

ICT JOB MARKET OUTLOOK IN MALAYSIA

JUNE 2018

PIKOM

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Foreword by the PIKOM Chairman

GANESH KUMAR BANGAH

It is my pleasure as the new National ICT Association of Malaysia (PIKOM) Chairman to announce the release of the PIKOM ICT Job Market Outlook in Malaysia 2018 report.

Since 2007, PIKOM has tracked the salary scales of ICT professionals in order to provide both employers and employees an overview of the industry in terms of remuneration and opportunities. This is particularly important as the ICT industry in Malaysia today is a significant driver as well as an enabler of the national economy.

It is also worth mentioning that this is our first publication since the groundbreaking events of the 14th General Election that led to a change of government. PIKOM anticipates that any impact, if any, from this turn of events on the ICT industry and its wage structure will only become evident in the future.

I would like to thank Jobstreet.com for collaborating with PIKOM for the publication of this report. The data from Jobstreet.com is vital for the association to provide industry estimates on the salary trends. We also appreciate the contributions from Bank Negara Malaysia, Department of Statistics Malaysia and Payscale for their statistical data and insights.

I take this opportunity to extend my appreciation to our partner advertisers who have graciously supported this year's publication. Let me also thank our PIKOM Research Committee team for its efforts to publish a quality report complete with relevant data analysis and insights as well as valuable content pertaining to the growth of the industry and future of ICT human capital.

PIKOM will continue in its capacity to work with the new Government, industry players and other associations to play a significant role in promoting the growth of the ICT industry and to be a relevant player in the ASEAN and ASIA regions.



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Preamble from PIKOM Research Committee Chair

WOON TAI HAI

PIKOM is pleased to present the association's 11th edition of the PIKOM ICT Job Market Outlook in Malaysia 2018. This report comes out at a time when Malaysia has a new ruling government. Despite skepticism from many quarters, Pakatan Harapan achieved an unexpected win over the previous ruling coalition Barisan Nasional in the 14th General Election. Within a month of taking over, Pakatan Harapan has made a series of announcements on the state of affairs of the nation including initiating plans to fulfill its election pledges in its first 100 days in office.

After the initial shock, PIKOM like many, is quietly optimistic of the path ahead for the nation and how the intended changes would impact the economy and specifically, the ICT industry.

There is no doubt that ICT has been an engine of growth for the economy since the late 1990s. It is pertinent to point out that the contribution of the ICT industry to GDP (ICT-GDP) has more than quadrupled from RM40 billion in 2007 to RM164.9 billion in 2016, representing 13.4% share of the GDP.

As such, it is imperative that Malaysia continues to drive this momentum so that the country can emerge as the internet capital of Southeast Asia and also achieve developed country status by 2025 (This latest date is a revision from the earlier target of 2020).

New technologies such as robotics, big data analytics, artificial intelligence, cloud computing and many others are rapidly transforming global dynamics. To support this growth, it is critical for our nation to be equipped with a sufficient and competent ICT talent pool, one that is well compensated compared to the other countries in the region.

This annual job market report is an indicator that measures compensation to the ICT workforce in Malaysia. The benchmarking salary scales against other economies helps to ensure we do not lose out in competitiveness.



This year's report has expanded its scope to include an indepth look at salaries around the region as well as a special review of the cybersecurity (a sector facing a shortage of specialised professionals) job market.

A sneak preview of each section is as follows:

Economic and ICT Industry Outlook in Malaysia

GDP growth in 2017, as reported by Bank Negara Malaysia (BNM) and the Department of Statistics Malaysia (DOSM) was 5.9%, as compared with 4.2% in 2016, a result which surprised analysts and industry observers including PIKOM.

The association had revised its GDP forecast for 2017 of 5.0% made in June that year to 5.3% in November as a result of the higher quarterly growth figures reported for Q2 and Q3 in 2017.

The year-on-year GDP growth in the first quarter of 2018 was 5.4%, and this was attributed to private final consumption expenditure and net exports. The GDP growth of the remaining quarters for this year will be closely watched by global economists, investors, industry players and financial institutions. Global developments such as rising oil prices, the US-North Korea Summit and the risk of a US-China trade war are also points of concern as to how they would impact our economy. We have already seen a withdrawal of foreign equity from this region including Malaysia due to concerns of a potential trade war and this will surely have an impact on the Ringgit.

In view of the global and domestic uncertainties, PIKOM is making a conservative projection that the overall economy would grow by 4.8% for 2018. However, the economy could pick up towards the end of 2019 or early 2020, assuming there are no major adverse global factors and efforts by the new government to fulfill the election pledges do not encounter too many hurdles.

We have focused on five ICT-producing industries in our analysis of the outlook of the industry - ICT in Manufacturing, ICT in Services, ICT Trade and Content and Media as well as eCommerce.

eCommerce will certainly be a sector keenly monitored in Malaysia given the increase in the number of internet users and online shoppers. A major project that PIKOM has been tasked with (from 2017) is the annual #MYCYBERSALE which will continue in 2018 (September 3rd-7th) for the fifth year in a row.

Last year, the Gross Merchandise Value of the online sale event grew by 47.0% to RM311 million compared with RM211 million in 2016. The eCommerce industry, comprising ICT and non-ICT producing sectors, also performed well growing by 9.3% over 2015 to RM74.6 billion in 2016. PIKOM expects the growth to be significant in 2017 and 2018 with further initiatives implemented.

This section will also provide more details on the performance of other sub-sectors.

ICT Salary Trends in Malaysia and Regional Benchmarking

This is the core section of PIKOM's ICT Job Market report, providing analysis of the salary figures of ICT professionals in Malaysia for 2017. It is based on data provided by Jobstreet.com categories in 22 group of industries.

PIKOM conducted an indepth analysis of the data to ascertain the outlook and overall salary growth including the average annual growth rate (AAGR) of salaries in each category and industry from 2009 to 2017.

This year, the association also expanded the analysis to include the salary trends of cyber security jobs to bring to light the critical shortage of specialised cybersecurity professionals worldwide.

As in previous editions, this year's report will also feature the Regional Benchmarking Analysis covering 20 economies and 82 cities worldwide. We used both the Atlas Criterion and Purchasing Power Parity Criterion to compare the average annual salary of an entry level IT Project Manager. PIKOM is appreciative of Payscale.com for the salary figures.

Salary Trends in Southeast and East Asia

This section featured for the first time focuses on the 2017 salary trends of ICT professionals from entry level onwards in Hong Kong, Thailand, Singapore, Indonesia, the Philippines and Vietnam. It also covers the top paying industries and the top hiring industries in each country (quoted in USD).

These figures were also sourced from Jobstreet.com's regional companies.

Job Employment Confidence Index (JECI)

The report ends with the Job Employment Confidence Index, which is tabulated on a monthly basis to determine how confident a jobseeker feels in getting a job in Malaysia.

In crafting this report, PIKOM has endeavoured to stay as updated as possible on the latest announcements and information released to date. The association hopes the PIKOM ICT Job Market Outlook in Malaysia 2018 report will serve as a guide for human resource needs of your organisation.

PIKOM Research Committee 2018

WOON TAI HAI

- Advisor, PIKOM Advisory Board, (2013-current)
- Chair, PIKOM Research Committee (2008-current) / PIKOM Oversight Committee (2017/2018)
- Executive Director, BDO Consulting Sdn Bhd, Malaysia (2014-2017 Retired)
- Executive Director, KPMG Risk and Management Consulting Sdn Bhd, Malaysia (1998-2013 Retired)
- Over 35 years of experience in the ICT industry and management consulting
- Master of Business Administration (MBA) – University of Technology, Sydney, Australia (UTS)
- Post Grad. Diploma (Finance and Accounting) – University of Technology, Sydney, Australia (UTS)
- Bachelor of Science – University of New South Wales (UNSW), Australia



ONG KIAN YEW

- Executive Director, PIKOM
- Over 20 years of working experience in the ICT industry
- Represents PIKOM in various Government committees on ICT policy and advocacy
- Represents PIKOM at international level in the World IT and Services Alliance (WITSA) and Regional Asian Oceanian Computing Industry Organization (ASOCIO)
- Served as Secretary-General of ASOCIO in 2013
- Bachelor of Marketing - University of Strathclyde



RINA DE SILVA

- Research Manager, PIKOM
- Former Assistant Editor, New Straits Times Press (NSTP)
- Over 20 years in the media industry, which included covering ICT news and developments in Malaysia and other ASEAN countries
- Published writing portfolio includes investigative news articles, personality pieces, feature stories on health, ICT trends, consumer issues and community-related topics
- Bachelor of Arts in Economics - Brandon University, Manitoba, Canada



About This Report

Information and communication technologies (ICT) continue to stimulate and drive an industry recognised as one of the most dynamic and fastest-growing economic segments in Malaysia.

As a result, the job market for the ICT industry remains vibrant and subject to new and exciting trends such as the emergence of next generation technologies in the form of big data analytics (BDA), the internet of things (IoT), cloud as well as mobility and social media solutions.

The resulting ebb and flow in the movement of talent is one of the reasons why the *ICT Job Market Outlook in Malaysia* series commands increasing interest among industry players, job seekers and other stakeholders year after year.

PIKOM, the National ICT Association of Malaysia, has once again taken the lead to compile and publish the *ICT Job Market Outlook in Malaysia, 2018* in collaboration with JobStreet.com. PIKOM provided the in-depth analysis and insights for the economic, industry and employment outlook based in part on the latest salary data points and employment perception index from Jobstreet.com. For this year, the detailed analysis also covers six

Southeast and East Asia economies in the region. PIKOM also leveraged heavily on past data from various sources including Bank Negara Malaysia (BNM) and the Department of Statistics Malaysia (DOSM); and utilised various statistical methods e.g. 'smoothing of curve', linear extrapolation and regression technique in gauging and deriving trends.

The report is presented in four sections, as follows:

- Section A: *Economic & ICT Industry Outlook in Malaysia 2018*
- Section B: *ICT Salary Trends in Malaysia and Regional Benchmarking*
- Section C: *Salary Trends in Southeast and East Asia*
- Section D: *Job Employment Outlook Perception*

Readers will find in this report a detailed breakdown of prevailing ICT salaries according to the following:

- ICT salaries by industry
- ICT salary trends by industry 2009 - 2017
- Top paying industries for ICT professionals
- ICT salaries by job categories
- Top hiring industries for ICT professionals
- ICT Salary benchmarking comparing Malaysia with 19 other countries and Kuala Lumpur against 81 other cities, including three more in Malaysia.

PIKOM is the national representative of the ICT industry with close to 900 members as at end June 2017. Its members contribute about 80% of the total ICT revenue in the country. PIKOM membership profiles can be broadly categorised as ICT providers like wholesalers, retailers, solution providers and web service providers; ICT user community especially large-scale users in banking, insurance, telecommunications, transportation etc., and ICT-enabled service providers, in particular in the shared services and outsourcing sector. Functionally, PIKOM undertakes ICT business promotion activities, branding, trade and business promotions as well as policy and advocacy activities.

JobStreet.com (www.jobstreet.com) is a leading online job board presently covering the employment markets in Malaysia, Singapore, Philippines, Indonesia and Vietnam. JobStreet.com currently services over 230,000 corporate hirers and over 15 million jobseekers in its database.



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SECTION A

Economic and ICT Industry Outlook in Malaysia 2018

Malaysia's GDP grew 5.4% year-on-year (y-o-y) in the first quarter of 2018, compared with 5.9% in Q4 2017 (**Chart 1**), according to Bank Negara Malaysia (BNM) and the Department of Statistics Malaysia (DOSM). The GDP value in Q1 2018 was RM295.3 billion at constant prices and RM343.2 billion at current prices. Private final consumption expenditure and net exports were reported as the key drivers of economic performance in the first quarter. (**Table 1**).



TABLE 1: Malaysia's Economic Data in 2017 and Q1 2018

GDP by Expenditure Components (at constant 2010 prices)					
	Share 2017 (%)	2017			2018
		1Q	4Q	Year	1Q
		Annual Growth (%)			
Aggregate Domestic Demand (excluding stocks)	92.2	7.7	6.2	6.5	4.1
Private Sector	71.1	8.2	7.4	7.5	5.2
<i>Consumption</i>	53.7	6.7	7.0	7.0	6.9
<i>Investment</i>	17.4	12.9	9.2	9.3	0.5
Public Sector	21.0	5.8	3.4	3.3	-0.1
<i>Consumption</i>	13.0	7.5	6.8	5.4	0.4
<i>Investment</i>	8.0	3.2	-1.4	0.1	-1.0
Net Exports	7.7	-15.3	2.3	-1.9	62.4
Exports of Goods and Services	72.8	9.8	6.7	9.4	3.7
Imports of Goods and Services	65.1	13.0	7.3	10.9	-2.0
GDP	100.0	5.6	5.9	5.9	5.4
GDP (q-o-q growth, seasonally adjusted)	-	1.7	1.0	-	1.4

Source: BNM

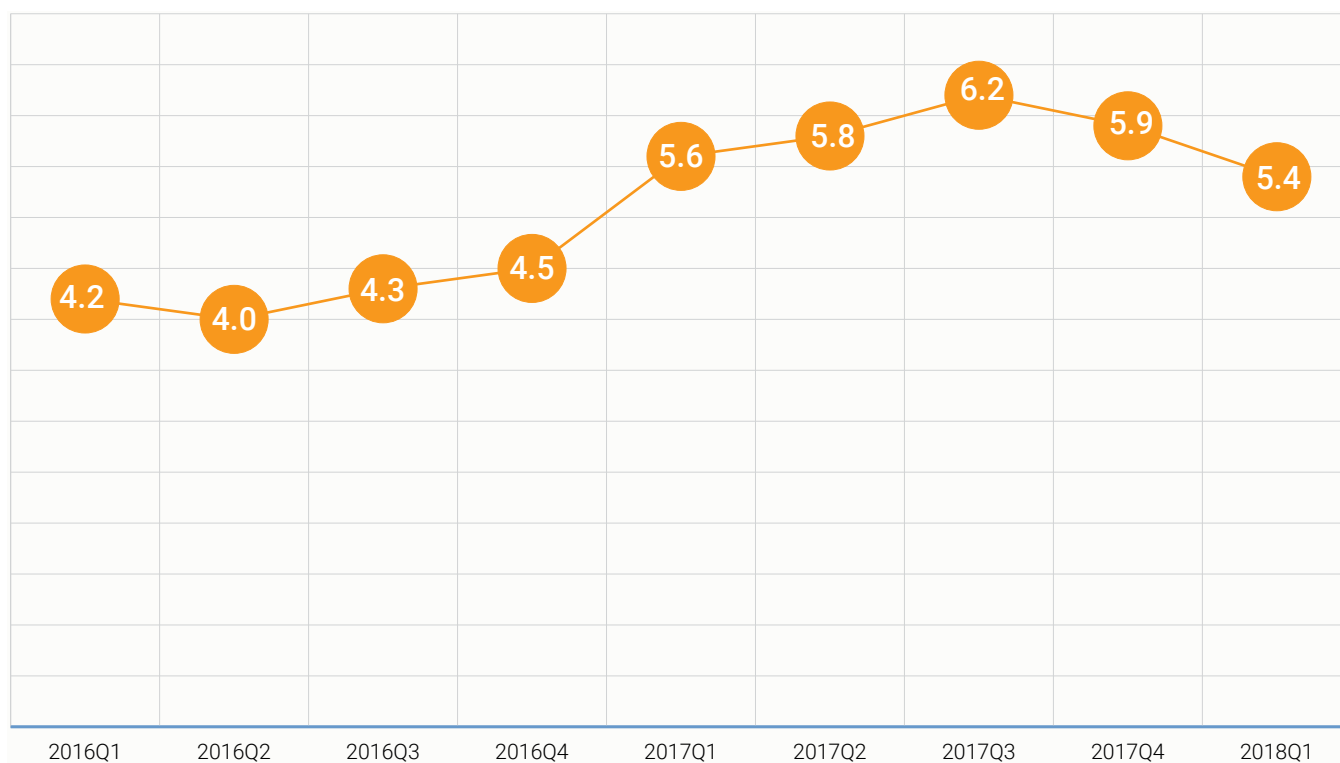
MALAYSIA'S GDP Growth

Malaysia's 2017 GDP growth of 5.9%, as reported by BNM in February this year, was significantly higher than the 2016 GDP growth of 4.2%. **(Chart 2)**. The growth also exceeded PIKOM's expectations as the association's forecast of 5.3% was higher than

2016 but lower than what was reported by the BNM and DOSM. In the middle of June, we reported in the PIKOM ICT Job Market Outlook 2017 that our GDP growth forecast for 2017 would be about 5%. Towards the end of the year, PIKOM made a higher projection of 5.3% based on the more positive indicators that emerged during that period.

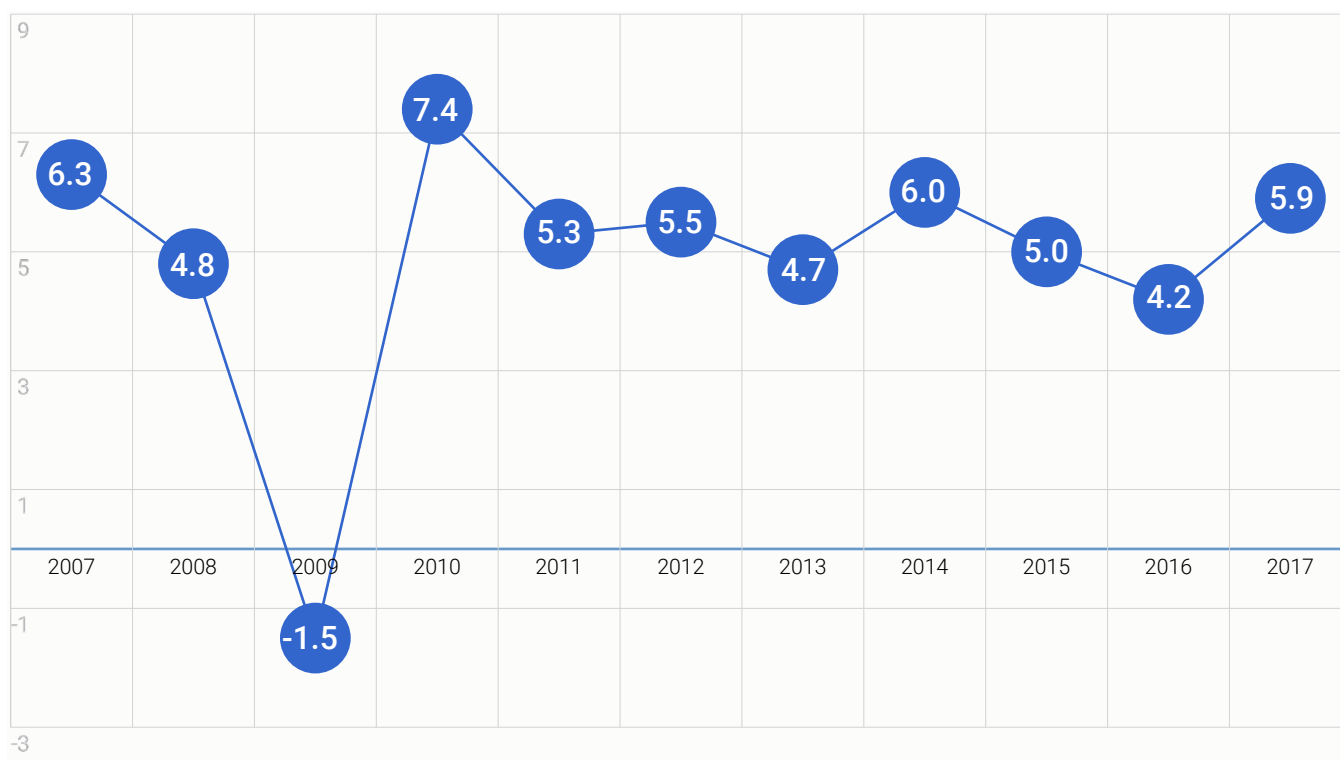


Chart 1: Malaysia's GDP Growth Rate Quarter-by-Quarter from 2016 to 2018



Source: DOSM

Chart 2: Malaysia's annual GDP Growth Rate from 2007-2017



Source: DOSM

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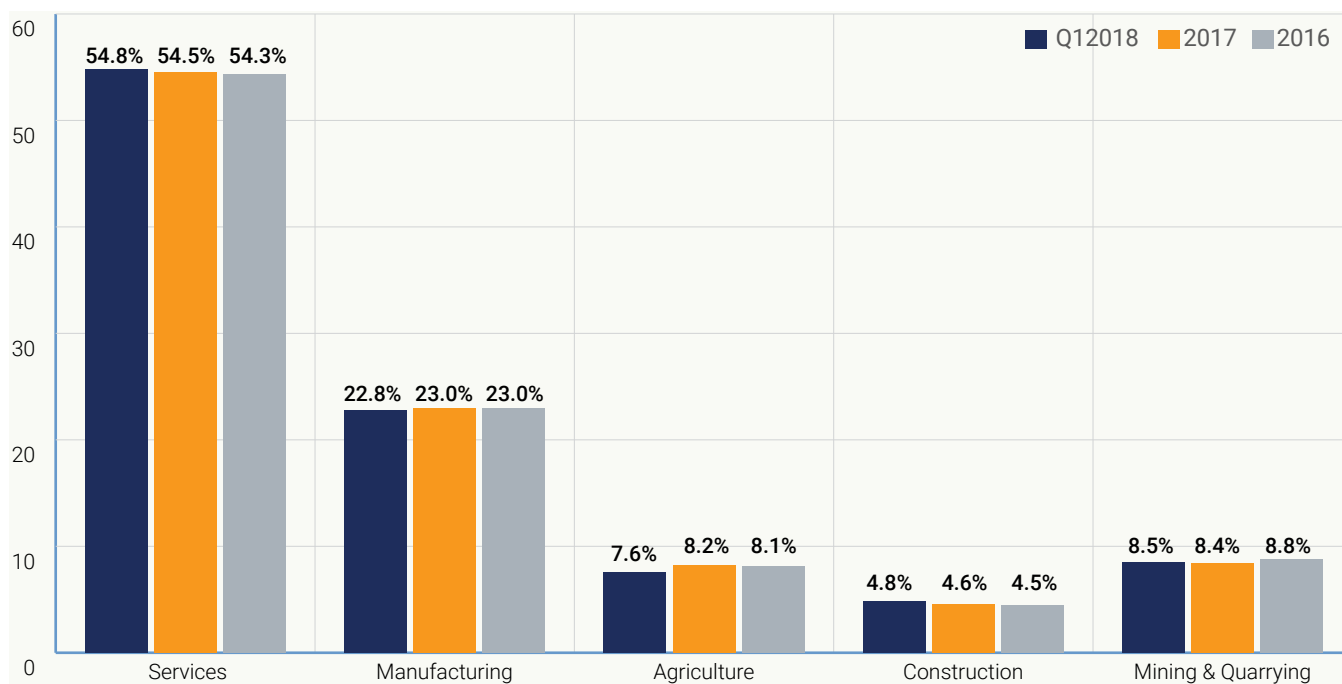


GDP by Production

GDP by production also showed that all sectors registered positive y-o-y growth in Q1 2018. Services and Manufacturing sectors were the main drivers of the economy, contributing 54.8% and

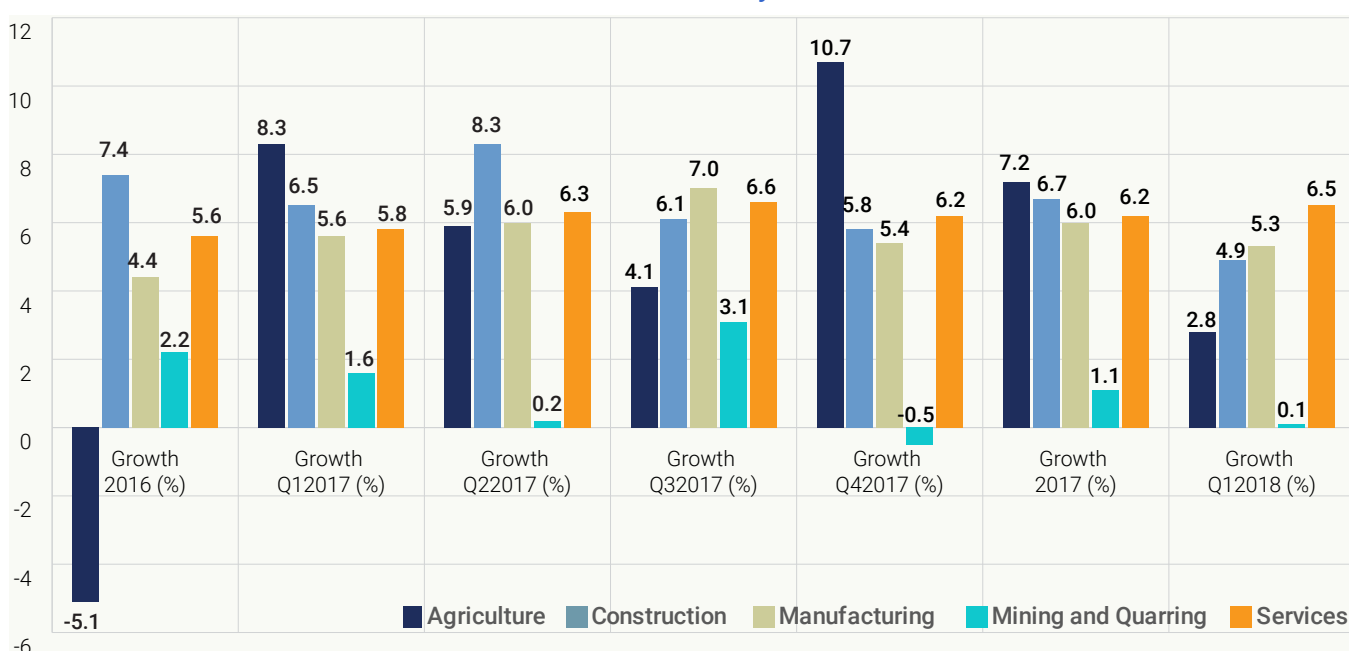
22.8% respectively to the GDP in Q1 2018 (**Chart 3**). The Services sector also grew by 6.5% in Q1 2018 from 6.2% in Q4 2017. The Manufacturing sector registered the second highest growth of 5.3% in the first quarter of this year although the growth was less than the 5.4% growth in Q4 2017 (**Chart 4**).

Chart 3: Share of Economic Sectors to GDP in 2016, 2017 and Q12018



Source: DOSM

Chart 4: Performance of Economic Sectors Quarter-by-Quarter from 2016 to Q1 2018



Source: DOSM



Inflation Rate

Inflation in Q1 2018 was 1.8% compared with the higher 3.4% in Q4 2017. The y-o-y inflation rate for the first four months of 2018 was 2.7% in January, down to 1.4% in February and 1.3% in March and

back to 1.4% in April (**Chart 5**). The full-year inflation rate has been forecasted to be below the 3.7% rate in 2017.

