the other side are largely in line with what has been postulated in Chapter 2. At the same time, the diversity and complexity observed compel a refined view.

### 8.8.5 Skill gaps

Skill deficiencies in the services sector show similarity to those in the manufacturing sector. Generic hard skills are limited compared with soft and specific hard skills in all services industries except info-tech, and education and training services. Foreign language communication and advanced IT are skills rated as most deficient in advanced producer and financial services, GBS and hospitality services. Probably again associated with training, specific hard skills score above average in all services industries, with the notable exception of advanced producer and financial services and GBS. In the above, some contributing factors have been given. Notable also, in GBS, medical tourism, and education and training industries, proficiency in soft skills is rated lower than in advanced producer and financial services, hospitality services, info-tech, and transport and logistics. Although professional training is available in the market, programmes may be inadequate to their needs. Additionally, info-tech achieves the highest score of proficiency across all types of skills. This indicates that this area skill, learning in education satisfies the needs of the industry. In contrast, GBS scores the lowest across all types of skills. This implies that also the secondary supply, qualitative cannot sufficiently satisfy the needs of GBS.

### 8.8.5 Future skill requirements and ability to meet the needs

"New technology development" is commonly mentioned by all services industries in anticipating the emergence of new tasks in the next two years. The next important reason for new tasks is "the development of new products/services". Advanced producer and financial services, and transport and logistics expect "new legal and regulatory requirements" to impact business processes, bringing about new tasks. Firms in all industries generally agree that new tasks will put pressure on skills, less on soft skills (project management, adaptability, communication and creative thinking) than specific hard skills involving technical skills. Firms, especially in GBS and info-tech, are neither entirely pessimistic nor confident about the local availability of these specific skills.