Following the implementation of the zero-rated GST which began on June 1st and reintroduction of the fuel subsidies by the current government,

Chart 5: Y-O-Y Inflation rate from January 2017 to April 2018

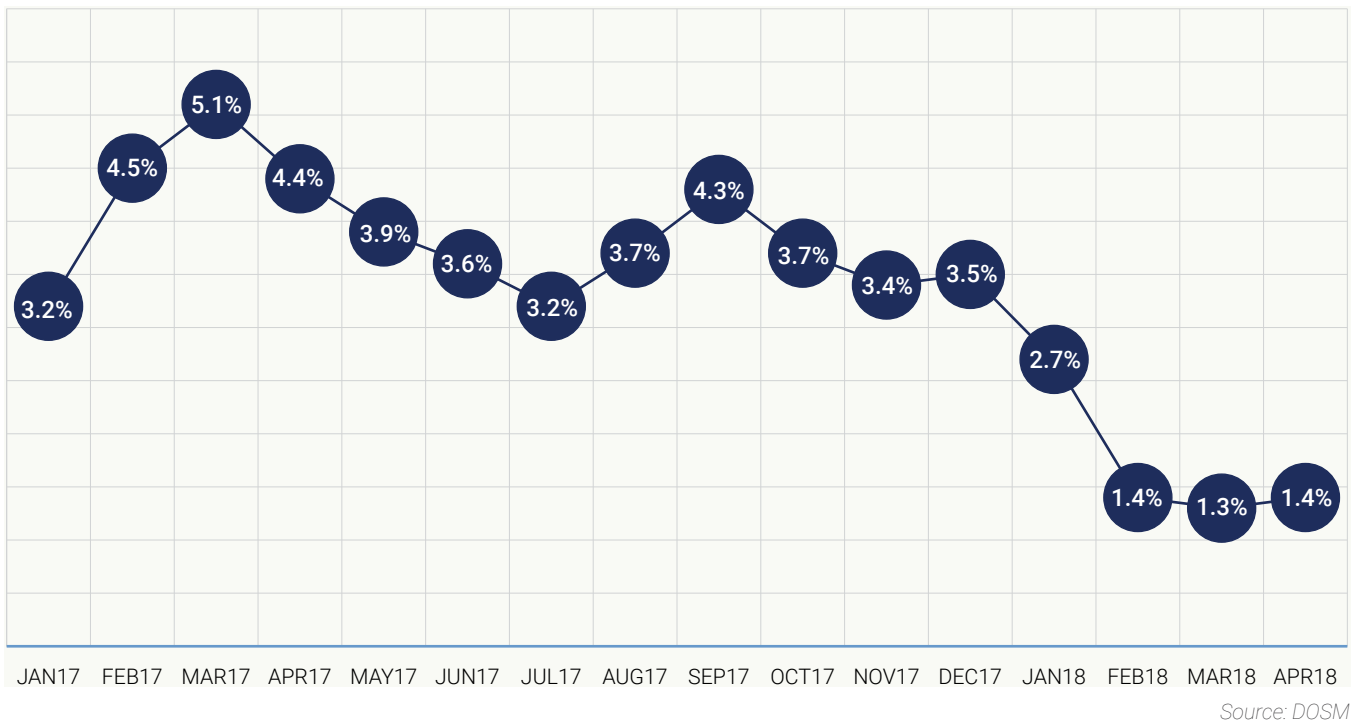
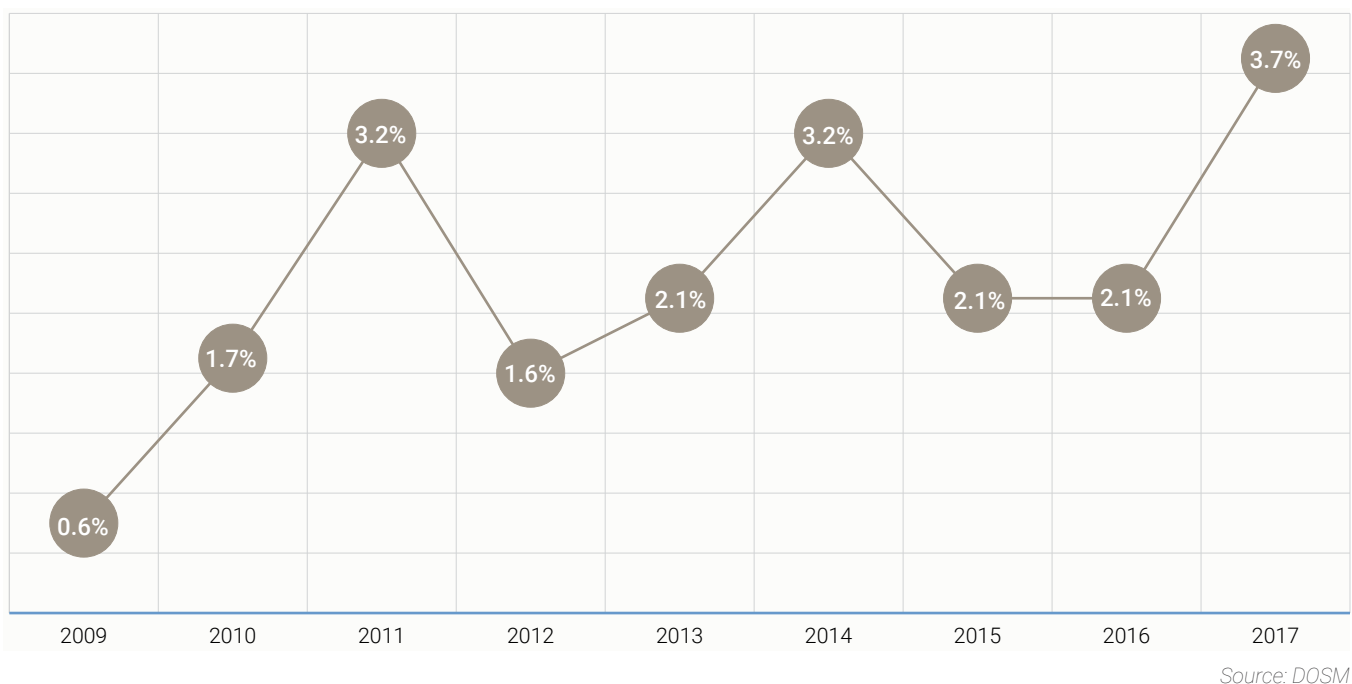


Chart 6: Inflation rate in Malaysia from 2009 to 2017





analysts have revised downwards their forecast for the 2018 inflation rate from 2.5% to 1.9%. The zero rated GST would give consumers a three-month tax holiday which would certainly help boost consumer spending during this period.

However, with the reintroduction of the Sales & Service Tax (SST) in September 2018, PIKOM anticipates that consumer spending will slow down during this period until at least the end of 2018, due to uncertainties in the SST framework such as rates and basket of goods.

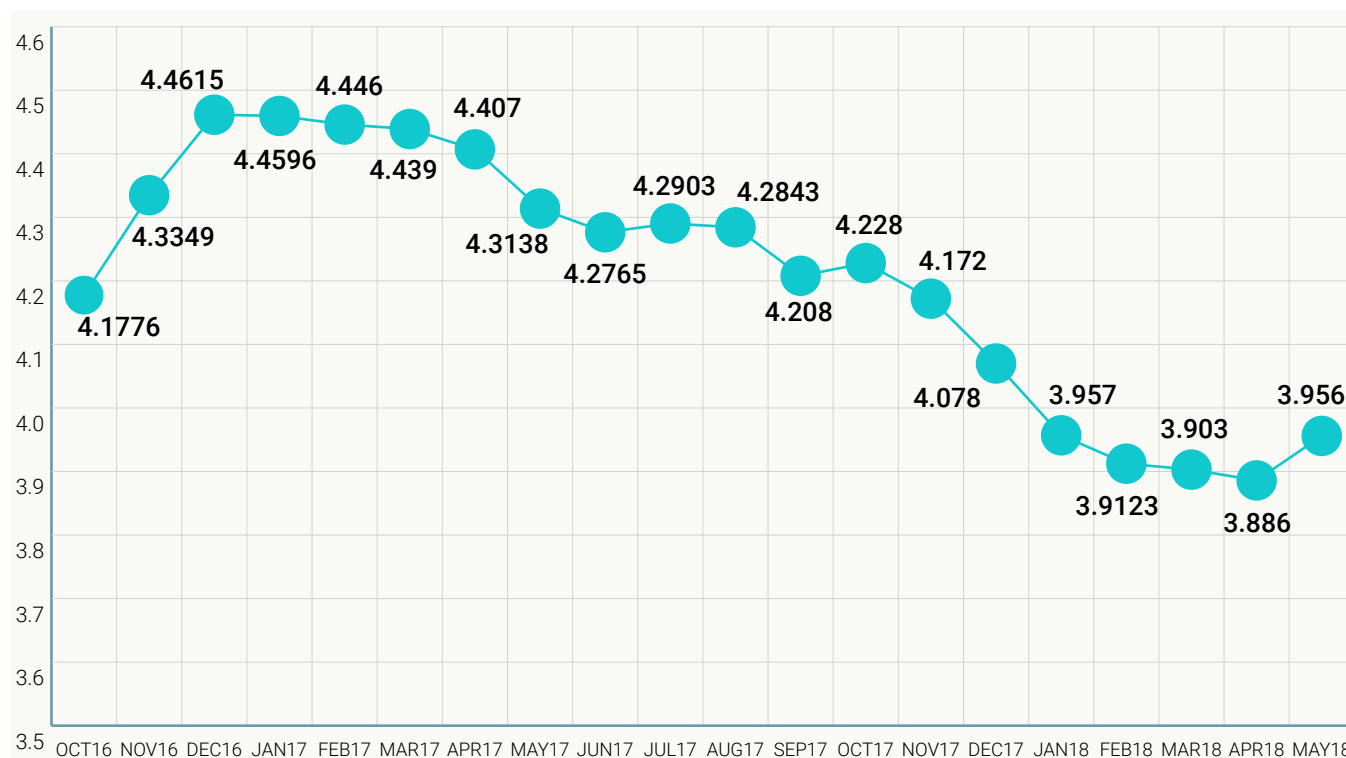
Exchange Rate

The Ringgit began to strengthen against the

USD towards the end of 2017, falling below the RM4.00 mark by January 2018 (**Chart 7**). It had even reached RM3.85 in late March. It depreciated slightly in the period leading to and after the elections, but nevertheless it is performing much better than in 2016 when it was ranked as one of Asia's worst performing currencies.

The change in Federal Government has caused investors to remain cautious as they continue to weigh in the developments and changes taking place in the country. In a latest report, it was noted that the number of foreign ownerships and investors of Malaysian bonds (fixed-income securities) has also dropped pending greater clarity on the new administration's plans and fiscal policies.

Chart 7: USD-MYR Exchange Rate from October 2016 to May 2018



Source: BNM



Unemployment Rate

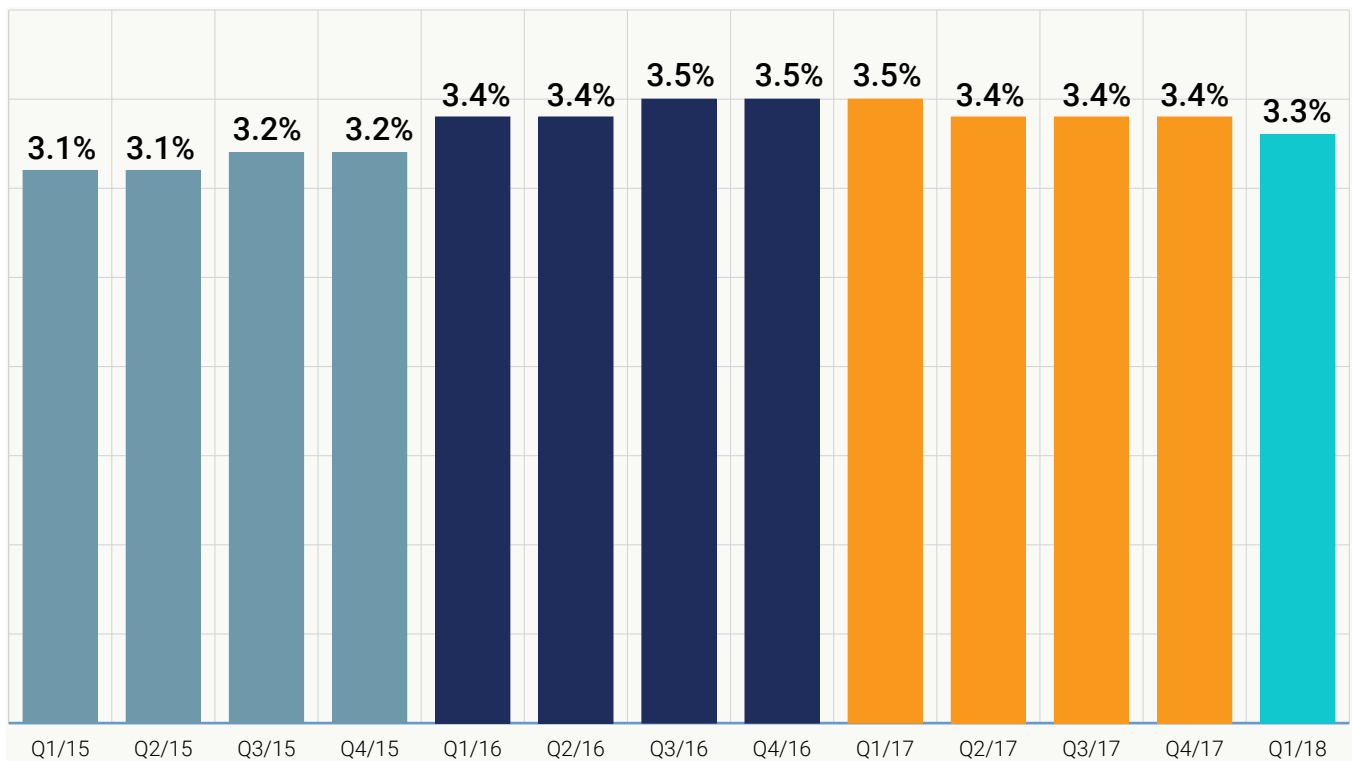
The unemployment rate in Malaysia dropped slightly in Q1 2018 to 3.3% after maintaining a 3.4% in the last three quarters of 2017. Since 2015, the unemployment rate reached its peak at 3.5% from Q3 2016 to Q1 2017 (**Chart 8**).

Employment rate grew by 2.3% from 14.6 million

people in Q4 2017 to 14.7 million people in Q1 2018 (**Chart 9**).

Private sector wages grew 6.6% in the first quarter of this year compared with 6.3% in the fourth quarter of 2017. Net employment gains was higher than labour force growth which resulted in a slight improvement in the unemployment rate to 3.3%.

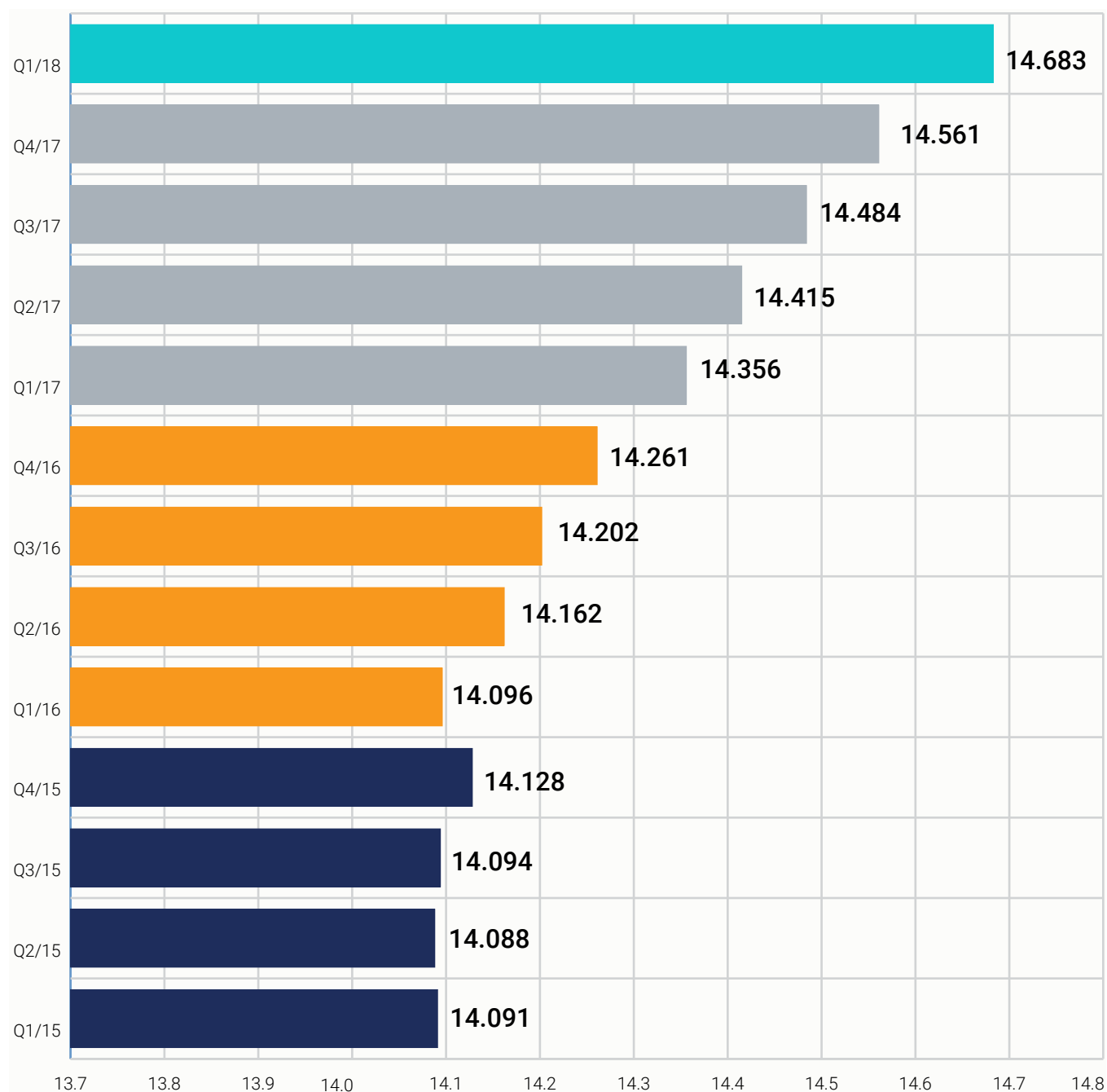
Chart 8: Unemployment rate in Malaysia from 2015 to 2018 (Quarter by Quarter)



Source: DOSM



Chart 9: Employment figures in Malaysia from 2015 to 2018 (Quarter by Quarter) (Million)



Source: DOSM

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Impact of Domestic and Global Factors

Malaysians woke up on May 10, 2018 to the news that there was a change in Federal Government after the previous ruling coalition Barisan Nasional lost to the Pakatan Harapan coalition in the 14th General Election. There was certainly an air of anticipation as this phenomenon has never happened before in Malaysia. The new government has also been moving fast in making several announcements on the country's economic and financial health as well as to fulfill its manifesto pledges.

Some of the key developments and events (local and global) since the GE14 that are worth noting as they have a direct impact on the economy in the coming months and years are briefly described here.

Revising GST rate to zero

The new government announced that the GST rate will be dropped from 6% to 0% starting June 1st. It will be replaced by the Sales and Service Tax in September. The Malaysia Retail Association has also reportedly revised upwards the business retail sales growth target following the zero-rating GST announcement. The tax-holiday between now and the future implementation of the SST and the Hari Raya festivities in June and July will contribute to consumer confidence and spending. Since the announcement, many retail operators have unleashed a frenzy of sales promotions, offering many of their items at 6% off even before June 1st.

Scrapping or deferment of Mega Projects

In an effort to curb the newly uncovered debt including contingent debts that the country

is laden with, the new Federal Government has swiftly embarked on several cost-cutting measures and this has included the postponement of the Kuala Lumpur-Singapore High Speed Rail Project and scrapping of the Klang Valley Mass Rapid Train Line 3 projects, although the former is still subject to further discussions with Singapore.

This review is still continuing as this chapter is written. Whilst some analysts have suggested that this may impact the growth of the economy such as jobs and productivity, many are also resigned to the fact that the country cannot sustain such a level of debts in the long run.

Fuel Prices

Despite the rise in oil price (US\$76.87 per barrel at this time of writing), the new government had announced that RON95 and diesel fuel prices will remain unchanged while RON97 will be subjected to weekly market prevailing prices. This was a change from the weekly float of the pump price of all the fuel types. The concern here is on how these subsidies will be funded, which may ultimately affect the deficit of the nation.

1Malaysia Development Berhad (1MDB)

As the new government carries out its investigation into the 1MDB scandal and others, financial institutions, analysts and investors are generally non-committal as to the impact the revelations of these investigations would have on the economy.

Some parties have expressed concern that the investigations are painting a picture of fear in our economy while others have praised the Ministry of Finance for being frank, open and transparent in the debt disclosures. Nevertheless, the investigations are continuing and collaborations have even been extended to other countries involved.



Resignation and Appointment of Senior Officials

Another set of events that have occurred since 9 May 2018 were a series of resignations, requests to go on garden leave and appointments. The most publicised ones were the appointment of the Attorney-General and the resignation of the Bank Negara Governor, and on speculation on who would be appointed in the coming days. The local market ultimately seems to have reacted positively to the above albeit there were swings in the local bourse during that time.

Risk of US-China Trade War

The risk of a potential trade war between US and China began early this year when both countries imposed on each other tariffs on the imports of their products such as solar panels, steel, aluminium. This tit-for-tat move by both countries is also affecting other countries which are indirectly involved in the manufacturing of parts of goods.

This also includes Malaysia which exports machine parts and components for communications equipment used in some of the products that China is exporting to the US. If this is not resolved quickly, global economic growth would be affected even in the medium term as the consumption level and growth in both China and the US will certainly drop, slowing down global trade and impacting exports in other countries.

G7 Summit

The 44th G7 Summit brought together leaders of the United States, United Kingdom, Canada, Germany, France, Japan and Italy to Quebec, Canada from June 8-9. Climate change and global trade were among the big issues on the discussion board. However, discussions on tariffs by United States on imported steel and aluminium products from Canada, Mexico and European countries broke down causing a disappointing turn of events.

US-North Korea Summit in Singapore

On June 12th, the historic meeting between US President Donald Trump and North Korean Leader Kim Jong Un was carefully watched by the world. The summit referred to as a “mission of peace” was arranged to discuss the possibility of full denuclearisation. Analysts also said that the materialisation of a possible US-China Trade War depends on the outcome of this summit. Others praised efforts of both countries to establish better relationships with one another as this would reduce tensions.

Recovery in Oil Prices

Oil prices have jumped by more than 160% since early 2016, when it was just under US\$30 per barrel. The recovery of oil prices will have a positive effect on Malaysia, an oil exporter and is a silver lining to our economy in softening the impact of the additional debt that was discovered by the new Federal Government.

Q1 2018 (January to March 2018)

Bank Negara reported the GDP y-o-y for the first quarter of 2018 was 5.4% attributed to higher growth in net exports and private consumption expenditure. This quarter was beset by uncertainties related to the GE14. The rise in oil prices, meanwhile was also moving up, giving hope to Malaysia being an oil exporting country.

Q2 2018 (April to June 2018)

Investors did not show any post-election panic when the market opened on May 14. (A two-day public holiday was declared immediately after GE14). The formation of the new government with new core cabinet ministers soon after the elections was followed swiftly by a series of announcements relating to zero-rating of the GST, the resignations, removal and appointments of key government



officials including the Bank Negara Governor, Attorney General and the investigations into the 1MDB as well as cancellation of mega projects.

Oil price continued to move upwards. At the time of writing, crude oil prices have increased by more than 160% to US\$76.87 (RM305.94) per barrel since early 2016.

Introduction of the zero-rating GST which also coincided with the Ramadan month and the Hari Raya festivities – shopping – provided a boost to the retail sector.

Recent global events such as the imposition of tariffs in steel and aluminium by United States, the climate change agreement dominating the G7 Summit in Quebec, Canada and the historic US-North Korea Summit in Singapore on June 12 have all cast an air of concern and apprehension in the global economic market but at the same time everyone is hopeful that some positive news may arise from these events.

PIKOM being an NGO is equally concerned over global factors. Taking into account all the local and global developments pre and post GE14 especially, the rapid implementation of the new Government's 100-day manifesto pledges; and considering the views of the other analysts, PIKOM forecasts that the GDP growth (Y-O-Y) for the second quarter will slow down to about 4.4%.

Q3 2018 (July to September 2018) and Q4 (October to December 2018)

However, during the third quarter (July to September 2018) spurred on by the commencement of zero GST in June, PIKOM expects the retail sector and consumer spending to pick up as the Hari

Raya festive period continues and the tax-holiday would have kicked in during the third quarter prior to the onset of the SST in September. PIKOM is still cautiously optimistic as we wait for more announcements from the ruling government to fulfil their 100-day manifesto including the eventual announcement of the details of the SST regime. With this optimism, PIKOM forecasts a third quarter (Q32018) GDP growth of 5.0%.

PIKOM also foresees a period of uncertainty in the last quarter of 2018 with the impending reintroduction of SST. This may result in consumer and corporate spending to be affected as they adopt a wait-and-see mentality. Key questions being what rates will be applied for different type of goods and will the basket of goods be the same as the original SST, and the effects of the changes in accounting rules. In view of this, PIKOM is not too optimistic of the GDP growth for this quarter (Q42018) and forecasts a growth of 4.3% to 4.5%.

PIKOM however, concurs with many economists and analysts who have weighed in on the economic, political and social developments of Malaysia post GE14 that Malaysia can expect to endure a short-term to medium-term 'pain' to realise a long-term gain. The full effects of the changes that are being implemented by the new Federal Government may only be realised much later, perhaps even one year's time.

Given all these factors, both domestic and global, PIKOM is taking a more conservative projection that the overall economy would grow about 4.8 % for the full year in 2018 but may pick up towards the end of 2019 or early 2020, assuming no major adverse global factors would impact the economy and implementation of the Federal Government manifesto does not encounter too many hurdles.

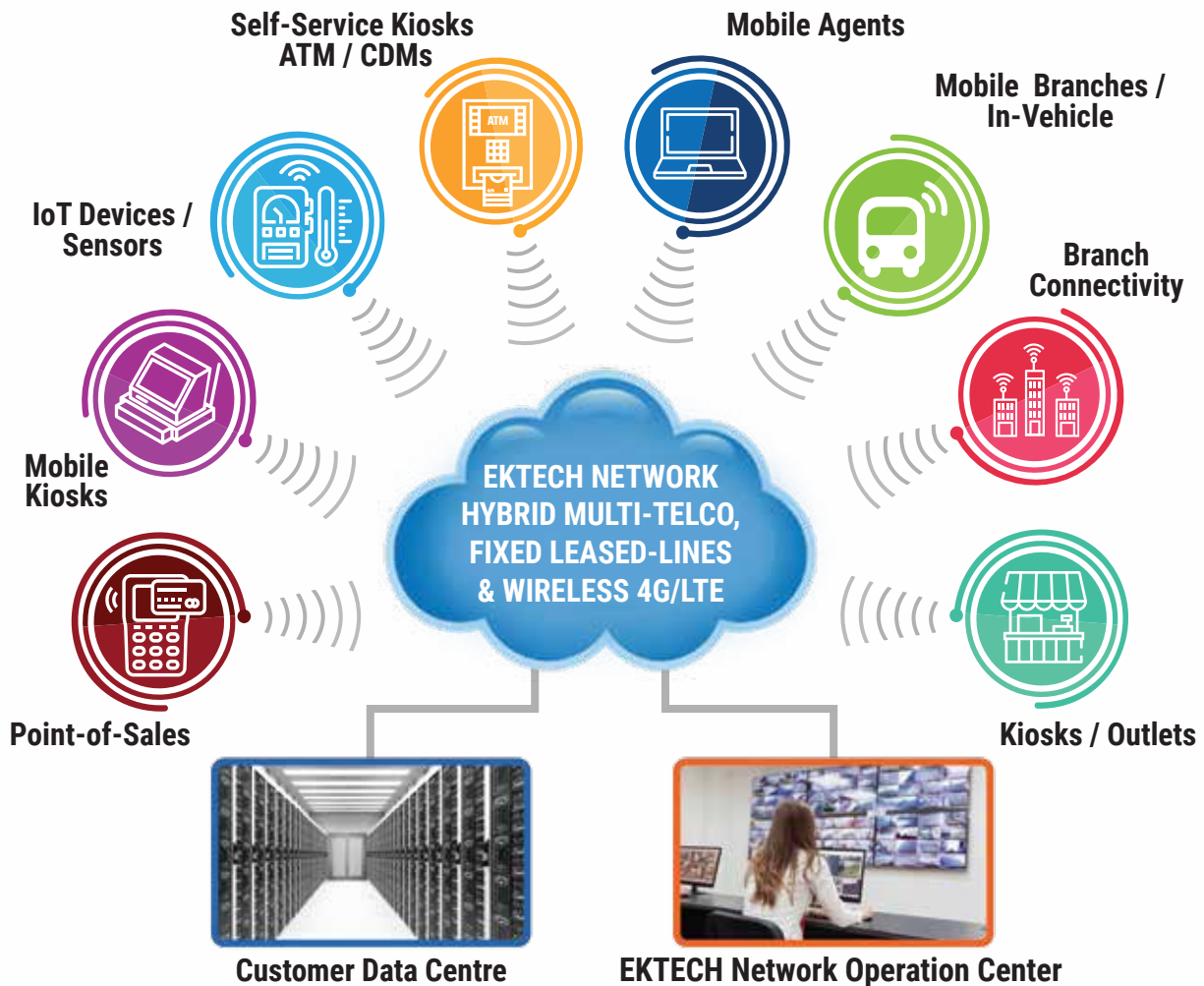


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ICT Industry Outlook 2017/2018

The new Communications and Multimedia Minister Gobind Singh Deo announced upon his appointment that Malaysians can soon enjoy twice as fast internet speeds with half the price. The Minister initiated talks with telecommunication providers to ensure this objective will be carried out. The new government also promised in their manifesto that it will ensure high-speed internet access to all towns and villages across the country.

The Minister also stated he would propose to the Cabinet that internet access be made a constitutional right which would allow Malaysians to benefit from the national economy and e-commerce. This announcement is also good news for the growth of e-commerce in Malaysia.

E-commerce contribution to the GDP is expected to reach about RM83.6 billion in 2017 from RM74.6 billion in 2016, representing a y-o-y growth of about 12.1%. (The official 2017 ICT Satellite Account is expected to be released in October this year)

The Southeast Asian internet economy is expected to grow from USD50 Billion to USD250 Billion over the next 7 years. The government's efforts since the launch of the Multimedia Super Corridor in 1996 has put Malaysia in a leading position to benefit from this growth.

It is important that the government's support for the industry continues lest we lose this momentum, in order to truly become the internet capital of Southeast Asia.

The ICT industry in 2016 contributed RM164.9 billion to the GDP, an increase of 8.5% over RM152.1 billion in 2015. ICT Services contributed the biggest share at 40.0%, at RM66 billion, followed by ICT manufacturing at 36.1%. **(Table 2, Chart 10 and Chart 11).**

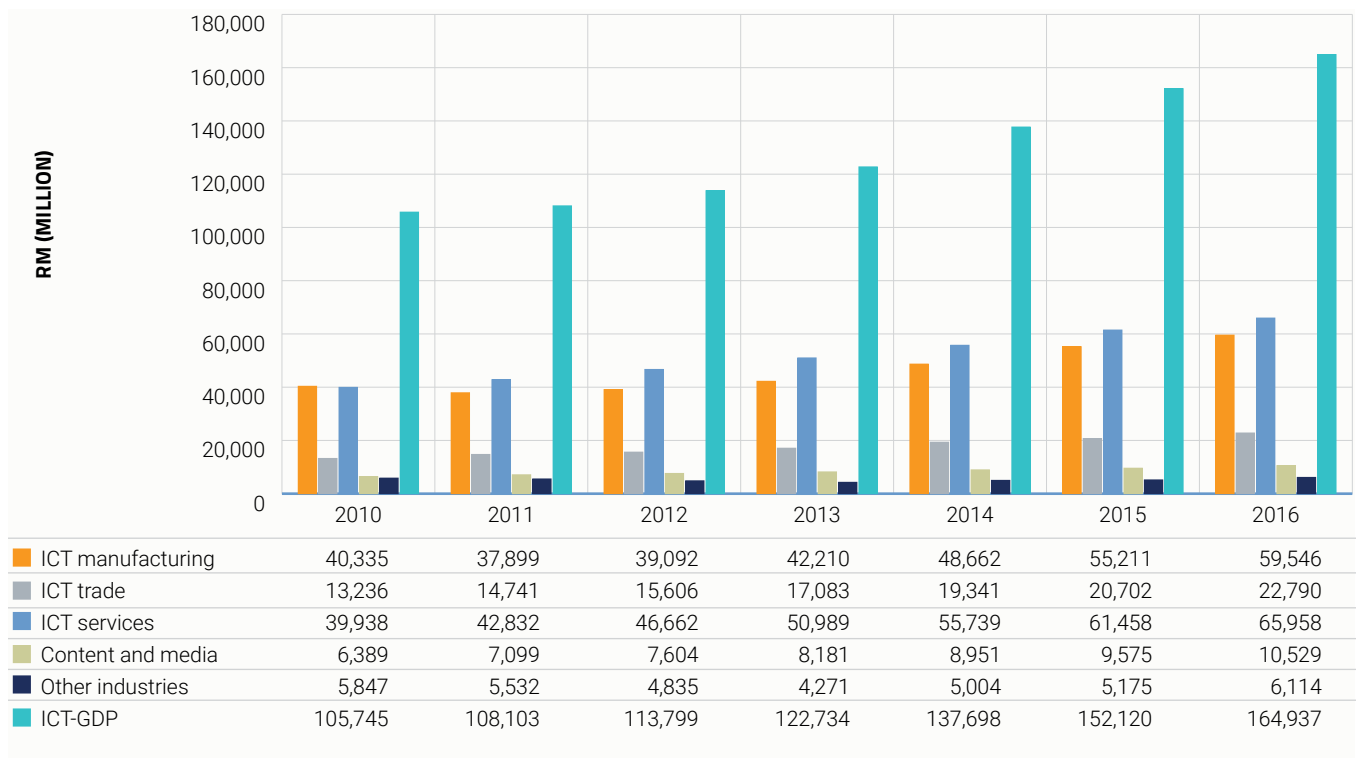
Table 2: Snapshot of the ICT Industry (2010-2016)

Year	Contribution of ICT to the Economy (RM billion)	Share of ICT to the Economy (%)	ICT-GDP (RM Million)	Share of ICT to GDP (%)	e-Commerce on non-ICT Industry (RM Million)	Share of e-Commerce of non-ICT ICT industry to the Economy	GDP at Current Prices (RM billion)	Share of e-Commerce to GDP	e-Commerce (RM Million)
2010	135.3	16.5	105,745	12.9	29,576	3.6%	821	4.6	37,729
2011	144.5	15.9	108,103	11.9	36,407	4.0%	911	4.9	44,605
2012	154.6	15.9	113,799	11.7	40,787	4.2%	971	5.1	49,760
2013	167.4	16.4	122,734	12.0	44,641	4.4%	1,018	5.4	55,261
2014	188	17	137,252	12.4	50,723	4.6%	1,106	5.8	63,636
2015	206.1	17.8	152,054	13.1	53,999	4.7%	1,157	5.9	68,280
2016	224	18.2	164,397	13.4	59,049	4.8%	1,230	6.1	74,603

Source: DOSM

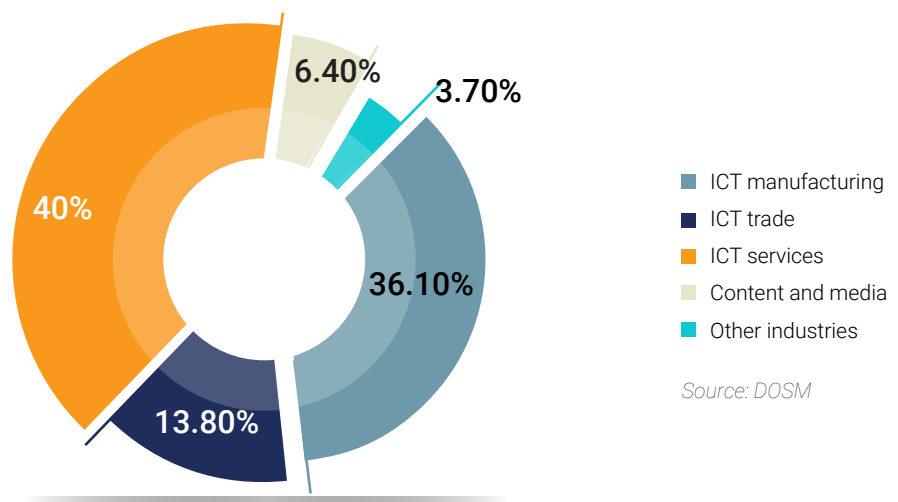


Chart 10: Breakdown of the ICT-GDP by industries (2010-2016)



Source: DOSM

Chart 11: Share by ICT-producing industries in 2016



Source: DOSM



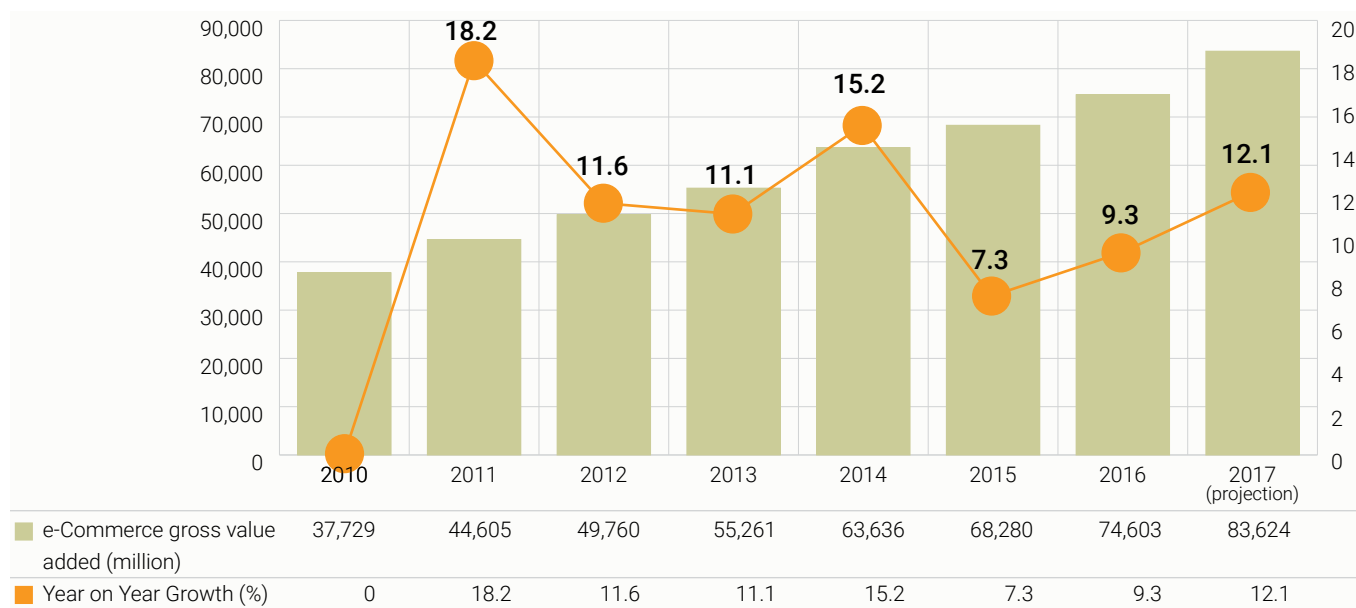
The biggest contributing component of ICT Services was Telecommunications which grew by 10.0% to RM47.1 billion. Electronic components & boards, communication equipment and consumer electronics contributed the most to the ICT manufacturing sector at 8.4% to RM54.8 billion.

However, of the four ICT-producing industries, ICT trade posted the highest y-o-y growth in 2016, at 10.1%. This was followed by ICT Services at 9.3%,

ICT manufacturing at 8% and Content & Media at 7.4%. It is estimated the ICT-GDP in Malaysia in 2017 would reach about RM178 billion in 2017.

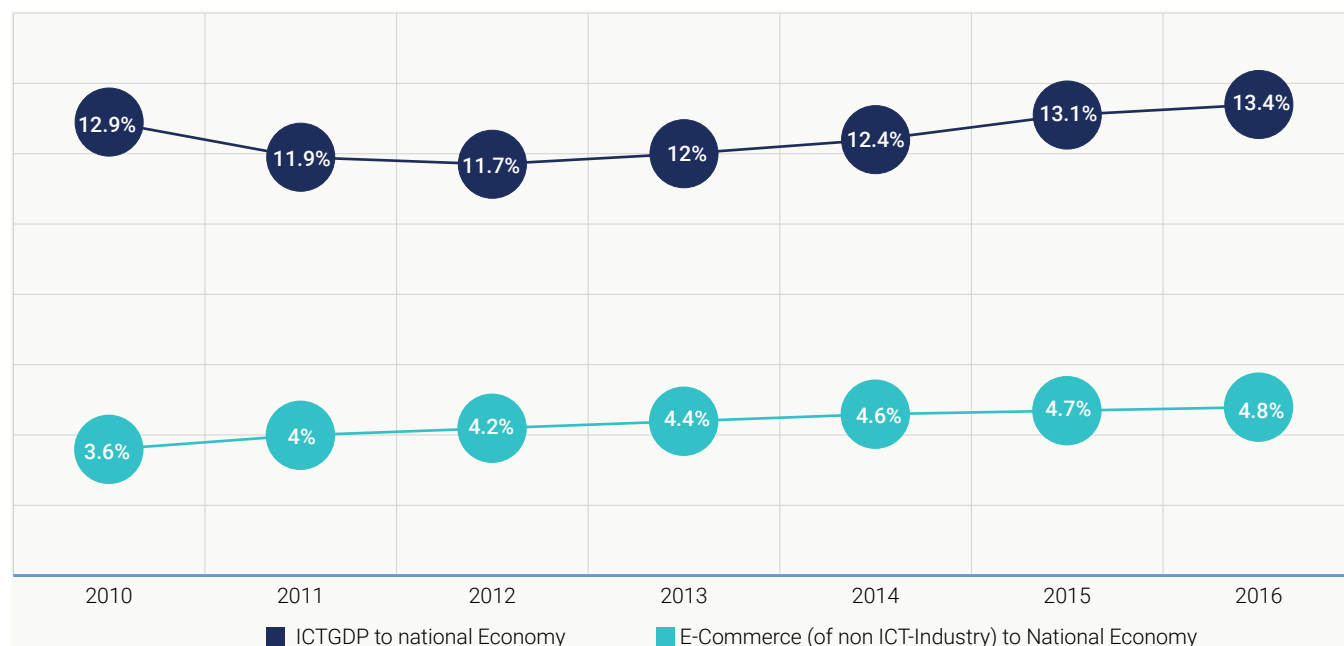
E-Commerce industry, comprising ICT and non-ICT producing sectors, also performed well, growing by 9.3% over 2015 to RM74.6 billion. The e-Commerce non-ICT industry was the bigger contributor, registering RM59 billion, a growth of 9.4% from 2015 (**Table 2, Chart 12 and Chart 13**).

Chart 12: E-Commerce Gross Value Added



Source: DOSM

Chart 13: E-Commerce non-ICT industry and ICT-GDP growth rate



Source: DOSM



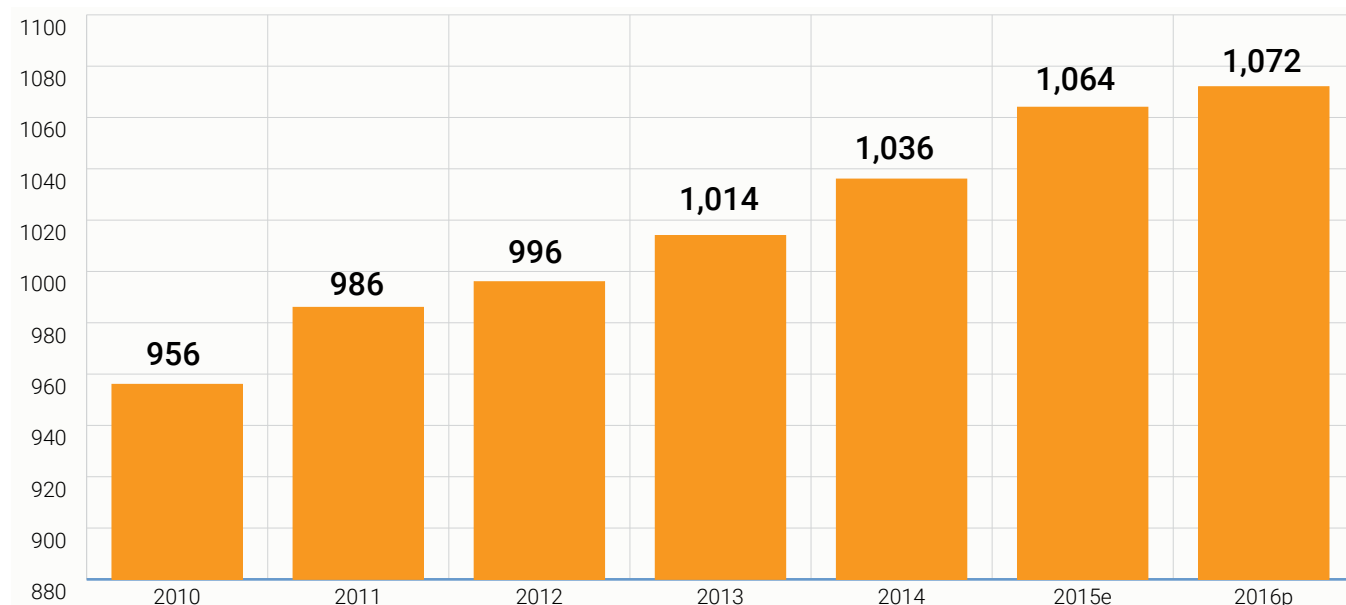
In 2016, the ICT industry's contribution (ICT-GDP and e-Commerce of non-ICT industry) to the national economy was RM224 billion, an 18.2% share.

Employment in the ICT industry in 2016 also grew by 0.7% with 1.07 million employees, a 7.6% of the total employment. **(Chart 14)**

With the performance of the ICT industry from 2010 to 2016, PIKOM is confident that the contribution of the industry to the economy could reach 20.0% before the targeted year of 2020.

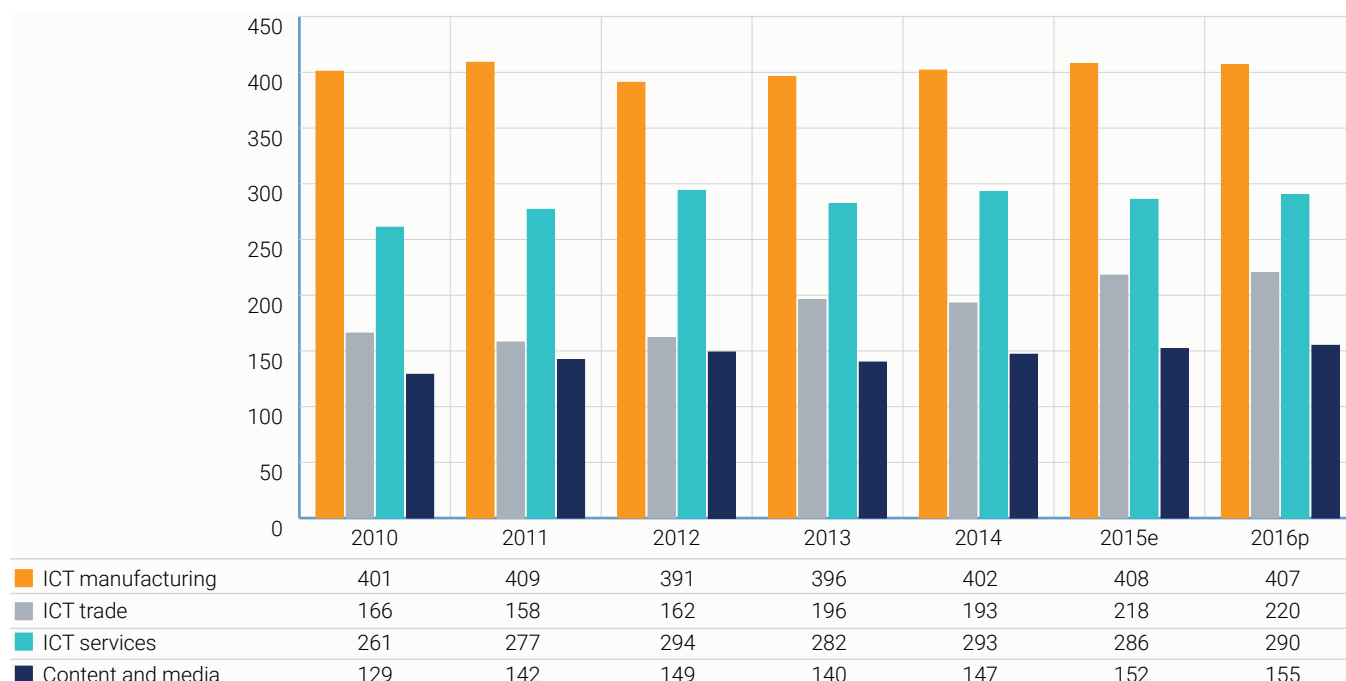
The ICT manufacturing sector was the biggest employer at 407,000 followed by ICT services sector at 290,000, ICT trade sector at 220,000 and content and media sector at 155,000 **(Chart 15)**.

Chart 14: Employment in the ICT industry (in '000)



Source: DOSM

Chart 15: Breakdown of Employment in the ICT industry (in '000)



Source: DOSM



Looking Ahead

The ICT industry is expected to continue to post a higher double-digit growth in 2017 and 2018, with e-commerce playing a much bigger role in the industry.

PIKOM hopes that the new government focuses on the internet economy as it is expected to be the fastest growing industry in the region with the biggest economic growth. The emphasis should be on bridging the digital gap and enriching the sector with the right initiatives to keep Malaysia at the forefront of the global technology revolution.

The government should also place a greater emphasis on promoting local participation in the sector to ensure that local SMEs can participate in this growth.

The year 2020 will of course be our next major milestone as a nation. Malaysia will be hosting the 24th World Congress on Information Technology (WCIT) in Malaysia; this will be second time we have secured this opportunity to host what is regarded as the Olympics of the global tech world and we hope to be working hand in hand with the government and its agencies while making sure that we can use this platform to showcase the success of the Multimedia Super Corridor.

PIKOM would like to stress that in order for Malaysia to become a fully digitalised competitive economy, the nation must continue to commit to harnessing new technologies.

The Association looks forward to working with the Government and all relevant agencies and stakeholders in fast-tracking our digital economy towards 2020 and beyond.



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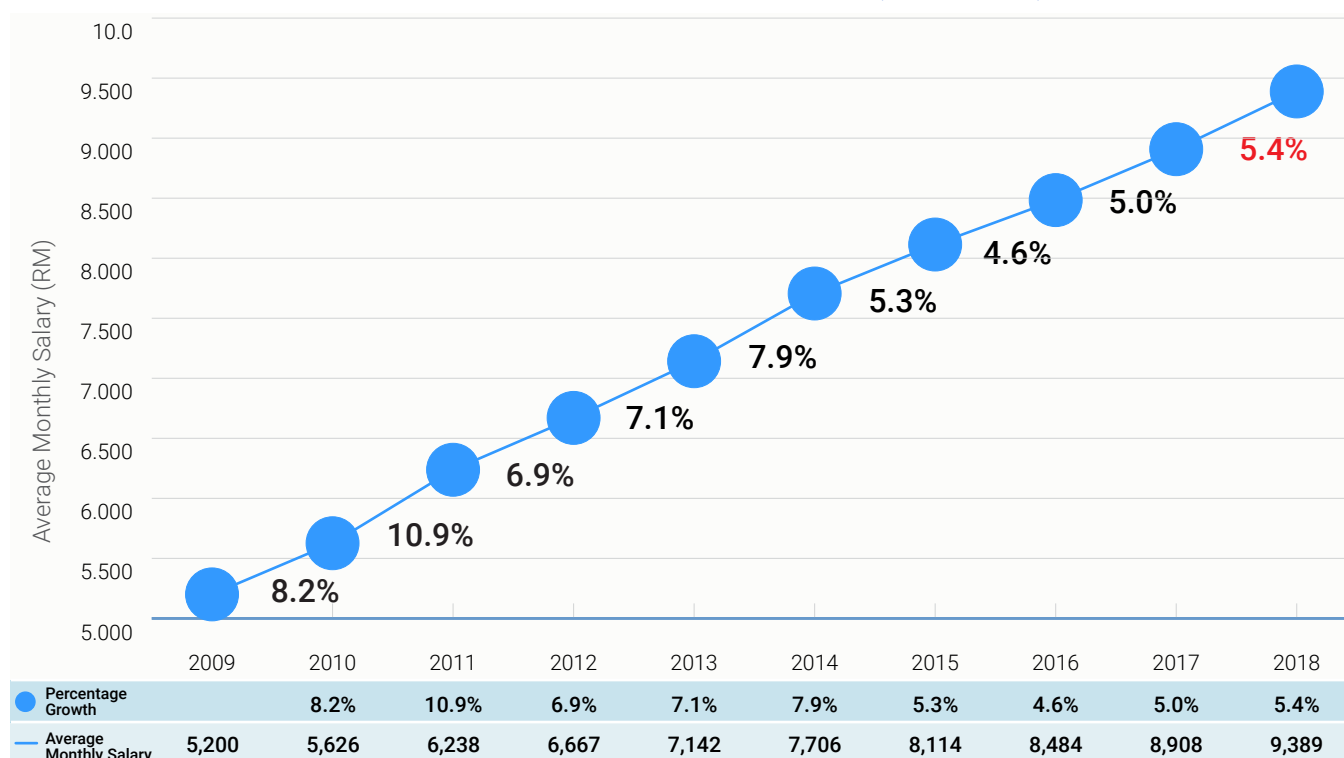
SECTION B

ICT Salary Trends in Malaysia and Regional Benchmarking

The 11th edition of PIKOM's signature ICT Job Market Outlook continues to explore the salary trends of ICT professionals in Malaysia, who are considered as the core human resource engine in any organisation or industry. The salary figures reported here are based on data from Jobstreet.com and PIKOM estimates. They are derived from the job openings for full-time permanent positions in companies based here. The report covers salary growth trends of ICT professionals including the top paying and top hiring industries. For the first time, this report extends to jobs in the critical cyber security sector, which is experiencing a worldwide shortage of skilled professionals. As in previous editions, the regional benchmarking analysis of salary trends in 20 economies and 82 cities is featured.



Chart 1: Overall Average Monthly Salary of ICT Professionals (2009-2017)



Source: Jobstreet.com and PIKOM Estimates

2017 Salary Growth Rate

About 15,197 full-time permanent ICT jobs were advertised in Jobstreet.com in 2017 for ICT professionals in five positions across 22 industries. The number of job openings for 2017 increased significantly by an estimated 35% from the 11,227 advertised jobs in 2016, raising optimism that employers are placing growing importance and relevance to employ ICT professionals in their organisations.

The findings from the advertised jobs showed that the overall average monthly salary of ICT professionals grew by 5.0% from RM8,484 in 2016 to an estimated RM8,908 in 2017 (**Chart 1**).

Senior Managers experienced the highest growth in average monthly salary at 5.6%, followed by Junior Executives at 5.1% and Entry Level Executives at 5.0%. The average monthly salary of both Senior Executives and Managers increased by 4.9%.

However, if we look further at **Table 1**, we will see that with the exception of Senior Manager ICT professionals, those in the Entry Level, Junior Executive, Senior Executive and Manager categories actually enjoyed higher salary growth offerings in 2017 as compared with 2016. Although salaries of Senior Managers showed the highest growth at 5.6% among all five positions in 2017, the increase is still lower than the 6.3% growth reported in 2016. Furthermore, the number of jobs in the Senior Manager category in 2017 was almost the same as in 2016. We will explore more hiring trends later in this section.

Based on Jobstreet.com's salary data for the first three months of 2018 and taking into account the current uncertain economic outlook in Malaysia, PIKOM estimates that the overall average monthly salary of ICT professionals in 2018 will grow by 4.5% to 5.4%. However, in view of the continuing high demand for the specialised skills of ICT professionals, we expect the salary growth to be



Table 1: Average Monthly Salary of ICT Professionals by Job Category (2009-2018)

Job Category	EntryLevel		Junior Executive		Senior Executive		Manager		Senior Manager		Overall	
YEAR	RM	Y-O-Y	RM	Y-O-Y	RM	Y-O-Y	RM	Y-O-Y	RM	Y-O-Y	RM	Y-O-Y
2009	1,971		2,800		4,332		6,163		10,368		5,200	
2010	2,181	10.7%	2,936	4.9%	4,514	4.2%	7,005	13.7%	10,795	4.1%	5,626	8.2%
2011	2,238	2.6%	3,151	7.3%	5,039	11.6%	7,837	11.9%	12,166	12.7%	6,238	10.9%
2012	2,324	3.8%	3,205	1.7%	5,344	6.1%	8,434	7.6%	13,674	12.4%	6,667	6.9%
2013	2,438	4.9%	3,439	7.3%	5,744	7.5%	8,986	6.5%	14,661	7.2%	7,142	7.1%
2014	2,581	5.9%	3,719	8.1%	6,157	7.2%	9,591	6.7%	16,057	9.5%	7,706	7.9%
2015	2,718	5.3%	3,894	4.7%	6,483	5.3%	10,195	6.3%	17,053	6.2%	8,114	5.3%
2016	2,817	3.7%	4,052	4.1%	6,727	3.8%	10,646	4.4%	18,132	6.3%	8,484	4.6%
2017	2,958	5.0%	4,259	5.1%	7,057	4.9%	11,168	4.9%	19,147	5.6%	8,908	5.0%
2018	3,094	4.6%	4,427	3.9%	7,431	5.3%	11,804	5.7%	20,277	5.9%	9,389	5.4%
AAGR (2009-2017)	5.2%		5.4%		6.3%		7.8%		8.0%		7.0%	

Job Category	Entry Level	Junior Executive	Senior Executive	Manager	Senior Manager	Overall
	Ratio	Ratio	Ratio	Ratio	Ratio	Ratio
2009	1.0	1.42	2.20	3.13	5.26	2.64
2010	1.0	1.35	2.07	3.21	4.95	2.58
2011	1.0	1.41	2.25	3.50	5.44	2.79
2012	1.0	1.38	2.30	3.63	5.88	2.87
2013	1.0	1.41	2.36	3.69	6.01	2.93
2014	1.0	1.44	2.39	3.72	6.22	2.99
2015	1.0	1.43	2.39	3.75	6.27	2.99
2016	1.0	1.44	2.39	3.78	6.44	3.01
2017	1.0	1.44	2.39	3.78	6.47	3.01
2018	1.0	1.43	2.40	3.82	6.55	3.03

Source: Jobstreet.com and PIKOM Estimates

Entry Level: Less than 1 year experience
Junior Executive: 1-4 years experience
Senior Executive: 3-7 years experience
Manager: 6-10 years experience
Senior Manager: > 10 years experience



towards the higher end of that range. We also take into account the average annual growth rate (AAGR from 2009-2017) of the overall average monthly salary of ICT professionals, which was a relatively high 7.0% (**Table 1**). As such, we use 5.4% growth in our calculations to forecast an overall average monthly salary of RM9,389 for 2018.

All five positions, with the exception of the lower Entry Level and Junior Executive Level categories, are expected to show a higher growth in the average monthly salary for 2018. Jobstreet.com's figures for the first quarter of this year showed the number of advertised jobs for ICT professionals reached 4,248. We will explore further the projection of this year's average monthly salary of ICT professionals later in this chapter.

The salary figures in this report are based once again on the same 22 industries as in previous years and they are;

- Agriculture / Plantation / Aquaculture;
- Automotive / Heavy Industry / Machinery;
- Banking;
- Call Center / IT-Enabled Services / BPO;
- Computer / Information Technology (Hardware);
- Computer / Information Technology (Software);
- Construction / Building / Engineering;
- Consulting (Business / Technical);
- Education;
- Electrical & Electronics;
- Financial Services / Securities / Insurance;
- Hotel / Restaurant / Food Service / Hospitality;
- Manufacturing / Production;
- Oil / Gas / Petroleum;
- Printing / Publishing;
- Property / Real Estate;
- Science & Technology / Aerospace / Bio Technology;
- Semiconductor / Wafer Fabrication;
- Telecommunication;
- Transport / Storage / Freight / Shipping;
- Utilities; and
- Wholesale / Retail / Trading.

Salary Trends by Job Category

In this section, we will review the estimated salaries of each of the job categories - Entry Level, Junior Executive, Senior Executive, Manager and Senior Manager in 2017. The figures are based on jobs advertised in the 22 industries listed earlier.

We continue to see a similar but worrying trend in the salary gap between Entry Level and Senior Manager ICT professionals. Salaries of fresh graduates and top-level professionals continued to widen further in 2017 with the latter earning 6.47 times more than the former compared with 6.44 times in 2016. We expect to see this ratio grow bigger in 2018 at 6.55 times (**Table 1**).

Entry Level Job Category

In this report, Entry Level ICT professionals or Fresh Graduates are defined as those with less than one-year experience. The average monthly salary of these young professionals was estimated to be RM2,958 in 2017, a growth of about 5.0% from RM2,817 in 2016 (**Chart 2**). Salary growth in 2017 was much higher than the 3.7% recorded in 2016.

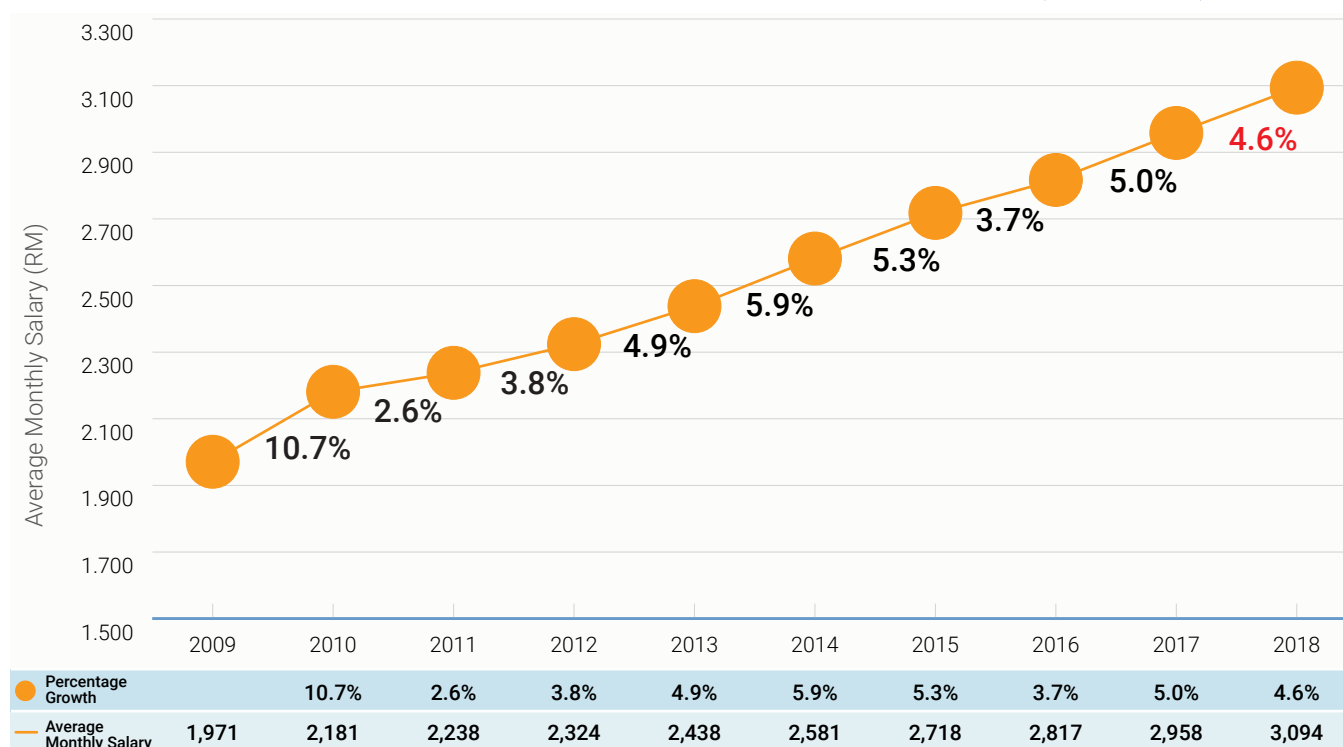
The results derived from the salaries advertised by employers in 15 industries also showed that the AAGR from 2009 to 2017 was 5.2%.

The industries that posted the highest year-on-year average monthly salary growth were Automotive / Heavy Industry / Machinery (9.4%), Construction / Building / Engineering (9.1%) and Electrical & Electronics (8.3%) (**Table 2**).

These same industries also posted the highest AAGR (from 2009-2017) with Automotive / Heavy Industry / Machinery at 14.2%, Construction / Building / Engineering (12%) and Electrical & Electronics (11.6%).



Chart 2: Overall Average Monthly Salary of Entry Level ICT Professionals (2009-2017)



Source: Jobstreet.com and PIKOM Estimates

Table 2: Average Monthly Salary of Entry Level ICT Professionals by Industry (2009-2017)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	Y-O-Y Growth (2016-2017)	AAGR (2009-2017)
Automotive / Heavy Industry / Machinery	1,406	1,731	2,175	2,175	2,763	3,063	3,387	3,615	3,955	9.4%	14.2%
Construction / Building / Engineering	1,301	1,546	1,800	2,023	2,394	2,494	2,722	2,934	3,200	9.1%	12.0%
Electrical & Electronics	1,508	1,769	2,063	2,343	2,343	2,931	3,110	3,279	3,552	8.3%	11.6%
Education	1,581	1,750	1,975	1,983	2,305	2,433	2,602	2,721	2,900	6.6%	8.0%
Banking	1,805	2,000	2,225	2,425	2,425	2,875	3,008	3,130	3,335	6.5%	8.1%
Consulting (Business/Technical)	2,000	2,125	2,275	2,325	2,525	2,625	2,742	2,832	2,965	4.7%	5.1%
Science & Technology / Aerospace / Bio Technology	1,967	2,162	2,350	2,500	2,500	2,500	2,521	2,683	2,806	4.6%	4.6%
Wholesale/Retail/Trading	1,635	1,725	1,800	1,925	2,000	2,075	2,145	2,218	2,315	4.4%	4.4%
Computer / Information Technology (Software)	2,125	2,244	2,400	2,450	2,553	2,763	2,861	2,934	3,059	4.3%	4.7%
Call Center / IT-Enabled Services / BPO	2,025	2,125	2,275	2,275	2,375	2,575	2,660	2,714	2,819	3.9%	4.3%
Telecommunication	1,918	2,008	2,120	2,150	2,280	2,375	2,457	2,518	2,613	3.8%	3.9%
Computer / Information Technology (Hardware)	2,072	2,155	2,213	2,368	2,385	2,485	2,541	2,607	2,697	3.4%	3.4%
Printing / Publishing	2,033	2,131	2,225	2,300	2,300	2,300	2,310	2,391	2,452	2.6%	2.4%
Manufacturing / Production	2,384	2,434	2,508	2,508	2,558	2,655	2,698	2,724	2,776	1.9%	1.9%
Hotel/Restaurant/Food Service/ Hospitality	2,165	2,199	2,225	2,288	2,288	2,340	2,362	2,388	2,425	1.5%	1.4%

Source: Jobstreet.com and PIKOM Estimates



Outlook for Entry Level Category for 2018

The average monthly salary of Entry Level ICT professionals is expected to show a lower growth rate of 4.6% for 2018 to just above RM3,000. High turnover among fresh graduates is still a cause for concern in most industries. It is not uncommon to hear that fresh graduates leave their new jobs in a matter of months and some even in a matter of weeks. This is one of the factors why employers hold back in hiring fresh and inexperienced ICT professionals as compared to professionals in the Senior Executive level and above. Other factors include poor verbal and written skills in English, a language considered essential in the world of Information Technology.

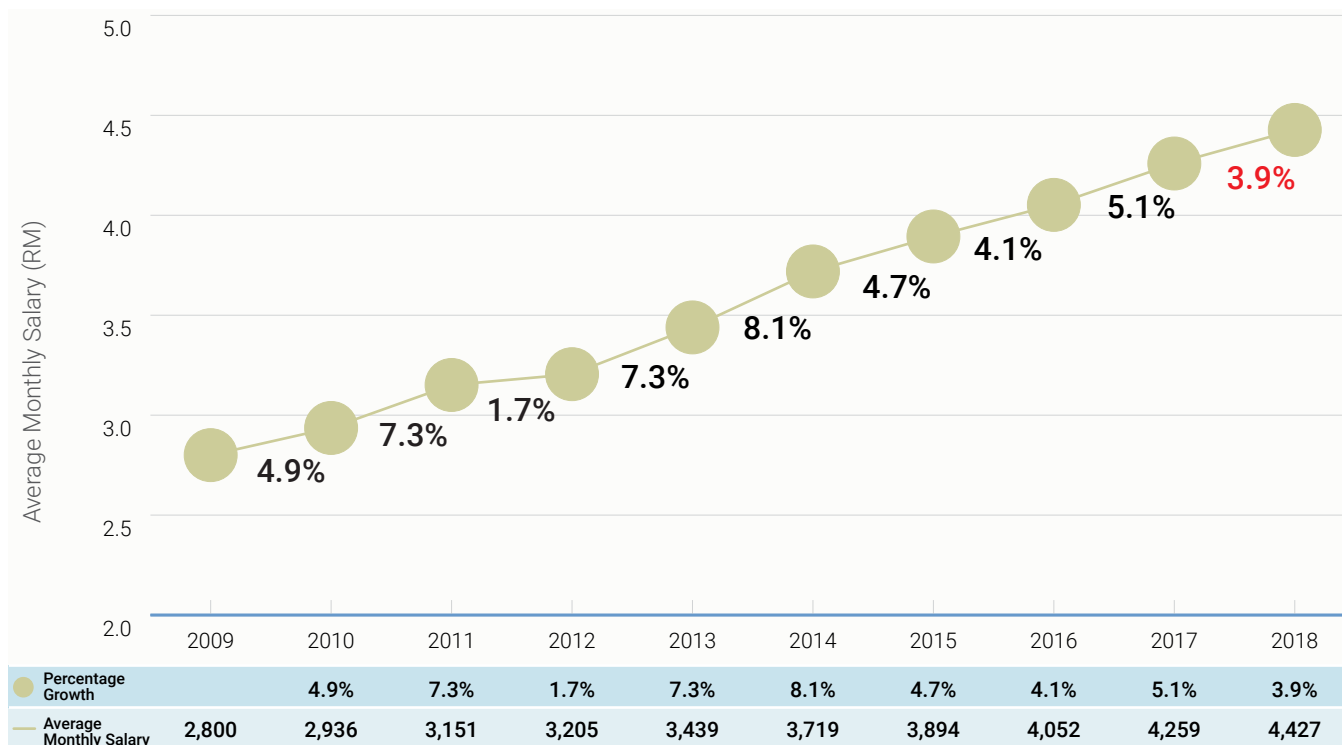
In view of the change in Government, PIKOM believes that corporate Malaysia is adopting a wait-and-see attitude as to the future economic direction. That said, the association believes the lower projection of the average monthly

salary growth for Entry Level professionals this year, reflects the skill levels of Entry Level ICT professionals. Instead, PIKOM views these young professionals as a critical pool to many industries as the nation progresses with its Digital Economy agenda. In fact, the Entry Level category had the second highest year-on-year growth in the number of jobs advertised in 2017 after the Senior Level category (**Table 7**).

Junior Executive Category

The average monthly salary of Junior Executive ICT professionals grew by 5.1% to an estimated RM4,259 in 2017 from RM4,052 in 2016 (**Chart 3**). From the 22 industries tracked, Science & Technology / Aerospace / Bio Technology, Education and Computer / IT (Software) showed the highest year-on-year growth rates in 2017, at 7.0%, 6.7% and 6.6% respectively (**Table 3**).

Chart 3: Overall Average Monthly Salary of Junior Executive ICT Professionals (2009-2017)



Source: Jobstreet.com and PIKOM Estimates

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The table also shows that out of the 22 industries, Wholesale / Retail / Trading posted the highest AAGR from 2009 to 2017 at 8.2% followed by Property / Real Estate at 7.8% and Hotel / Restaurant / Food Service / Hospitality at 7.7%.

Outlook for Junior Executive Level Category for 2018

More than 5,300 of the 15,197 jobs advertised in 2017 were for Junior Level ICT professionals. This position registered the third highest year-on-year growth (**Table 7**). In fact, close to 1,700 jobs were

offered for Junior Executive ICT professionals in the first three months of this year, suggesting that this category is more favourable to employers than the Entry Level category with only 375 job offerings.

That said, Junior Executive ICT professionals with 1 – 4 years' experience have similar issues as Entry Level professionals such as short employment periods. As such, employers appear more careful when offering salaries to ICT professionals in this category. PIKOM projects a lower salary growth of 3.9% for 2018 for the Junior Executive Category.

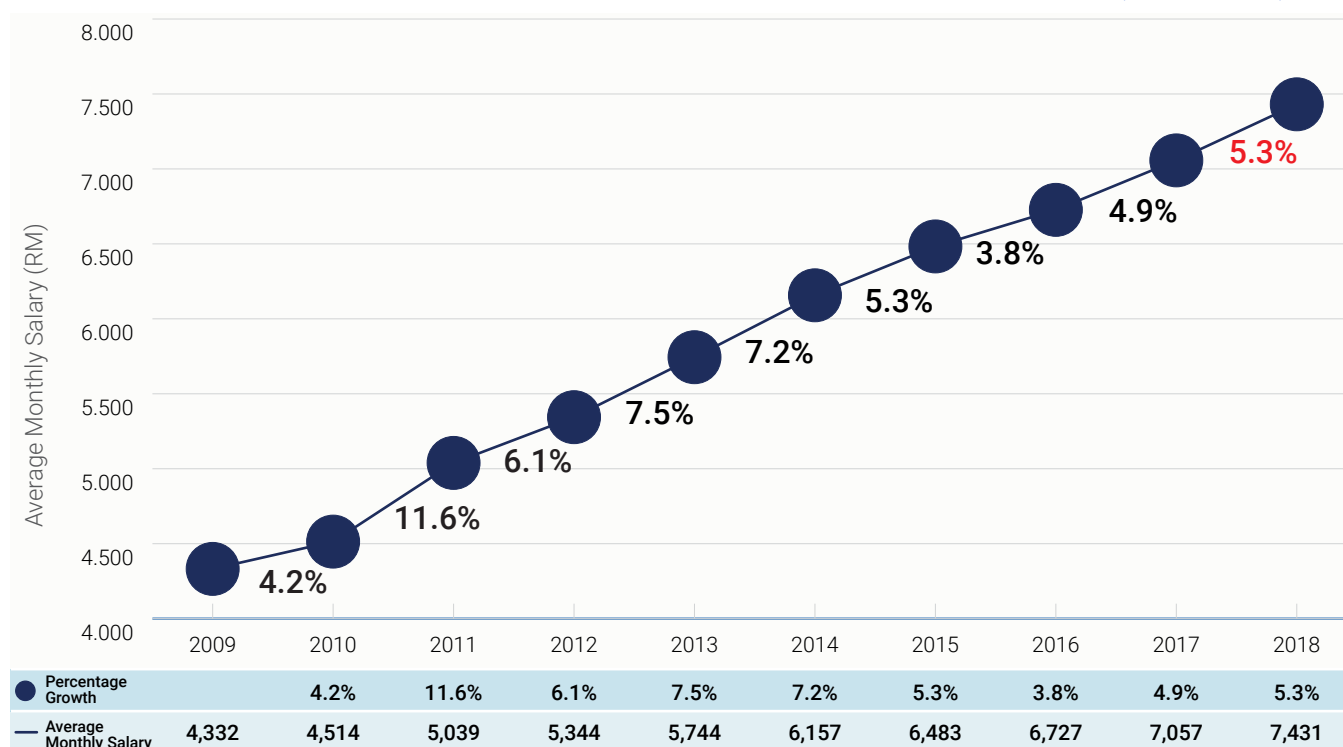
Table 3: Average Monthly Salary of Junior Executive ICT Professionals by Industry (2009-2017)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	Y-O-Y Growth (2016-2017)	AAGR (2009-2017)
Science & Technology/ Aerospace/ BioTechnology	2,575	2,585	2,925	3,069	3,171	3,888	3,907	4,023	4,305	7.0%	6.9%
Education	2,133	2,175	2,523	2,575	2,888	3,150	3,288	3,434	3,664	6.7%	7.1%
Computer/IT (Software)	2,582	2,750	3,025	3,063	3,275	3,900	3,947	4,074	4,343	6.6%	6.8%
Hotel/Restaurant/Food Service/ Hospitality	2,258	2,525	2,575	3,045	3,258	3,355	3,594	3,810	4,054	6.4%	7.7%
Consulting (Business/ Technical)	2,550	3,025	3,150	3,283	3,350	4,041	4,067	4,246	4,518	6.4%	7.6%
Wholesale/Retail/Trading	2,375	2,483	3,300	3,425	3,425	3,513	3,764	4,086	4,324	5.8%	8.2%
Agriculture / Plantation / Aquaculture	2,947	2,968	3,372	3,683	3,900	4,025	4,268	4,485	4,741	5.7%	6.2%
Call Center/IT-Enabled Services/BPO	2,825	2,925	3,225	3,225	3,400	3,874	3,913	4,027	4,244	5.4%	5.3%
Banking	2,900	3,262	3,400	3,475	3,543	4,160	4,165	4,305	4,537	5.4%	5.9%
Financial Services/ Securities/Insurance	2,900	3,262	3,400	3,479	3,543	4,160	4,165	4,306	4,538	5.4%	5.9%
Transport/Storage/ Freight/Shipping	2,960	2,964	3,098	3,100	3,638	3,763	3,884	3,965	4,166	5.1%	4.5%
Telecommunication	2,975	3,025	3,250	3,388	3,538	3,913	3,984	4,094	4,300	5.0%	4.7%
Utilities	2,664	2,734	3,092	3,226	3,360	3,440	3,603	3,775	3,949	4.6%	5.1%
Automotive/Heavy Industry/Machinery	3,220	3,075	3,100	3,563	3,663	3,878	3,994	4,063	4,247	4.5%	3.6%
Printing/Publishing	2,500	2,699	2,790	2,950	3,215	3,215	3,375	3,521	3,678	4.5%	5.0%
Property / Real Estate	2,425	2,538	3,905	3,215	3,225	3,425	3,500	3,810	3,975	4.3%	7.8%
Construction/Building/ Engineering	2,736	2,675	2,900	2,950	3,152	3,352	3,424	3,494	3,644	4.3%	3.7%
Semiconductor/Wafer Fabrication	3,061	3,160	3,700	3,753	3,753	3,963	4,094	4,297	4,481	4.3%	5.0%
Electrical & Electronics	2,865	2,725	3,113	3,228	3,229	3,513	3,582	3,675	3,831	4.2%	3.8%
Computer/IT (Hardware)	2,720	2,963	3,002	3,100	3,213	3,350	3,421	3,529	3,649	3.4%	3.8%
Oil/Gas/Petroleum	3,044	3,500	3,675	3,725	3,775	3,875	3,979	4,182	4,319	3.3%	4.5%
Manufacturing / Production	2,825	3,025	3,095	3,157	3,292	3,392	3,464	3,565	3,676	3.1%	3.4%

Source: Jobstreet.com and PIKOM Estimates



Chart 4: Overall Average Monthly Salary of Senior Executive ICT Professionals (2009-2017)



Source: Jobstreet.com and PIKOM Estimates

Senior Executive Level Category

The average monthly salary of ICT professionals in this category grew by 4.9% to more than RM7,000 in 2017 (**Chart 4**). This is a much higher growth than the 3.8% we saw for 2016.

Of the 22 industries tracked for this job category, Agriculture / Plantation / Aquaculture, Science & Technology / Aerospace / Bio Technology and Call Centre / IT-Enabled Services / BPO showed the highest year-on-year growth in 2017, at 9.0%, 7.2% and 6.7% respectively. The top two industries maintained their leading positions, registering the highest average annual growth rate (from 2009-2017) at 11.8% and 8.7% respectively. Electrical & Electronics came in third with an AAGR of 7.9% (**Table 4**).

Outlook for Senior Executive Category

PIKOM projects that Senior Executive Level ICT professionals (3-7 years experience) can expect a higher salary growth rate of 5.3% in 2018 as

compared with 4.9% in 2017. The AAGR from 2009 to 2017 for this category was 6.3% (**Table 1**), which is much higher than the 2017 growth rate. Nearly half of the 15,197 jobs posted this year were for Senior Executives. The category also saw a high number of jobs – 1,700 - offered in the first quarter of this year.

Manager Level

Once an ICT professional reaches the Manager Level with experience ranging from 6 - 10 years, they can expect a significant rise in their salaries compared with the lower Senior Executive Level category.

This, however, depends on the demand for their core ICT skills. The average monthly salary of Manager Level ICT professionals in 2017 grew by 4.9% to reach more than RM11,000. This growth rate is higher than the 4.4% in 2016 (**Chart 5**). The total number of jobs offered for this category was 1,274 (**Table 7**).



Table 4: Average Monthly Salary of Senior Executive ICT Professionals by Industry (2009-2017)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	Y-O-Y Growth (2016-2017)	AAGR (2009-2017)
Agriculture / Plantation / Aquaculture	3,683	3,967	4,600	5,033	5,943	7,154	7,803	8,173	8,909	9.0%	11.8%
Science & Technology / Aerospace / Bio Technology	4,575	4,515	5,031	6,500	6,500	7,063	7,600	8,110	8,696	7.2%	8.7%
Call Center / IT-Enabled Services / BPO	3,832	4,428	4,556	4,750	5,054	6,125	6,160	6,423	6,850	6.7%	7.7%
Electrical & Electronics	3,800	3,915	4,750	5,119	5,233	5,800	6,095	6,490	6,910	6.5%	7.9%
Property / Real Estate	4,339	4,339	5,300	5,825	6,050	6,250	6,483	7,017	7,452	6.2%	7.2%
Manufacturing / Production	4,650	4,525	5,175	5,298	5,822	6,207	6,446	6,702	7,063	5.4%	5.5%
Hotel/Restaurant/Food Service/Hospitality	4,433	4,801	4,801	5,475	5,925	6,050	6,399	6,723	7,079	5.3%	6.1%
Transport/Storage/Freight/Shipping	5,009	5,229	5,400	5,610	6,320	6,730	6,943	7,183	7,559	5.2%	5.3%
Education	3,225	3,225	4,100	4,100	4,165	4,475	4,913	5,127	5,383	5.0%	6.9%
Telecommunication	5,225	5,225	6,193	6,675	6,675	7,000	7,361	7,794	8,183	5.0%	5.9%
Computer / Information Technology (Software)	4,475	4,505	4,769	5,160	5,400	5,999	6,612	6,672	7,004	5.0%	5.8%
Financial Services/Securities/Insurance	4,763	4,749	5,261	5,450	5,825	6,319	6,938	7,046	7,387	4.8%	5.7%
Banking	4,763	4,749	5,395	5,575	5,825	6,319	6,840	7,009	7,344	4.8%	5.6%
Construction / Building / Engineering	3,922	4,250	4,500	4,575	4,700	5,322	5,364	5,553	5,813	4.7%	5.1%
Oil / Gas / Petroleum	6,100	6,209	7,500	7,500	7,575	8,000	8,291	8,744	9,128	4.4%	5.3%
Consulting (Business/Technical)	5,175	5,150	5,525	5,879	6,000	6,375	6,543	6,751	7,020	4.0%	3.9%
Wholesale/Retail/Trading	4,050	4,100	4,800	4,800	4,800	5,025	5,170	5,409	5,605	3.6%	4.3%
Computer / Information Technology (Hardware)	4,315	4,577	4,769	4,835	5,110	5,410	6,038	6,056	6,269	3.5%	4.8%
Printing / Publishing	4,150	4,000	4,150	4,154	4,550	4,800	4,851	4,896	5,060	3.3%	2.6%
Utilities	4,550	4,550	4,710	5,201	5,201	5,350	5,525	5,699	5,888	3.3%	3.3%
Semiconductor / Wafer Fabrication	5,377	5,563	5,685	5,810	5,875	6,225	6,303	6,414	6,576	2.5%	2.6%
Automotive / Heavy Industry / Machinery	4,690	4,814	4,989	5,050	5,189	5,400	5,550	5,644	5,786	2.5%	2.7%

Source: Jobstreet.com and PIKOM Estimates

From the 13 industries tracked for the Manager Level job category, Education, Construction / Building / Engineering and Wholesale / Retail / Trading registered the highest year-on-year growth at 7.9%, 7% and 6.8% respectively (**Table 5**).

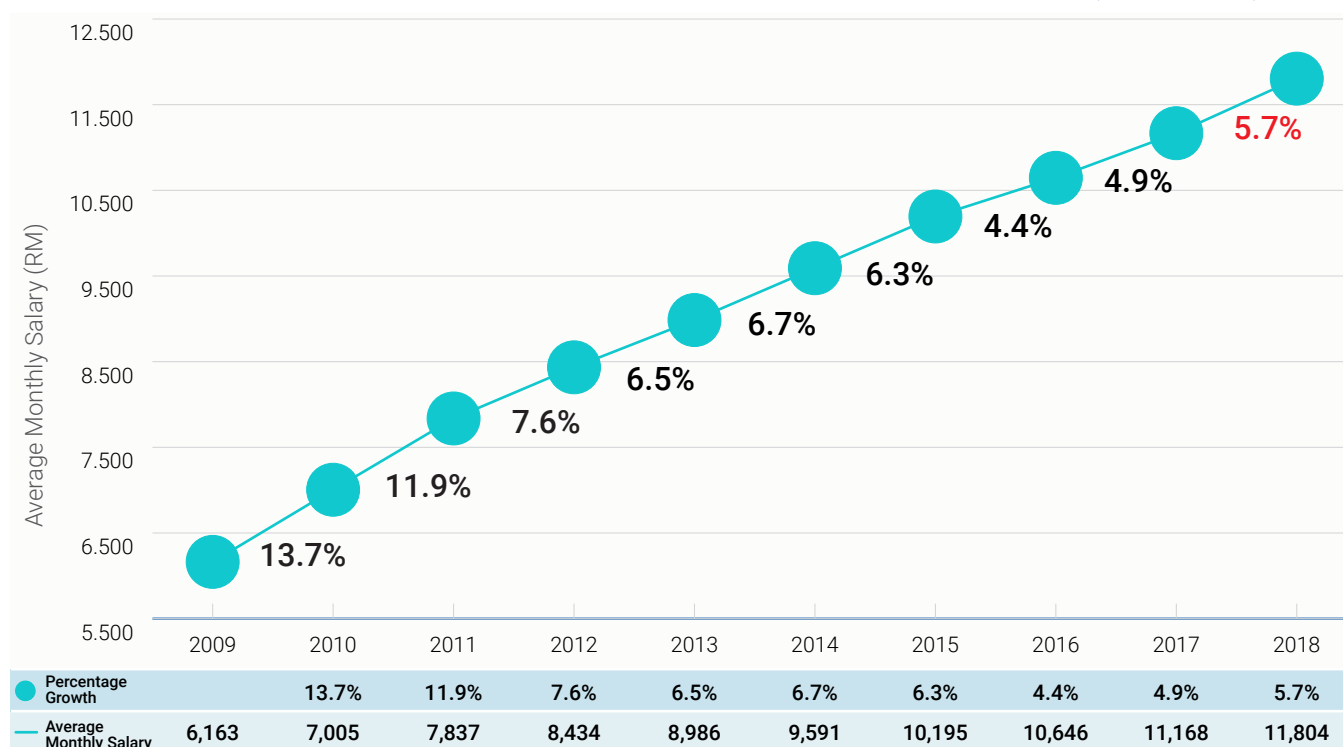
The same three industries also showed the highest AAGR (2009-2017) among all industries, although in different order. Wholesale /Retail / Trading was first at 12.7%, followed by Education at 10.9% and Construction / Building / Engineering at 9.4%.

Outlook for Manager Level

The AAGR (from 2009 to 2017) of the average monthly salary for this category was significantly high at 7.8%. More than 380 jobs were advertised for this category in the first quarter of this year. PIKOM expects employers to continue to invest heavily in these experienced professionals and projects the average monthly salary to grow by a higher 5.7% in 2018 compared to 2017. This projection would take the salary above RM11,800.



Chart 5: Overall Average Monthly Salary of Manager Level ICT Professionals (2009-2017)



Source: Jobstreet.com and PIKOM Estimates

Table 5: Average Monthly Salary of Manager Level ICT Professionals by Industry (2009-2017)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	Y-O-Y Growth (2016-2017)	AAGR (2009-2017)
Education	4,200	4,913	5,162	5,999	6,712	7,579	8,335	8,858	9,560	7.9%	10.9%
Construction / Building / Engineering	5,355	6,372	6,565	6,574	8,475	8,807	9,376	9,994	10,696	7.0%	9.4%
Wholesale/Retail/ Trading	5,486	6,870	9,737	9,948	9,958	10,422	11,279	12,661	13,527	6.8%	12.7%
Computer / Information Technology (Hardware)	5,963	6,544	6,621	6,791	8,201	8,556	8,962	9,401	9,954	5.9%	6.8%
Consulting (Business/ Technical)	7,265	7,655	7,995	8,594	8,908	10,064	10,444	10,820	11,398	5.3%	5.8%
Computer / Information Technology (Software)	6,600	6,644	7,232	7,558	7,669	8,651	9,230	9,407	9,853	4.7%	5.2%
Call Center / IT-Enabled Services / BPO	7,688	7,280	8,394	8,993	9,023	9,744	10,078	10,506	10,988	4.6%	4.7%
Manufacturing / Production	6,675	7,264	8,286	8,342	8,701	9,009	9,384	9,944	10,380	4.4%	5.7%
Financial Services/ Securities/Insurance	6,983	6,999	7,546	8,248	8,464	8,814	9,272	9,658	10,075	4.3%	4.7%
Banking	7,631	7,673	7,967	8,468	8,759	9,213	9,450	9,741	10,096	3.6%	3.6%
Telecommunication	7,794	7,931	8,507	8,684	9,082	9,410	9,667	10,001	10,344	3.4%	3.6%
Electrical & Electronics	10,860	11,856	12,488	12,933	13,275	13,554	13,790	14,495	14,977	3.3%	4.1%
Automotive / Heavy Industry / Machinery	8,494	8,903	8,995	9,166	9,578	10,133	10,267	10,510	10,832	3.1%	3.1%

Source: Jobstreet.com and PIKOM Estimates



Senior Manager Category

The average monthly salary of Senior Manager Level ICT professionals (more than 10 years' experience) reached RM19,147 in 2017, a 5.6% growth from RM18,132 in 2016 (**Chart 6**). This is the only job category that recorded a lower growth in 2017 as compared with 6.3% in 2016.

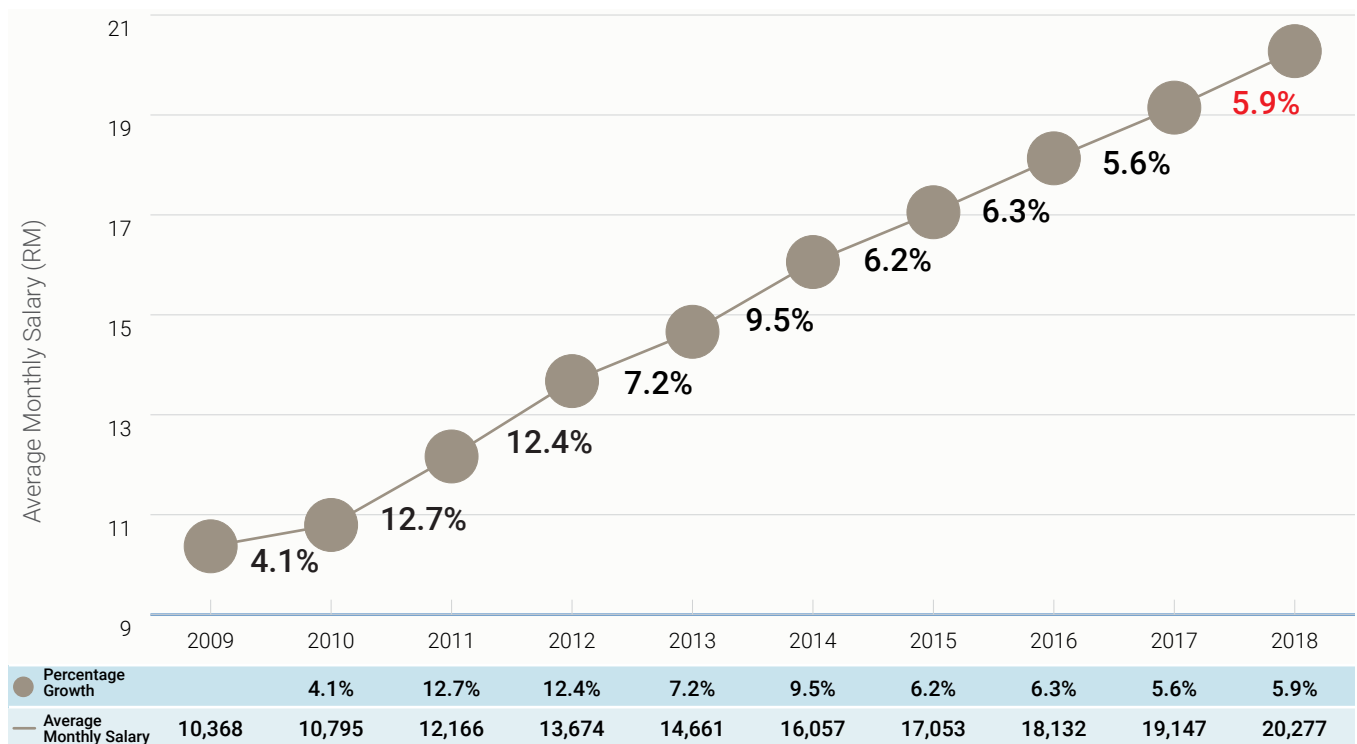
Computer / Information Technology (Hardware), Financial Services / Securities / Insurance and Banking were the industries that registered the highest year-on-year growth in 2017 at 7.1%, 6.7% and 6.3% respectively. The same industries and in the same order also posted the highest AAGR (2009-2017) at 10.9%, 9.0% and 8.4% respectively. (**Table 6**).

Outlook for Senior Manager Level

If we look at the AAGR (from 2009-2017), the average monthly salary of Senior Manager ICT professionals grew by 8.0%. PIKOM projects the salary growth to be higher in 2018 against 2017 at 5.9% to reach RM20,277.

The next section on top paying industries by job categories will show that two industries – Computer / IT (Hardware) and Call Centre / IT-Enabled Services / BPO were the top paying industries for Senior Managers in 2017, offering an average monthly salary of above RM21,000.

Chart 6: Overall Average Monthly Salary of Senior Manager ICT Professionals (2009-2017)



Source: Jobstreet.com and PIKOM Estimates



Table 6: Average Monthly Salary of Senior Manager ICT Professionals by Industry (2009-2017)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	Y-O-Y Growth (2016-2017)	AAGR (2009-2017)
Computer / Information Technology (Hardware)	9,713	12,751	14,528	15,789	16,767	17,566	18,242	20,369	21,813	7.1%	10.9%
Financial Services/Securities/ Insurance	9,490	10,203	10,250	13,961	13,961	14,700	15,950	17,167	18,323	6.7%	9.0%
Banking	9,622	10,203	11,887	13,961	13,961	14,700	15,820	17,095	18,169	6.3%	8.4%
Computer / Information Technology (Software)	8,703	9,250	10,000	10,375	11,094	12,439	12,979	13,493	14,226	5.4%	6.4%
Manufacturing / Production	10,275	10,750	13,550	14,150	14,195	14,838	15,737	16,966	17,887	5.4%	7.4%
Telecommunication	11,375	11,250	12,800	13,925	14,288	15,119	15,824	16,658	17,483	5.0%	5.6%
Call Center / IT-Enabled Services / BPO	14,438	15,136	15,722	17,013	18,014	18,832	19,523	20,416	21,335	4.5%	5.0%
Consulting (Business/ Technical)	11,138	11,196	11,516	12,098	12,942	14,047	15,415	15,429	16,061	4.1%	4.7%

Source: Jobstreet.com and PIKOM Estimates

Top Paying Industries by Job Categories

We continue this section of salary trends by exploring how much industries were willing to pay ICT professionals in 2017. Let's look at the overall picture before focusing on each position. Financial Services / Securities / Insurance emerged as the top paying industry, offering as much as RM10,084 in average monthly salary (**Chart 7**). The others in the top five were Call Centre / IT Enabled Services / BPO at RM9,250, Computer / Information Technology (Hardware) at RM8,879, Banking in RM8,698 and Telecommunication at RM8,587.

Entry Level Category

The Automotive / Heavy Industry / Machinery industry offered the highest average monthly salary for ICT professionals in 2017 with RM3,955. Electrical & Electronics was the second highest at RM3,552, followed by Banking at RM3,955 (**Chart 8**), Construction / Building / Engineering at RM3,200 and Computer / Information Technology (Software) at RM3,059.

Junior Executive Category

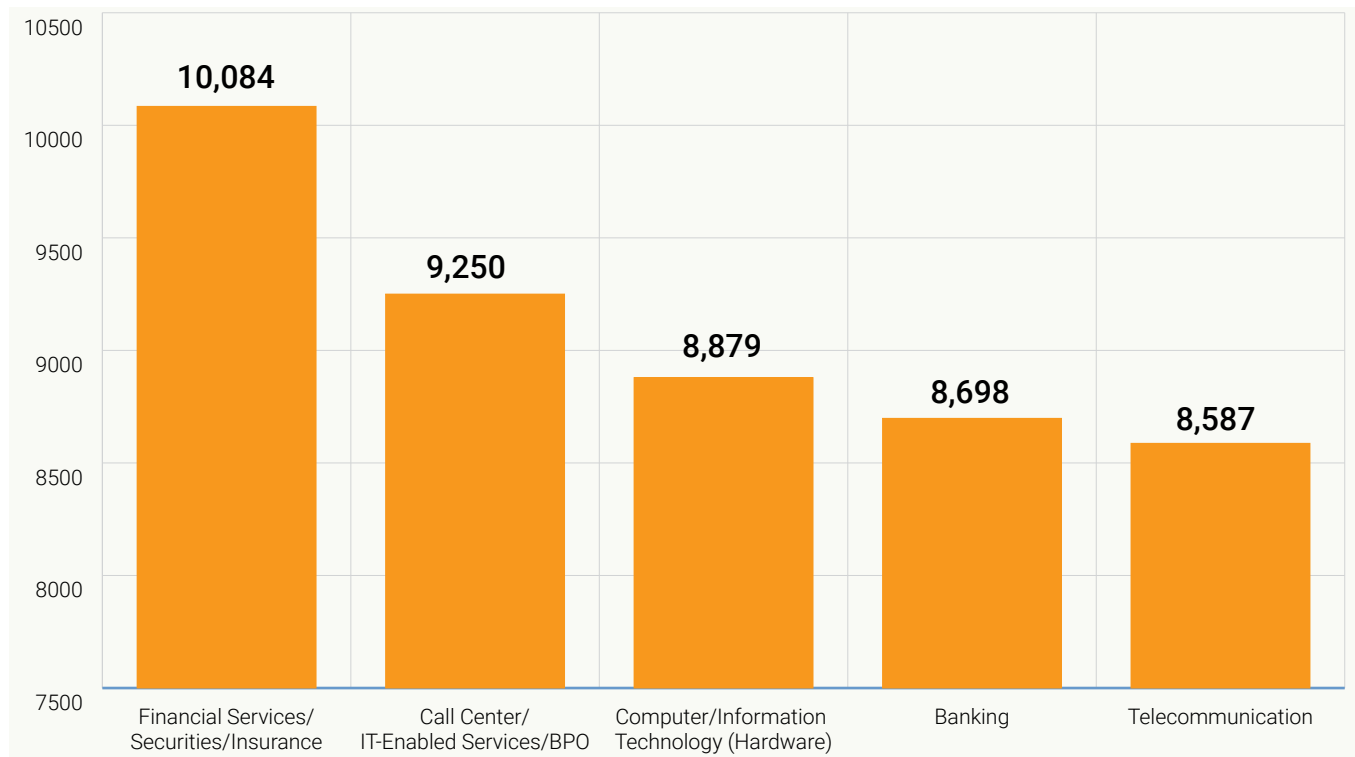
The Agriculture / Plantation / Agriculture industry offered an average monthly salary of RM4,741 to Junior Executive ICT professionals. The second and third top paying industries, Financial Services / Securities / Insurance and Banking offered almost the same average monthly salary at RM4,538 and RM4,537 respectively. Consulting / Business Technical and Semiconductor / Wafer Fabrication offered RM4,518 and RM4,481 respectively in average monthly salary (**Chart 9**).

Senior Executive Category

Oil prices recovered in 2017 and the rebound is still continuing this year. The comeback performance appears to have impacted the salary scale in the Senior Executive category in the Oil / Gas / Petroleum industry. Employers in this industry offered the highest average monthly salary of RM9,128, higher than the overall average monthly salary of ICT professionals in 2017 at RM8,908.

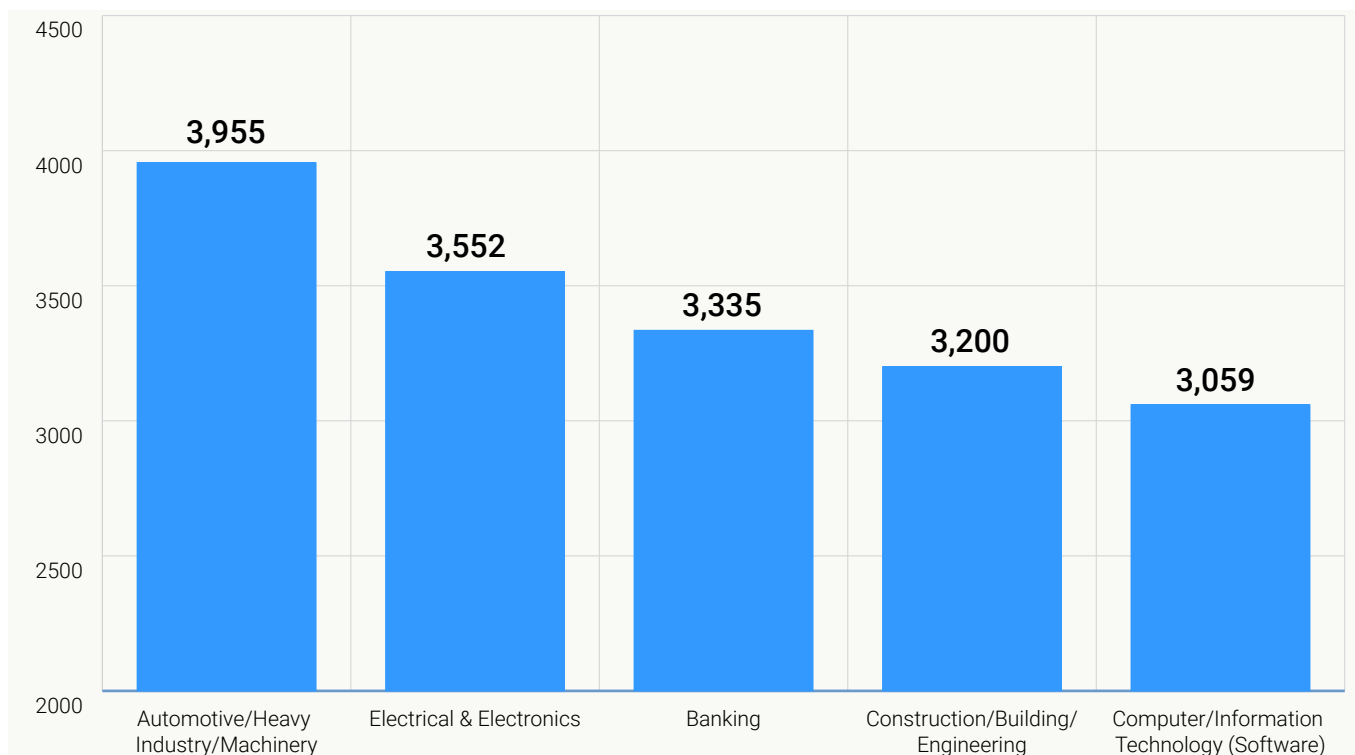


Chart 7: Overall: Top Paying Industries for ICT Professionals in Malaysia in 2017 (Average Monthly Salary in RM)



Source: Jobstreet.com and PIKOM Estimates

Chart 8: Entry Level: Top Paying Industries for ICT Professionals in Malaysia in 2017 (Average Monthly Salary in RM)



Source: Jobstreet.com and PIKOM Estimates

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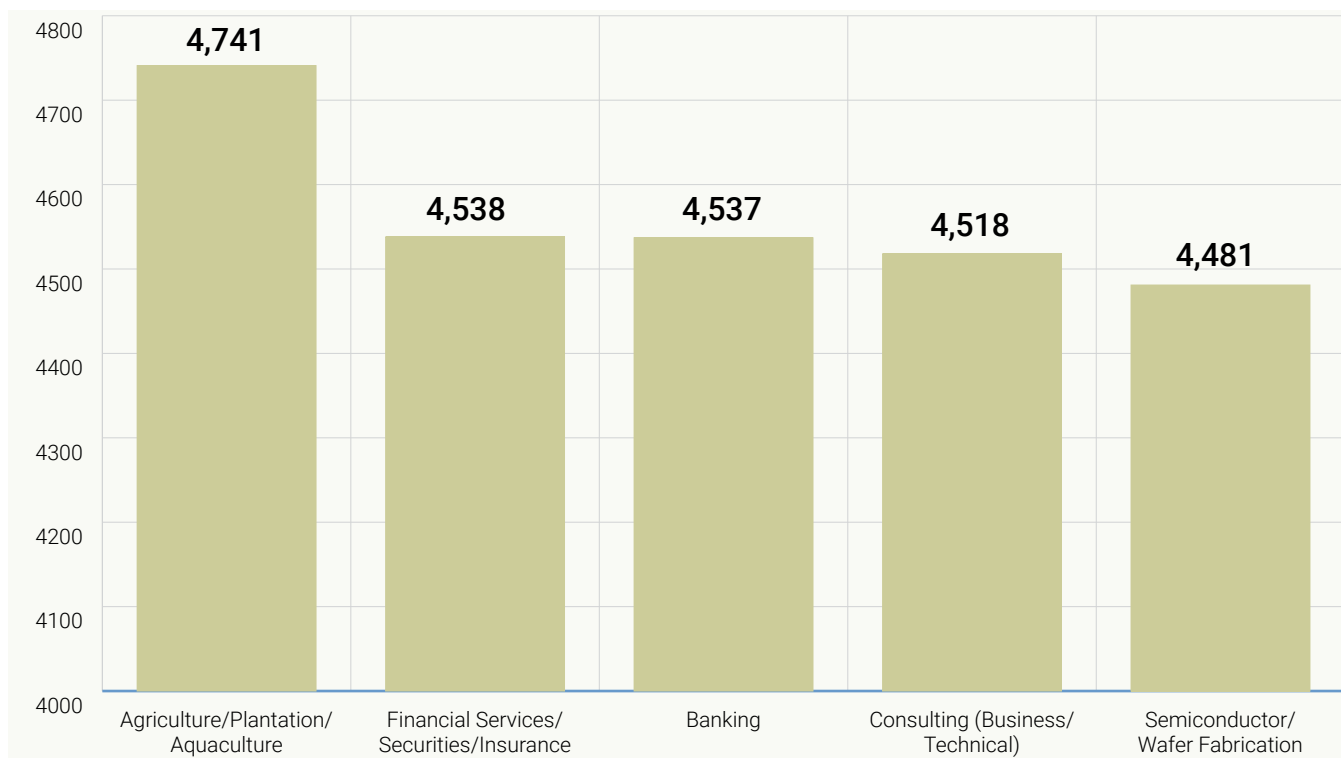


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Chart 9: Junior Executive Level: Top Paying Industries for ICT Professionals in Malaysia in 2017 (Average Monthly Salary in RM)



Source: Jobstreet.com and PIKOM Estimates

The second highest paying industry, Agriculture / Plantation / Aquaculture offered RM8,909, which was about the same as the overall average monthly salary. The rest in the top five paying industries were Science & Technology / Aerospace / Bio Technology (RM8,696), Telecommunications (RM8,183) and Transport / Storage / Freight/Shipping (RM7,559) (**Chart 10**).

Manager Level

The average monthly salary offered by all top five paying industries for this category exceeded RM10,000 with Electrical & Electronics in first place, offering just over RM15,000 (**Chart 11**). The rest of the top paying industries for this category were Wholesale / Retail / Trading at RM13,637, Consulting (Business/Technical) at RM11,400,

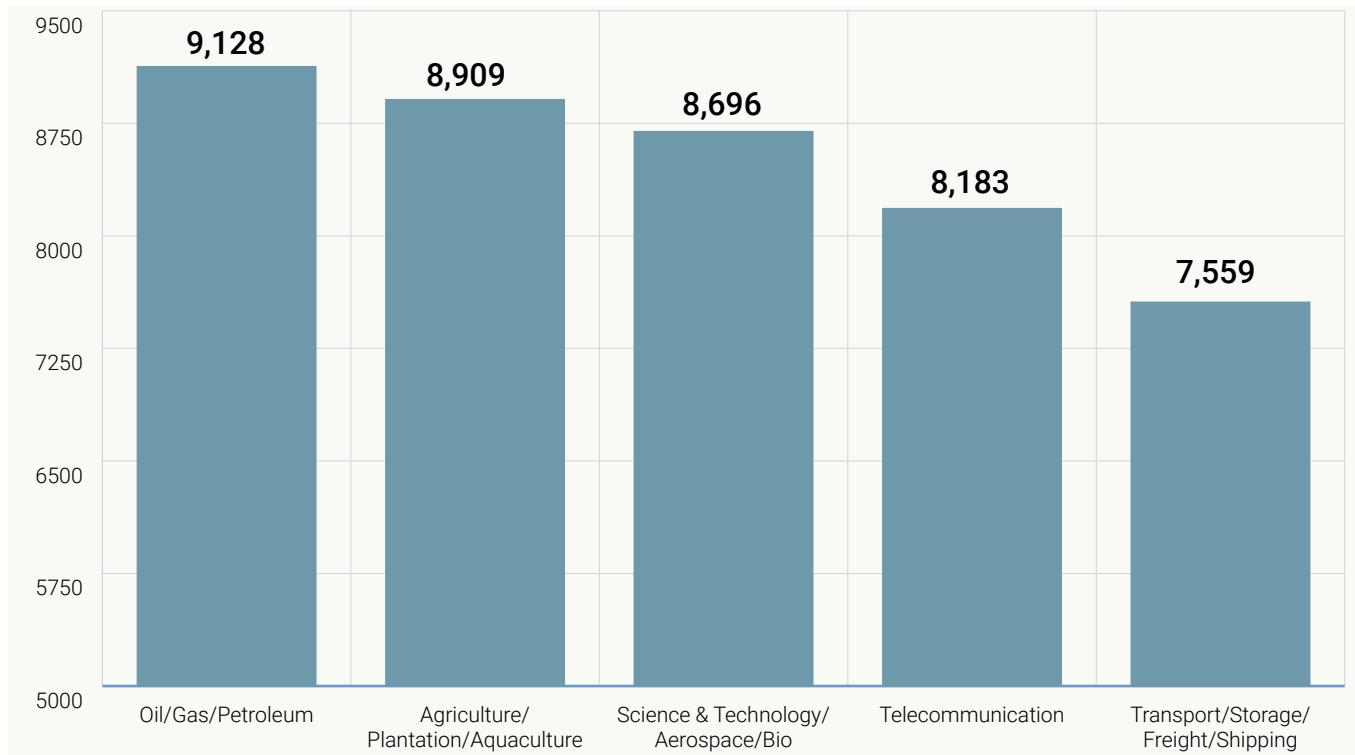
Call Centre / IT-Enabled Services / BPO at just over RM11,000 and Automotive / Heavy Industry / Machinery at RM10,838.

Senior Manager Level

The top two paying industries for Senior Manager Level ICT professionals offered an average monthly salary of more than RM21,000 in 2017. Computer / Information Technology (Hardware) and Call Centre / IT-Enabled Services / BPO industries were willing to pay as much as RM21,813 and RM21,335 respectively (**Chart 12**). Financial Services / Securities / Insurance, Banking and Manufacturing / Production were the next highest paying industries, offering RM18,323, RM18,169 and RM17,887 respectively.

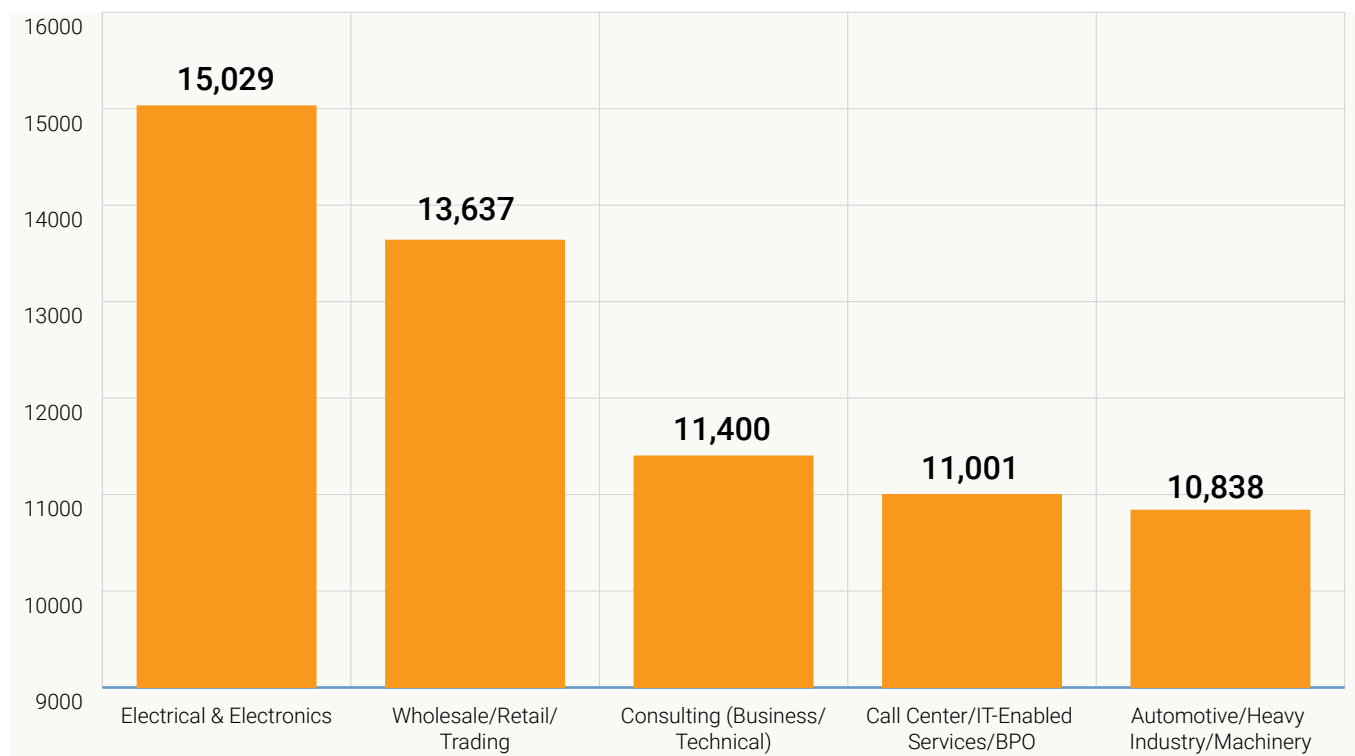


Chart 10: Senior Executive Level: Top Paying Industries for ICT Professionals in Malaysia in 2017 (Average Monthly Salary in RM)



Source: Jobstreet.com and PIKOM Estimates

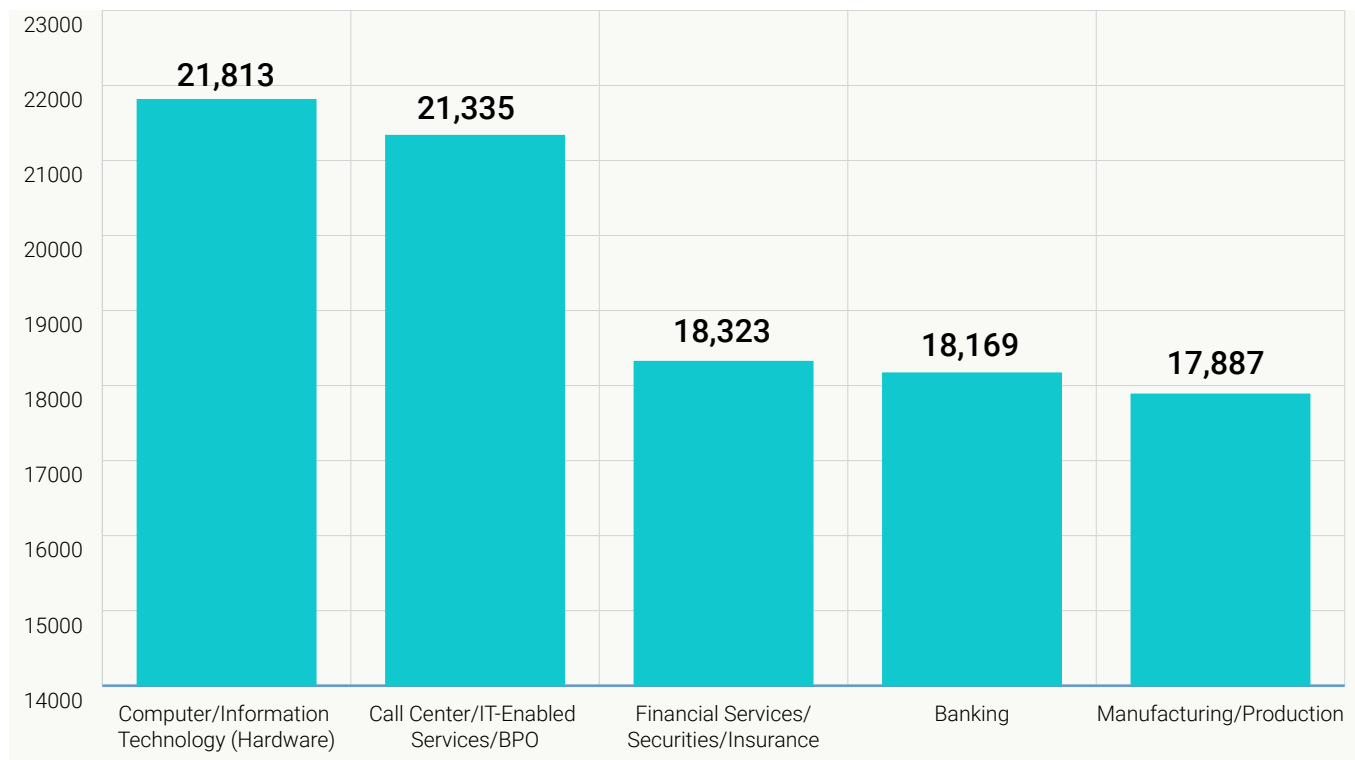
Chart 11: Manager Level: Top Paying Industries for ICT Professionals in Malaysia in 2017 (Average Monthly Salary in RM)



Source: Jobstreet.com and PIKOM Estimates



Chart 12: Senior Manager Level: Top Paying Industries for ICT Professionals in Malaysia in 2017 (Average Monthly Salary in RM)



Source: Jobstreet.com and PIKOM Estimates

HIRING TRENDS OF ICT PROFESSIONALS IN MALAYSIA IN 2017

At the start of this chapter, we had stated there were 15,197 job openings for ICT professionals in five positions across 22 industries in 2017. This was a jump of about 35% from 11,227 jobs in 2016 (**Table 7 and Chart 13**). All job categories experienced double-digit growth with the exception of the Manager and Senior Manager levels. However, the number of ICT jobs is still fewer by about 3,000 than the 18,000 advertised jobs in 2015. However, PIKOM hopes the number of jobs will increase from this year onwards.

The Senior Executive level posted the highest year-on-year growth at 57% in the number of job openings in 2017. This was followed by Entry Level at 36% and Junior Executive at 21%.

However, if we focus only on the 2017 figures, Senior Executive ICT professionals captured the most number of the jobs with 47% of the 15,197

jobs, followed by Junior Executives at 35%. The remaining three job categories accounted for less than 10% of the overall number of job offers (**Chart 14**).

Hiring Trends of ICT Professionals by Industries

The top five hiring industries for the 15,197 ICT professionals in 2017 were Computer / Information Technology (Software), Consulting (Business/Technical), Manufacturing, Telecommunications and Banking. **Table 8** and **Chart 15** show the percentage distribution of jobs among these five industries. Computer / Information Technology (Software) accounted for 37% of the overall number of jobs while Consulting (Business/Technical) made up 15% of the jobs.

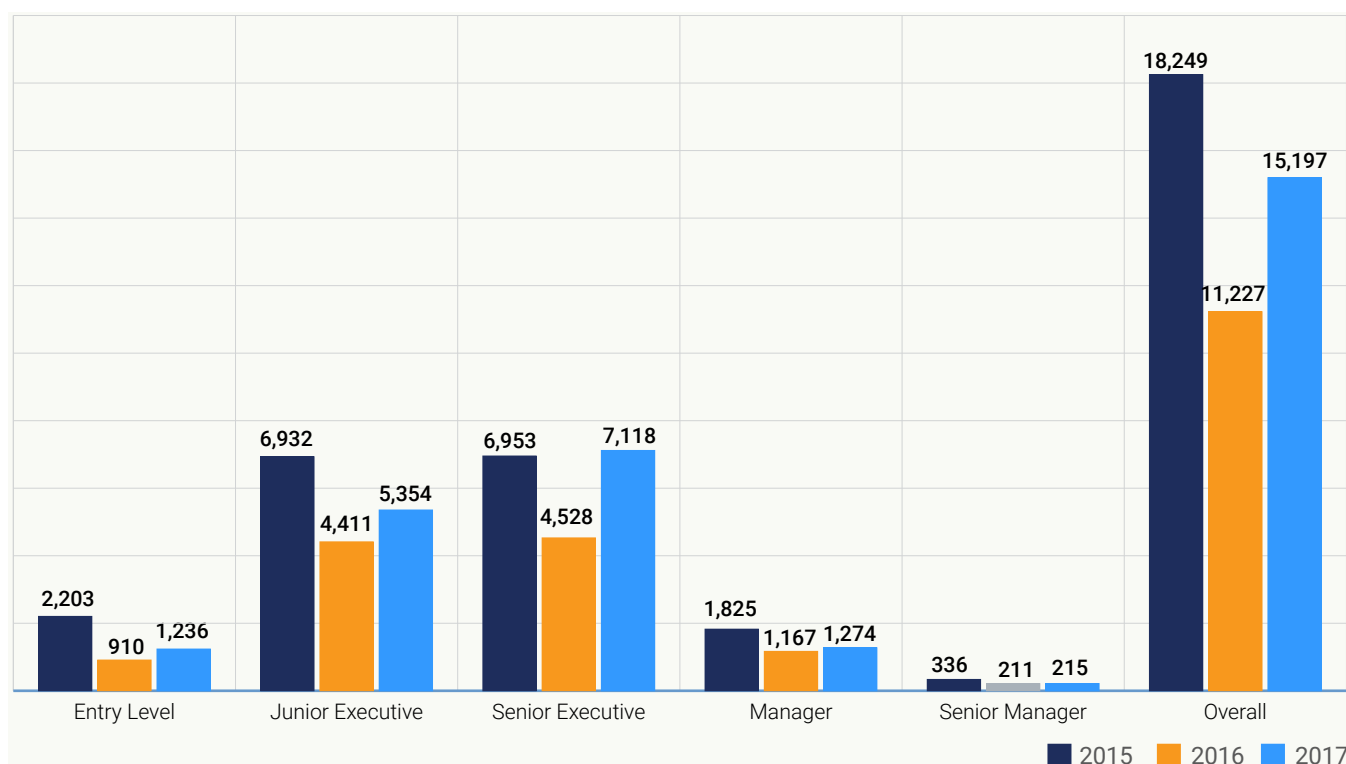


Table 7: Comparison of job openings for ICT Professionals in Malaysia in Malaysia (2015-2017) and Growth Change in 2017

Position Level	2015	2016	2017	Percentage Change (2016-2017)
Entry Level	2,203	910	1,236	36%
Junior Executive	6,932	4,411	5,354	21%
Senior Executive	6,953	4,528	7,118	57%
Manager	1,825	1,167	1,274	9%
Senior Manager	336	211	215	2%
Grand Total	18,249	11,227	15,197	35%

Source: Jobstreet.com and PIKOM Estimates

Chart 13: Comparison of job openings for ICT Professionals in Malaysia(2015-2017)



Source: Jobstreet.com and PIKOM Estimates

Chart 14: Hiring Trends by Position Level

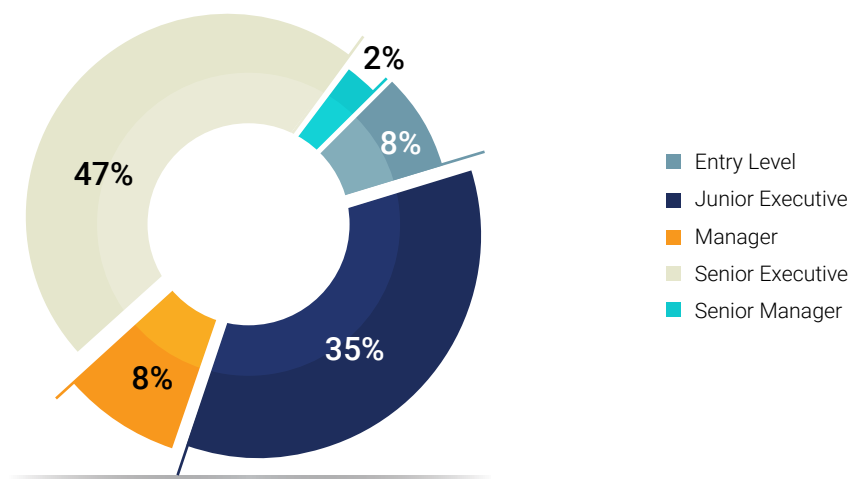


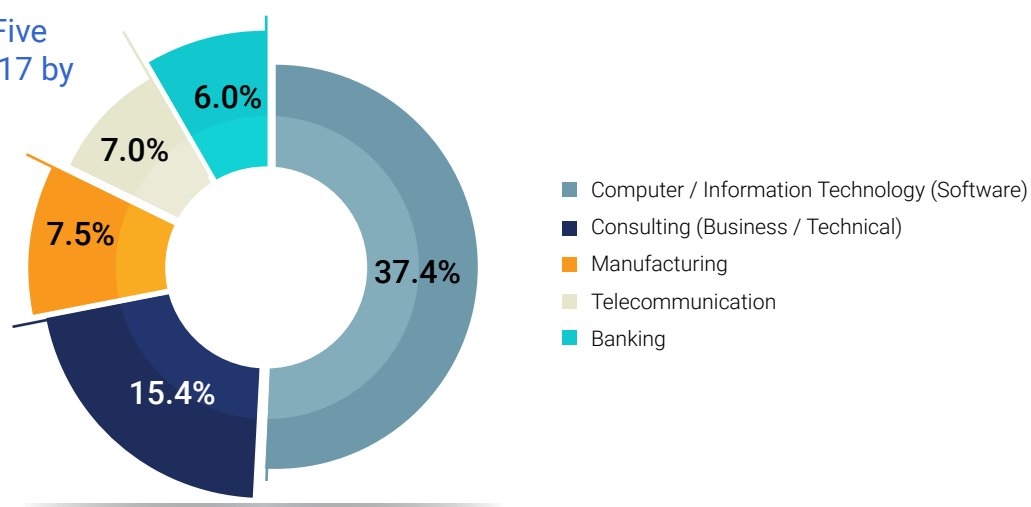


Table 8: Overall: Top Five Hiring Industries for ICT Professionals in Malaysia in 2017

Industry	Overall Percentage	Number of Job Openings
Computer / Information Technology (Software)	37.4%	5,686
Consulting (Business / Technical)	15.4%	2,346
Manufacturing / Production	7.5%	1,147
Telecommunication	7.0%	1,068
Banking	6.0%	906

Source: Jobstreet.com and PIKOM Estimates

Chart 15: Overall Top Five Hiring Industries in 2017 by Percentage Growth



Entry Level Category

Computer / Information Technology (Software), Consulting (Business / Technical) and Computer / Information Technology (Hardware) accounted for almost 60% of the 1,236 jobs for this category in 2017. The remaining two top hiring industries were Manufacturing / Production and Call Centre / IT-Enabled Services. (**Table 9 and Chart 16**).

Junior Executive Level Category

The top two hiring industries for Junior Executive ICT professionals in 2017, Computer / Information Technology (Software) and Consulting (Business / Technical), were the same as the Entry Level category. Together, these two industries accounted

for more than half the 5,354 jobs. The remaining three top hiring industries were Manufacturing / Production, Computer / Information Technology (Hardware) and Telecommunication (**Table 10 and Chart 17**).

Senior Executive Category

Almost 50% of the 15,197 job openings for ICT professionals in 2017 were in the Senior Executive Category. Computer / Information Technology (Software), Consulting (Business / Technical) and Telecommunication were the top three hiring industries with more than 60% of the 7,118 job openings. The remaining two top hiring industries were Manufacturing / Production and Banking (**Table 11 and Chart 18**).



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Table 9: Top Five Hiring Industries for Entry Level ICT Professionals in 2017

Industry	Overall Percentage	Number of Job Opening
Computer / Information Technology (Software)	31.1%	385
Consulting (Business / Technical)	15.8%	195
Computer / Information Technology (Hardware)	12.1%	149
Manufacturing / Production	8.2%	101
Call Center / IT-Enabled Services / BPO	8%	99

Source: Jobstreet.com and PIKOM Estimates

Chart 16: Top Five Hiring Industries for Entry Level ICT Professionals in Malaysia in 2017

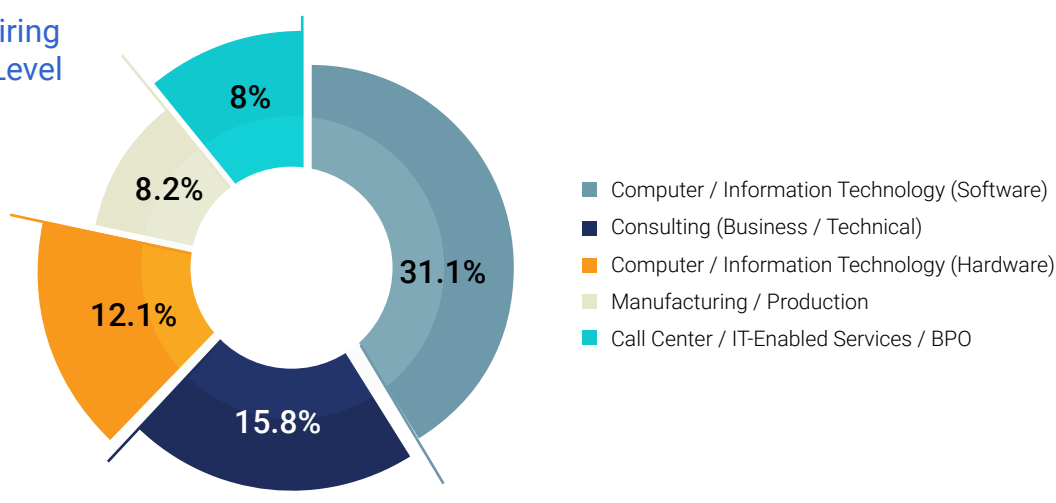


Table 10: Top Five Hiring Industries for Junior Executive ICT Professionals

Industry	Overall Percentage	Number of Job Openings
Computer / Information Technology (Software)	41%	2,194
Consulting (Business / Technical)	14.8%	795
Manufacturing / Production	7.9%	422
Computer / Information Technology (Hardware)	5%	267
Telecommunication	4.5%	243

Source: Jobstreet.com and PIKOM Estimates

Chart 17: Top Five Hiring Industries for Junior Executive ICT Professionals in Malaysia in 2017

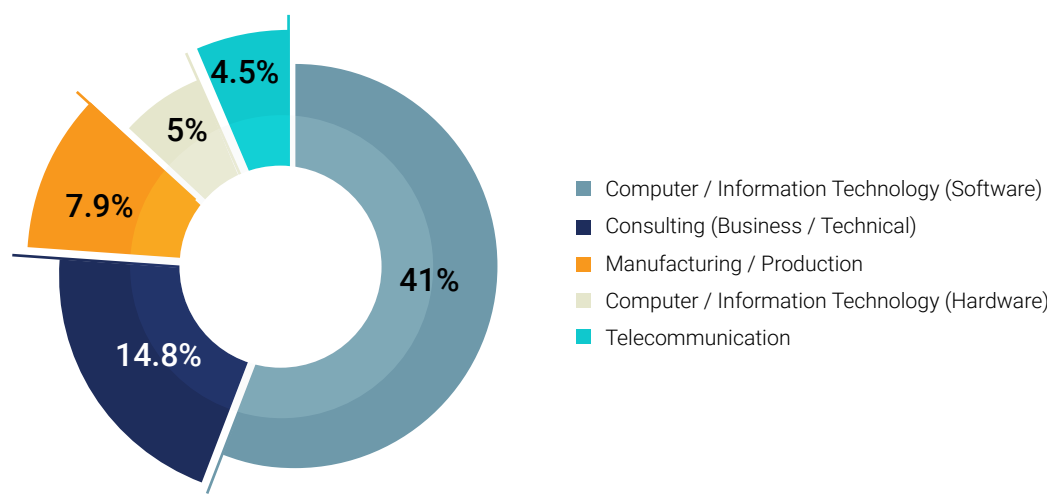


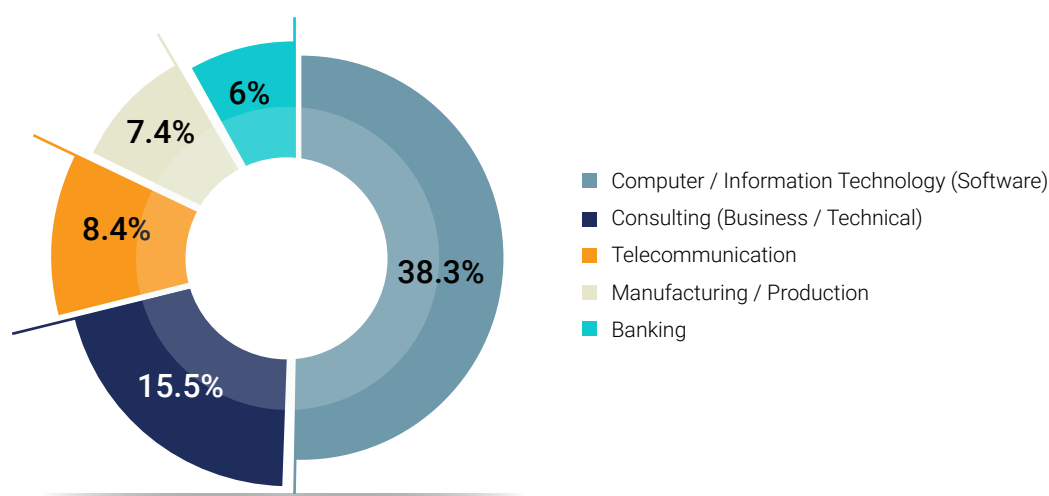


Table 11: Top Five Hiring Industries for Senior Executive ICT Professionals in 2017

Industry	Overall Percentage	Number of Job Openings
Computer / Information Technology (Software)	38.3%	2,729
Consulting (Business / Technical)	15.5%	1,104
Telecommunication	8.4%	597
Manufacturing / Production	7.4%	524
Banking	6%	424

Source: Jobstreet.com and PIKOM Estimates

Chart 18: Top Five Hiring Industries for Senior Executive ICT Professionals in Malaysia in 2017



Manager Level

The top five hiring industries in the Manager Level were Computer / Information (Software) with 329 jobs, followed by Consulting (Business / Technical) industry with 220 jobs, Banking with 165 jobs, Telecommunication (145 jobs) and Manufacturing / Production (79 jobs). Together, these industries accounted for more than 73% of the 1,274 jobs for this category (**Table 12 and Chart 19**).

Senior Manager Category

The total number of jobs for the Senior Manager Category in 2017 did not differ much from 2016. Job openings of 215 against 211 jobs in 2016 suggests that employers may have sought other means of hiring such as via networking and head-hunting. The top five hiring industries for Senior Manager ICT professionals in 2017 were Computer / Information Technology (Software) (22.8%), Telecommunication (19.5%), Consulting (Business / Technical) (14.9%), Banking (12.1%) and Manufacturing/Production (9.8%)(**Chart 20**).



Table 12: Top Five Hiring Industries for Manager Level ICT Professionals in 2017

Industry	Overall Percentage	Number of Job Openings
Computer / Information Technology (Software)	25.8%	329
Consulting (Business / Technical)	17.3%	220
Banking	13%	165
Telecommunication	11.4%	145
Manufacturing / Production	6.2%	79

Source: Jobstreet.com and PIKOM Estimates

Chart 19: Top Five Hiring Industries for Manager Level ICT Professionals in Malaysia in 2017

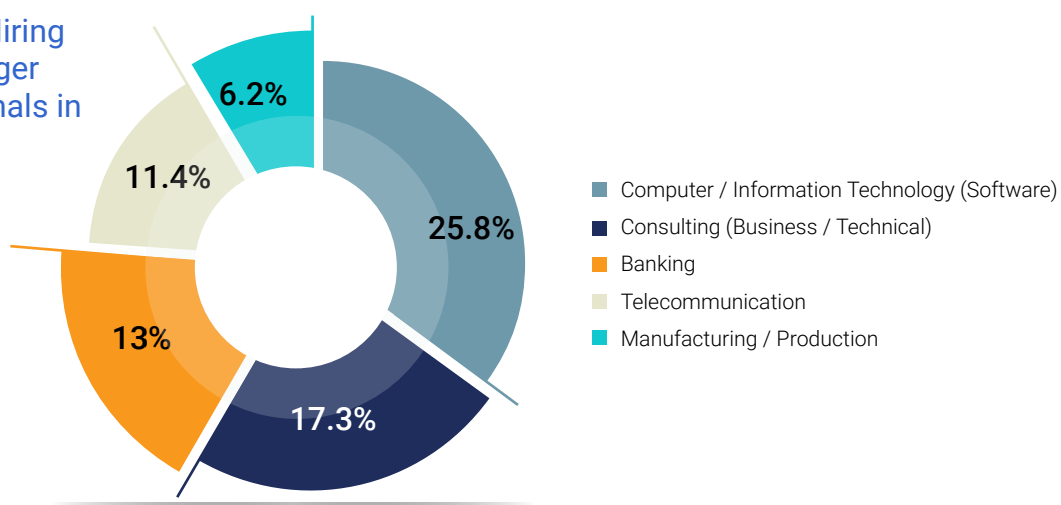
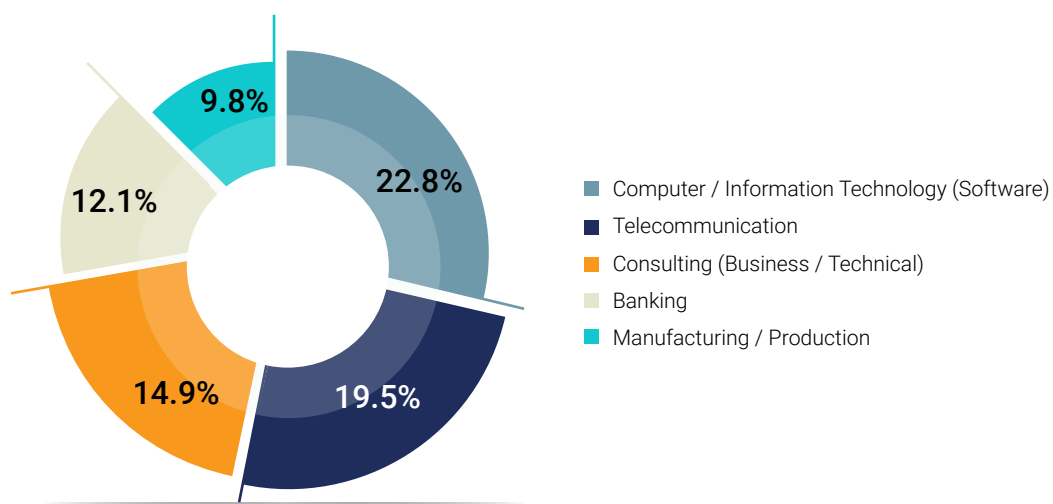


Chart 20: Top Five Hiring Industries for Senior Manager ICT Professionals in Malaysia in 2017





CYBER SECURITY SALARY TRENDS

As online security threats become more menacing and damaging to organisations, there is a great need for qualified and skilled professionals to help manage the risks and prevent future attacks. For the first time in this report, PIKOM is focusing on job trends in the cybersecurity in Malaysia. This comes on the heels of the PIKOM Cybersecurity Chapter formed last year, which will play an advisory role to the government on policy formation. The Chapter will also engage with academicians and other stakeholders on talent issues and promote career prospects in the industry. In this respect, we will explore further on the top paying jobs in each of the five job categories for 2017, as advertised by the 22 industries tracked in this report.

Entry Level Category

The average monthly salary of the top five paying cybersecurity jobs for this category ranged from RM2,500 to RM3,400 in 2017. Security Analyst (e-security) was the position with the highest average monthly salary at RM3,400, followed by Network Security Engineer (RM3,000), Security Operator (2,750), Security Engineer (RM2,650), and Security Analyst at RM2,500 (**Table 13**).

Junior Executive Category

The average monthly salary in this category in 2017 was from RM6,000 to RM6,500. The range was much higher than the overall average monthly salary for Junior Executive ICT professionals of RM4,259 earlier in this section (**Chart 3**). The positions, Application Security Requirements Engineer and Application Security Specialist, were both offered an average monthly salary of RM6,500 in 2017 while a lead Cyber Security Consultant could earn as much as RM6,000 (**Table 14**).

Senior Executive Category

Two positions, Security System Engineer and IT Security Incident Response Analyst, commanded an average monthly salary of RM15,000 to RM15,500 respectively, which is more than double the overall average monthly salary of ICT professionals in this category (**Chart 4**) at RM7,057. The average monthly salary of the three remaining top jobs in this category ranged from RM10,500 to RM12,500 (**Table 15**).

Table 13: Top Paying Entry Level Cyber Security Jobs

Position Title	Average Monthly Salary (RM)
Security Analyst (e-Security)	3,400
Network Security Engineer	3,000
Security Operator	2,750
Security Engineer	2,650
Security Analyst Position	2,500

Source: Jobstreet.com and PIKOM Estimates

Table 14: Top Paying Junior Executive Level Cyber Security Jobs

Position Title	Average Monthly Salary (RM)
Application Security Requirements Engineer	6,500
Application Security Specialist	6,500
Application Security Specialist - Business Analyst Background	6,500
Cyber Security Staff / IT Security	6,000
Lead Cyber Security Consultant (Secondment)	6,000

Source: Jobstreet.com and PIKOM Estimates



Manager Level Category

The top paying position in this category in 2017 was Cyber Security Consultant with an average monthly salary of RM17,500. The average monthly salary of the Security Incident Manager (with a focus on Forensics) was RM14,500 while Security Architects were offered an average monthly salary of between RM12,500 to RM13,500. A Cyber Security Manager in 2017 was offered an average monthly salary of RM11,000 (**Table 16**).

Senior Manager Level Category

The top paying position in this category was an IT Operations Security Senior Manager with an average monthly salary of RM20,500, also higher than the overall average monthly salary of RM19,147 (**Chart 6**). The other top paying cybersecurity jobs in this category were Information Security Architect (RM17,500), Cybersecurity Senior Manager (RM17,000), Business Information Security Officer

(RM15,225) and Senior Manager for IT Security and Infrastructure (RM13,000) (**Table 17**).

Conclusion

As it can be seen above, Cybersecurity ICT professionals can command higher than the average monthly salary of their respective job categories. Why are the salaries so high? One explanation is that there is a critical shortage of specialised cybersecurity professionals worldwide who are able to protect organisations from sophisticated online attacks. In Malaysia, the Malaysia Digital Economy Corporation (MDEC) has teamed up with global technology and information security association ISACA to address the shortage of cyber security professionals in our country. The partnership between the two organisations was formalised in September 2017 and is aimed at improving competencies and workforce skills in cyber security. There are currently 6,300 cyber security professionals in Malaysia and a target has been set to provide 10,000 professionals by 2020.

Table 15: Top Paying Senior Executive Level Cyber Security Jobs

Position Title	Average Monthly Salary (RM)
IT Security Incident Response Analyst	15,500
Security System Engineer	15,000
Security Engineer (Firewall)	12,500
Senior iSeries / AS400 Security Analyst	12,000
Solution Consultant Security - Senior	10,500

Source: Jobstreet.com and PIKOM Estimates

Table 16: Top Paying Manager Level Cyber Security Jobs

Position Title	Average Monthly Salary (RM)
Cyber Security Consultant	17,500
Security Incident Manager and Forensics	14,500
TELCO Information Security Architecture	13,500
Security Architect	12,500
Cyber Security Manager	11,000

Source: Jobstreet.com and PIKOM Estimates

Table 17: Top Paying Senior Manager Level Cyber Security Jobs

Position Title	Average Monthly Salary (RM)
IT Operations Security Manager	20,500
Information Security Architect	17,500
Cyber Security Senior Manager	17,000
Business Information Security Officer	15,225
Senior Manager, IT Security and Infrastructure	13,000

Source: Jobstreet.com and PIKOM Estimates



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REGIONAL BENCHMARKING AMONG ECONOMIES AND CITIES

The average annual salary of an entry-level IT Project Manager in Malaysia from the lowest to highest positions is compared against 19 other economies. The salary in Kuala Lumpur is also compared against 81 other cities worldwide, including three others in Malaysia. At this point, we would like to acknowledge and express our appreciation to Payscale.com for the data points to conduct this analysis.

We used two benchmarking scales – Atlas Criterion and Purchasing Power Parity (PPP) - to give two perspectives on the impact of factors such as inflation rates and fluctuation in the exchange rates.

The PPP benchmarking scale, which takes into account the two factors, is considered a more realistic comparison than the Atlas-Criterion.

Table 18: Atlas Criterion comparison of salary of an IT Project Manager in selected economies

Economies	Project Manager, Information Technology			
	Atlas Criterion			
	Entry Level	Mid-Career	Experienced	Late Career
Switzerland	5.01	4.07	3.39	3.12
United States	3.43	3.10	2.73	2.65
Australia	3.40	2.91	2.43	2.51
Germany	2.91	2.56	2.24	2.20
United Arab Emirates	2.79	2.53	2.17	2.24
New Zealand	2.62	2.31	1.94	1.88
Canada	2.62	2.27	1.96	1.87
Japan	2.34	2.25	2.00	-
United Kingdom	2.33	2.19	1.89	1.74
France	2.32	1.94	1.72	2.04
Hong Kong	2.30	2.77	2.14	2.01
Saudi Arabia	2.15	2.25	1.75	1.81
Singapore	2.14	2.19	1.89	2.06
South Africa	1.34	1.35	1.35	1.44
Thailand	1.14	1.01	1.25	-
Brazil	1.14	1.19	1.11	-
Malaysia	1.00	1.00	1.00	1.00
Russia	0.95	0.84	0.79	-
The Philippines	0.54	0.72	0.66	0.58
India	0.43	0.62	0.61	0.72

Source: Payscale.com and PIKOM Estimates



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Comparison of Salary of an IT Project Manager by Economies

Canada, United Kingdom, Germany, South Africa, Switzerland, France, Brazil and Russia.

Table 18 and **Table 19** show the salary comparison of an IT Project Manager in four positions – Entry, Mid-Career, Experienced and Late Career - among 20 economies. Besides Malaysia, the other economies are Singapore, Thailand, Philippines, India, Australia, New Zealand, Hong Kong, Saudi Arabia, United Arab Emirates, Japan, United States,

Although there are four positions listed in both tables, we will focus on the Entry Level position of the IT Project Manager in all economies. We can see that Malaysia's standing improved by just one notch among the 20 countries in the PPP benchmarking scale in comparison with the Atlas Regional Benchmarking Scale.

Table 19: PPP-Adjusted comparison of salary of an IT Project Manager in selected economies

Economies	Project Manager, Information Technology			
	PPP-Adjusted			
	Entry Level	Mid-Career	Experienced	Late Career
Hong Kong	1.99	2.40	1.85	1.74
Switzerland	1.73	1.40	1.17	1.08
Australia	1.72	1.47	1.23	1.27
United Arab Emirates	1.65	1.50	1.29	1.33
Japan	1.52	1.47	1.30	-
Saudi Arabia	1.52	1.59	1.24	1.28
United States	1.47	1.33	1.17	1.13
Germany	1.44	1.27	1.11	1.09
New Zealand	1.38	1.22	1.02	0.99
South Africa	1.27	1.27	1.27	1.35
United Kingdom	1.24	1.16	1.00	0.92
Canada	1.17	1.02	0.88	0.84
Singapore	1.12	1.15	0.99	1.08
France	1.07	0.89	0.79	0.94
Russia	1.03	0.91	0.86	-
Malaysia	1.00	1.00	1.00	1.00
Thailand	0.69	0.61	0.76	-
Brazil	0.57	0.60	0.56	-
The Philippines	0.48	0.64	0.58	0.51
India	0.37	0.53	0.52	0.61

Source: Payscale.com and PIKOM Estimates

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Table 20: Atlas Criterion comparison of average annual salary (in USD) of an IT Project Manager in selected cities

Cities	Atlas Criterion	Ranking	Cities	Atlas Criterion	Ranking
Geneva	4.11	1	Glasgow	1.79	42
Zurich	3.98	2	Manchester	1.67	43
Perth	2.87	3	Madrid	1.65	44
Adelaide	2.85	4	Barcelona	1.64	45
Canberra	2.79	5	Belfast	1.63	46
Sydney	2.76	6	Rio De Janeiro	1.63	47
Abu Dhabi	2.75	7	Leeds	1.61	48
Melbourne	2.71	8	Shanghai	1.61	49
Brisbane	2.68	9	Edinburg	1.58	50
New York City	2.66	10	Bangkok	1.40	51
Los Angeles	2.64	11	Kiev (USD)	1.33	52
Washington D.C	2.50	12	Johannesburg	1.27	53
Houston	2.50	13	Taipei	1.24	54
Dubai	2.45	14	Sao Paulo	1.16	55
Chicago	2.42	15	Johor Baru	1.01	56
Boston	2.40	16	Cyberjaya	1.01	57
Munich	2.40	17	Kuala Lumpur	1.00	58
Berlin	2.35	18	Cape Town	0.99	59
Istanbul	2.34	19	Petaling Jaya	0.95	60
Seattle	2.31	20	Beijing	0.90	61
Ottawa	2.31	21	Moscow	0.78	62
Hamburg	2.29	22	Gurugram	0.75	63
Austin	2.28	23	Bangalore	0.74	64
London	2.28	24	Pune	0.73	65
Tokyo	2.27	25	Ho Chi Minh City (US\$)	0.72	66
Toronto	2.25	26	Jakarta	0.70	67
Atlanta	2.25	27	Hyderabad	0.67	68
Philadelphia	2.25	28	Manila	0.64	69
Riyadh	2.20	29	Mumbai	0.64	70
Auckland	2.19	30	Chennai	0.64	71
Minneapolis	2.13	31	Noida	0.63	72
Denver	2.13	32	Makati	0.62	73
Wellington	2.08	33	Trivandrum	0.61	74
Vancouver	2.07	34	Kolkata	0.59	75
Montreal	2.04	35	Mandaluyong City	0.59	76
Halifax	2.00	36	Quezon City	0.59	77
Gold Coast	1.99	37	St Petersburg	0.57	78
Winnipeg	1.96	38	New Delhi	0.47	79
Birmingham	1.90	39	Pasig	0.42	80
Jeddah	1.85	40	Buenos Aires	0.40	81
Paris	1.84	41	Cairo	0.25	82

Source: Payscale.com and PIKOM Estimates

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However, the ranking of the countries changed considerably in the PPP benchmarking scale as compared with the Atlas benchmarking scale.

In the Atlas scale, the average annual salary of an Entry Level IT Project Manager in Hong Kong was 2.3 times more than in Malaysia. Hong Kong ranked 11 as compared with top post holder, Switzerland, which was 5.01 times more than in Malaysia. Hong Kong emerged as number one in the PPP scale ranking with 1.99. Switzerland at number 2 had an average annual salary for an Entry Level IT Project Manager that was 1.73 times more than in Malaysia. The vast difference in salaries using both the Atlas and PPP benchmarking scale is quite pronounced. The United States also dropped in ranking from No. 2 in the Atlas Benchmarking scale to No. 7 in the PPP benchmarking scale. The US was just below Saudi Arabia in the PPP benchmarking scale.

Comparison of Salary of an IT Project Manager by Cities

The same two benchmarking scales were used to compare the salaries of an Entry Level IT Project Manager in 82 cities worldwide (**Table 20** and **Table 21**).

Locations within a country are decisive factors in the salary of ICT professionals. In Malaysia, we also compared Kuala Lumpur against Cyberjaya, Johor Bahru and Petaling Jaya. In the Atlas Benchmarking

scale, Kuala Lumpur was ranked 58 as compared with 36 spot on the PPP benchmarking scale.

Abu Dhabi came in at No. 7 in the Atlas benchmarking scale, but emerged as No. 1 in the PPP benchmarking scale. In fact, Dubai and Riyadh also improved their rankings in the PPP benchmarking scale with the two making it to the top five as compared with their positions of No. 14 and No. 29 respectively in the Atlas benchmarking scale.

In Malaysia, we did not see much difference in average annual salary of an Entry Level IT Project Manager among the cities in the Atlas benchmarking scale. Kuala Lumpur (58) was above Petaling Jaya (60) and ranked just below Johor Baru (56) and Cyberjaya (57).

However, the difference in salary of Entry Level IT Project Manager was slightly wider when we compare the salaries in the PPP benchmarking scale among Malaysian cities. Johor Baru and Cyberjaya were ranked 30 and 31 respectively, compared with Kuala Lumpur at 36. Petaling Jaya was at 42.

It is important to note that in the PPP benchmarking scale, the salaries of Entry Level IT Project Managers in Malaysian cities were higher than that in some cities in the more developed US Canada, UK and Europe such as Vancouver, Montreal, Denver, Minneapolis, Paris and Manchester. It was even higher than in Beijing which came in at No. 60.



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Table 21: PPP- Adjusted comparison of average annual salary (in USD) of an IT Project Manager in selected cities

Cities	PPP	Ranking	Cities	PPP	Ranking
Abu Dhabi	1.63	1	Petaling Jaya	0.95	42
Riyadh	1.55	2	Cape Town	0.93	43
Tokyo	1.48	3	Vancouver	0.93	44
Perth	1.45	4	Montreal	0.91	45
Dubai	1.45	5	Minneapolis	0.91	46
Adelaide	1.44	6	Denver	0.91	47
Geneva	1.42	7	Paris	0.90	48
Canberra	1.41	8	Halifax	0.90	49
Sydney	1.40	9	Manchester	0.89	50
Zurich	1.37	10	Winnipeg	0.88	51
Melbourne	1.37	11	Belfast	0.87	52
Brisbane	1.36	12	Leeds	0.86	53
Jeddah	1.31	13	Bangkok	0.85	54
Taipei	1.22	14	Moscow	0.85	55
London	1.21	15	Edinburg	0.84	56
Johannesburg	1.19	16	Rio De Janeiro	0.81	57
Munich	1.17	17	Madrid	0.81	58
Berlin	1.15	18	Barcelona	0.80	59
Auckland	1.15	19	Beijing	0.64	60
Shanghai	1.14	20	Gurugram	0.64	61
New York City	1.14	21	Jakarta	0.62	62
Los Angeles	1.13	22	Bangalore	0.62	63
Hamburg	1.12	23	St Petersburg	0.62	64
Wellington	1.09	24	Pune	0.62	65
Washington D.C	1.07	25	Sao Paolo	0.58	66
Houston	1.07	26	Kiev (USD)	0.57	67
Ottawa	1.04	27	Manila	0.57	68
Chicago	1.03	28	Hyderabad	0.57	69
Boston	1.03	29	Makati	0.55	70
Johor Baru	1.01	30	Mumbai	0.54	71
Cyberjaya	1.01	31	Chennai	0.54	72
Gold Coast	1.01	32	Noida	0.54	73
Birmingham	1.01	33	Mandaluyong City	0.52	74
Toronto	1.01	34	Quezon City	0.52	75
Istanbul	1.00	35	Trivandrum	0.52	76
Kuala Lumpur	1.00	36	Kolkata	0.50	77
Seattle	0.99	37	New Delhi	0.40	78
Austin	0.98	38	Pasig	0.37	79
Atlanta	0.96	39	Ho Chi Minh City (US\$)	0.31	80
Philadelphia	0.96	40	Buenos Aires	0.30	81
Glasgow	0.95	41	Cairo	0.30	82

Source: Payscale.com and PIKOM Estimates





SECTION C

Salary Trends in Southeast and East Asia

This section explores the salary trends of ICT Professionals in six economies in Southeast and East Asia in 2017. The data is taken from Jobstreet.com regional sister companies in Singapore, Indonesia, The Philippines, Vietnam, Hong Kong and Thailand. They are extracted from advertisements for full-time permanent ICT-related job positions.

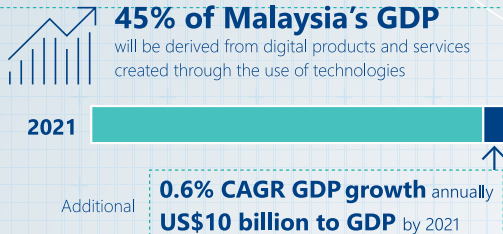
The industries tracked in Singapore, the Philippines, Indonesia and Vietnam are the same as the 22 industries monitored in Malaysia while the industries in Thailand and Hong Kong vary slightly.

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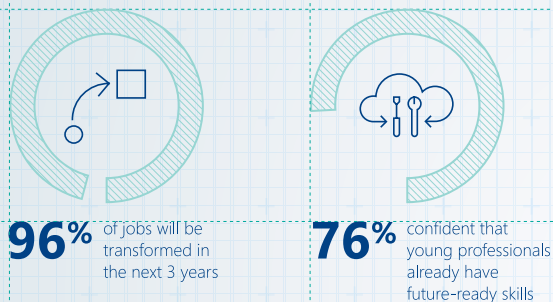
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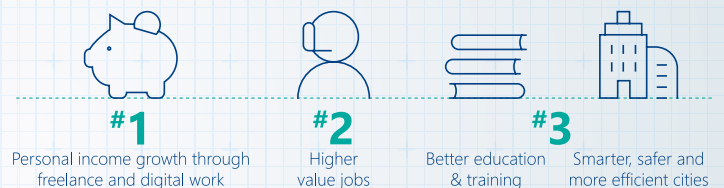


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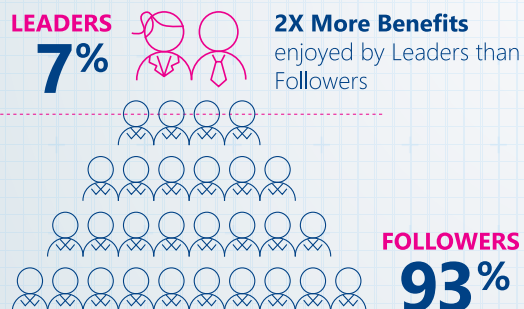


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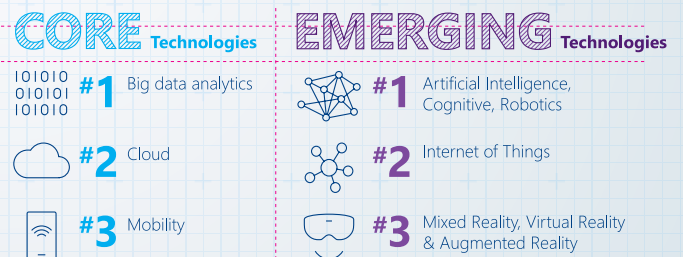
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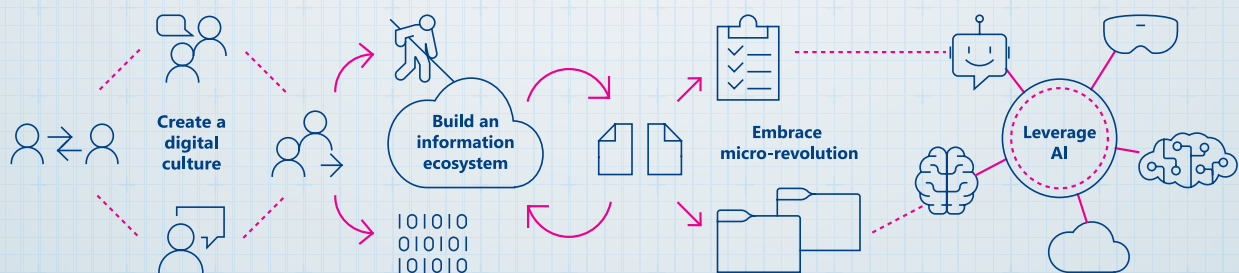
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- Respondents are decision makers involved in shaping their organizations' digital strategy: 55% C-Suite, Vice Presidents and Directorial levels; 45% Senior Managers
- Business and IT leaders from organizations with more than 250 staff were polled.
- Industries polled included education, financial services, government, healthcare, manufacturing and retail.



Overall Job Market Landscape in Southeast Asian / East Asian Economies: Salary Trends

We can see from **Table 1** that in 2017, ICT professionals in Singapore were offered the highest overall average monthly salary compared to the other economies tracked in this report. The average salary of US\$3,354 in Singapore is 5.7 times more than in Indonesia, which was the lowest in the group at US\$585.

We placed the Malaysian salary data (from Section B) into this table for comparison purpose and found that overall average monthly salary in our country (US\$2,244) was ranked third behind Singapore (US\$3,354) and Hong Kong (US\$3,049). Thailand came in fourth at US\$1,272, followed by the Philippines (US\$834) and Vietnam (US\$746).

Overall Job Market Landscape in Southeast Asian / East Asian Economies: Hiring Trends

Jobstreet data indicated that there were more than 130,260 ICT-related jobs offered in the seven economies including Malaysia in 2017. Hong Kong came up on top with more than 37,170 jobs followed by the Philippines (31,467) and Thailand (19,948). In Section B, we saw that there were 15,197 ICT-related jobs offered in Malaysia in 2017, which placed the country in fourth place followed closely by Indonesia (14,432). Singapore and Vietnam came in sixth and seventh with 8,241 and 3,804 ICT-related jobs respectively.

ICT Job Market Landscape: Economy by Economy

We will now look at the salary and hiring trends for each of the six economies featured in this section. A noticeable trend based on the job data points given was the relative low number of jobs offered for the highest position level. This is referred to as the Senior Manager level in all economies except Thailand and Hong Kong where it is known as the Top level.

The 22 industries tracked for Singapore, Indonesia, Philippines and Vietnam are the same as in Malaysia; which are:

- Computer / Information Technology (Software);
- Consulting (Business/Technical);
- Computer / Information Technology (Hardware);
- Manufacturing / Production;
- Transport / Storage / Freight / Shipping;
- Banking;
- Telecommunication;
- Wholesale / Retail / Trading;
- Electrical & Electronics;
- Education;
- Science & Technology / Aerospace / BioTechnology;
- Semiconductor / Wafer Fabrication;
- Oil / Gas / Petroleum;
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- Construction / Building / Engineering;
- Property / Real Estate;
- Automotive / Heavy Industry / Machinery;
- Financial Services / Securities / Insurance;
- Printing / Publishing;
- Agriculture / Plantation / Aquaculture;
- Utilities
- Call Centre / IT-Enabled Services / BPO.

Table 1: ICT Job Market Landscape in Southeast Asian / East Asian Economies in 2017

Economy	Average Monthly Salary (US\$)	No. of Jobs Advertised
Singapore	3,354	8,241
Hong Kong	3,049	37,173
Thailand	1,272	19,948
The Philippines	834	31,467
Indonesia	585	14,432
Vietnam	746	3,804
Malaysia	2,244	15,197

Source: Jobstreet.com and PIKOM Estimates



In Thailand and Hong Kong, the industries tracked for this report are more or less the same as in the other four countries although their names vary slightly. They are:

- Financial Services / Insurance / Pension Funding;
- Management Consultancy / Service;
- Telecommunication;
- Utilities;
- Media / Publishing / Printing;
- Information Technology;
- Engineering - Electrical / Electronic / Mechanical;
- Freight Forwarding / Delivery / Shipping;
- Petroleum;
- Wholesale / Retail / Trading;
- Electronics / Electrical Equipment;
- Hospitality / Catering / Food and Beverage;
- General Business Services;
- Manufacturing;
- Motor Vehicles;
- Industrial Machinery / Automation Equipment; and

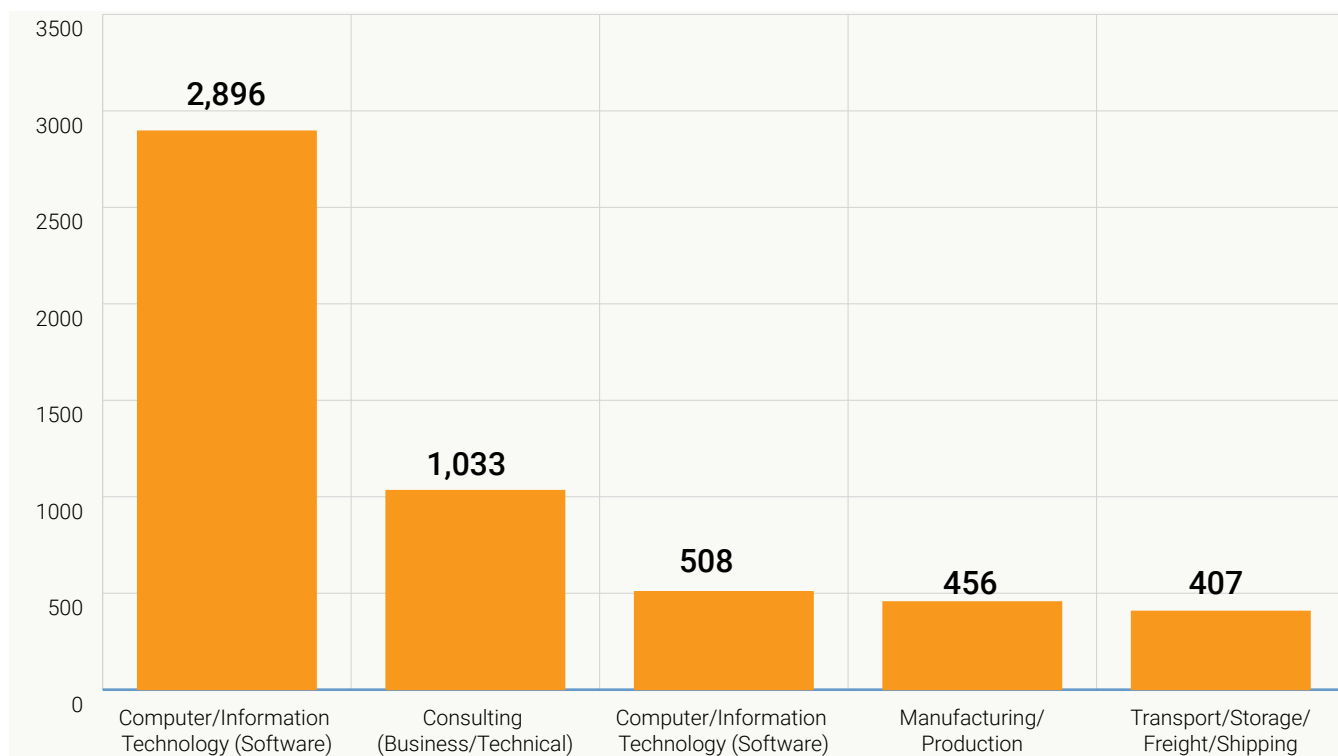
- Education and Engineering - Building, Civil, Construction / Quantity Survey.

SINGAPORE

As reported above, there were 8,241 ICT-related jobs advertised in Singapore in 2017. **Chart 1** shows the top hiring industries with corresponding number of advertised jobs.

The Computer / Information Technology (Software) was the top hiring industry with 2,896 jobs followed by Consulting (Business/Technical) and Computer/Information Technology (Hardware) with 1,033 and 508 advertised jobs respectively. The Manufacturing / Production and Transport / Storage / Freight / Shipping industries came in fourth and fifth with 456 and 407 advertised jobs respectively.

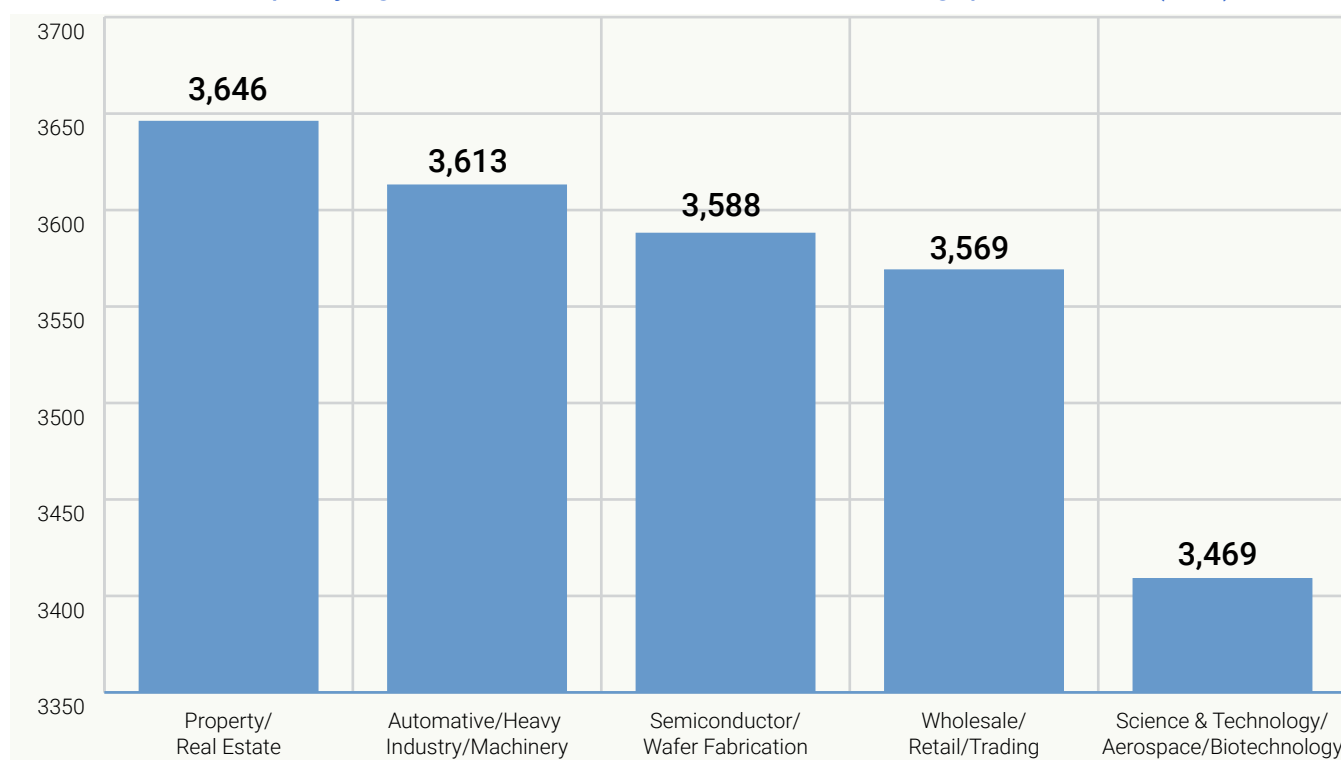
Chart 1: Overall Top Hiring Industries for ICT Professionals in Singapore in 2017



Source: Jobstreet.com and PIKOM Estimates



Chart 2: Overall Top Paying Industries for ICT Professionals in Singapore in 2017 (US\$)



Source: Jobstreet.com and PIKOM Estimates

Top Paying Industries in 2017

The Property / Real Estate industry offered the highest overall average monthly salary (US\$3,646) for ICT professionals in Singapore in 2017 (**Chart 2**). This was followed by Automotive / Heavy Industry / Machinery; Semiconductor / Wafer Fabrication; Wholesale / Retail / Trading and Science & Technology / Aerospace and Bio-Technology, at US\$3,613, US\$3,588, US\$3,569 and US\$3,469 respectively.

INDONESIA

The top five hiring industries in Indonesia collectively offered more than 10,480 ICT-related jobs out of the 14,432 in 2017 with Computer /

Information Technology (Software) taking the lead with 4,568 jobs (**Chart 3**). This was followed by Consulting (Business/Technical) with 2,944; Wholesale / Retail / Trading with 1,343; Banking with 906 and Manufacturing / Production with 721 jobs.

Top Paying Industries in 2017

The Utilities industry was the highest paying industry for ICT professionals in Indonesia in 2017, offering an overall average monthly salary of US\$1,339 (**Chart 4**). The Call Centre / IT-Enabled Services / BPO was the second highest in 2017 at US\$677, followed by Science & Technology / Aerospace / Bio-Technology (US\$631), Agriculture / Plantation / Aquaculture (US\$625) and Computer / Information Technology (Software) at US\$602.

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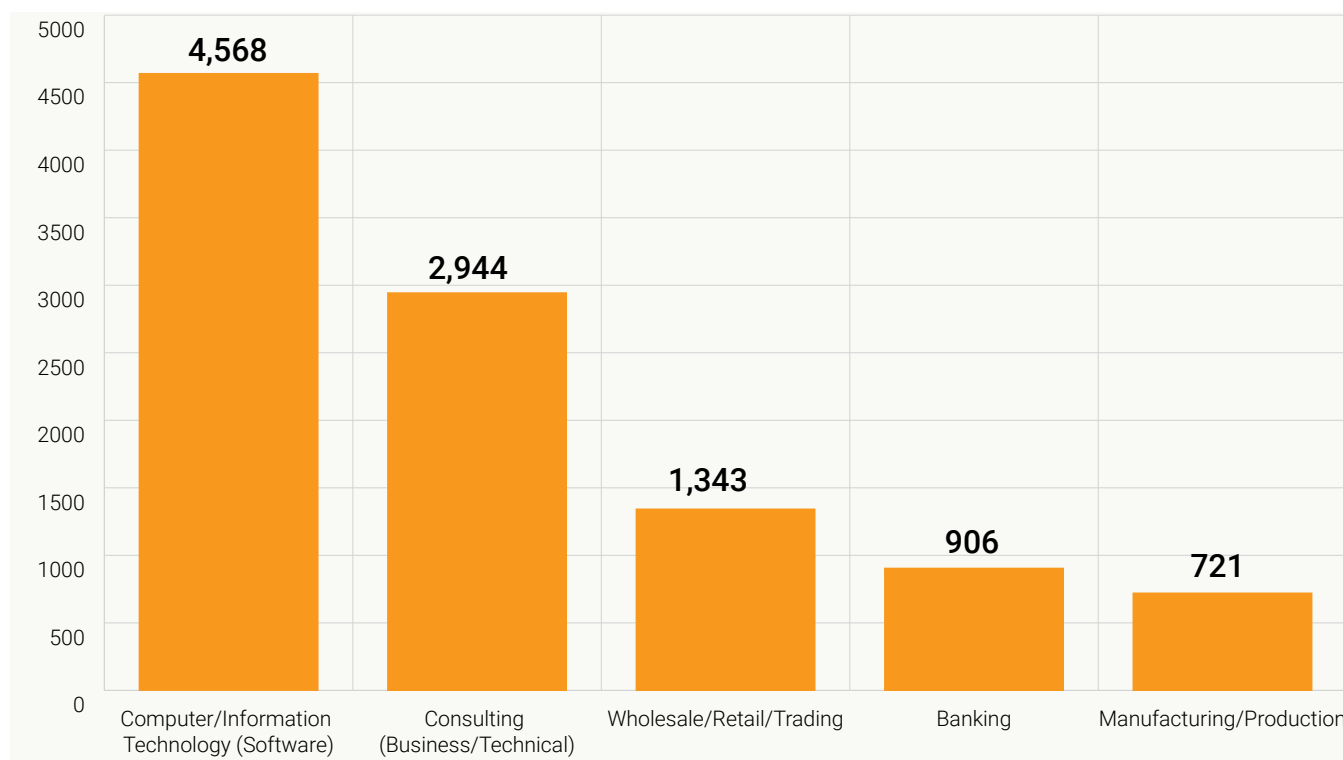
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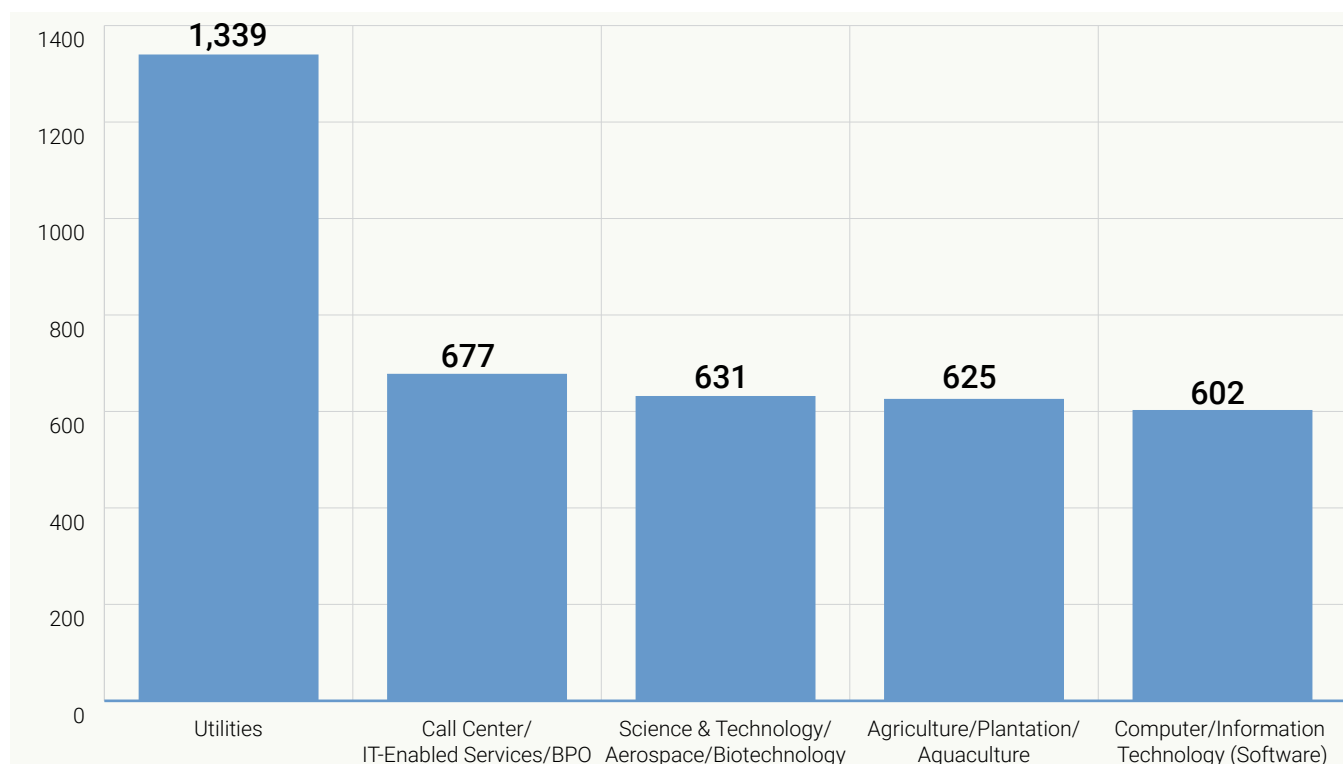


Chart 3: Overall Top Hiring Industries for ICT Professionals in Indonesia in 2017



Source: Jobstreet.com and PIKOM Estimates

Chart 4: Overall Top Paying Industries for ICT Professionals in Indonesia in 2017 (US\$)



Source: Jobstreet.com and PIKOM Estimates



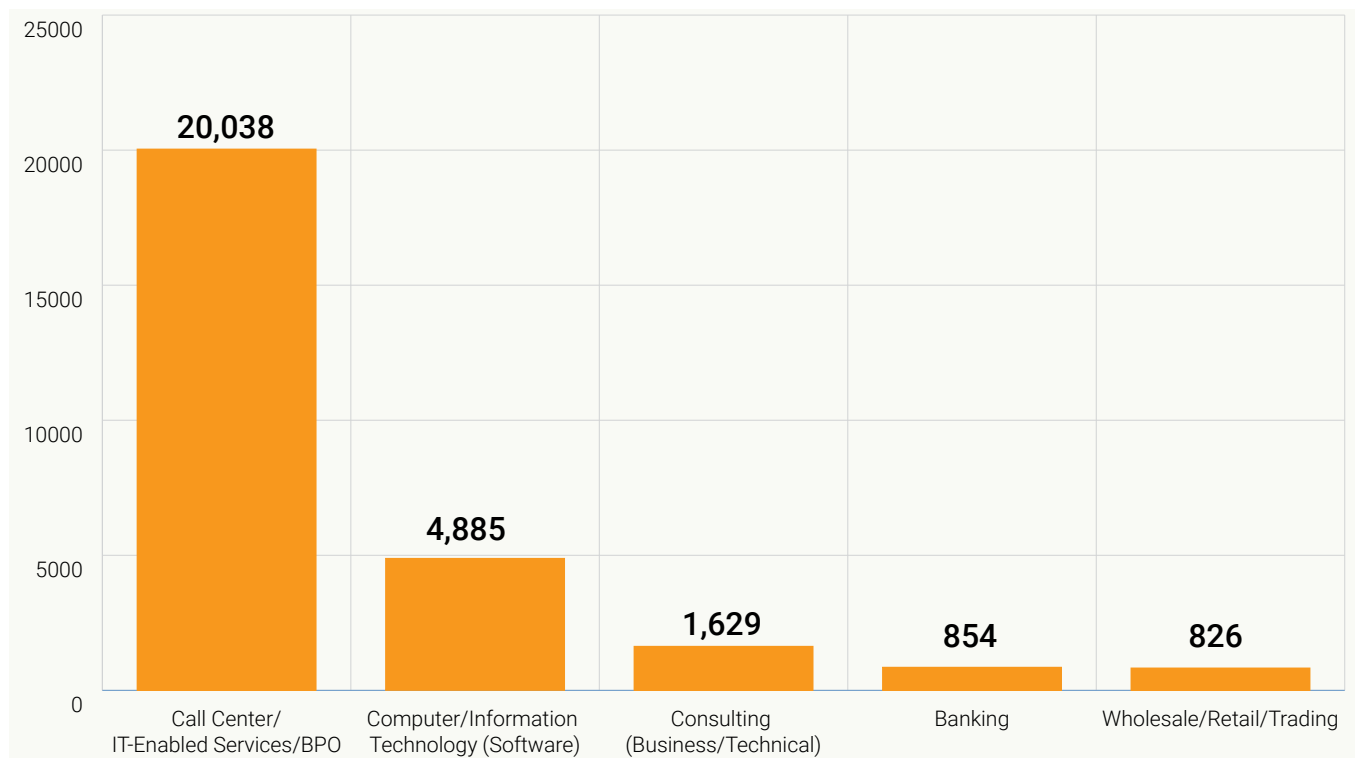
THE PHILIPPINES

With 31,467, the Philippines was the economy with the second highest number of ICT-related jobs offered in 2017. Call Centre / IT Enabled Services / BPO alone offered more than 20,000 jobs (**Chart 5**). The next top-hiring industries were comparatively much lower with Computer / Information Technology (Software) offering 4,885 jobs, Consulting (Business/Technical) with 1,629 jobs, Banking (854) and Wholesale / Retail / Trading (826).

Top Paying Industries in 2017

The Financial Services / Securities / Insurance industry came in as the top paying industry for ICT Professionals in Philippines in 2017, offering an overall average monthly salary of US\$1,226 (**Chart 6**). Consulting (Business / Technical) was the second highest paying industry at US\$1,016 followed by Computer / Information Technology (Software) at US\$1,007. Telecommunication and Semiconductor / Wafer Fabrication came in fourth and fifth, offering an average monthly salary of US\$926 and US\$917 respectively.

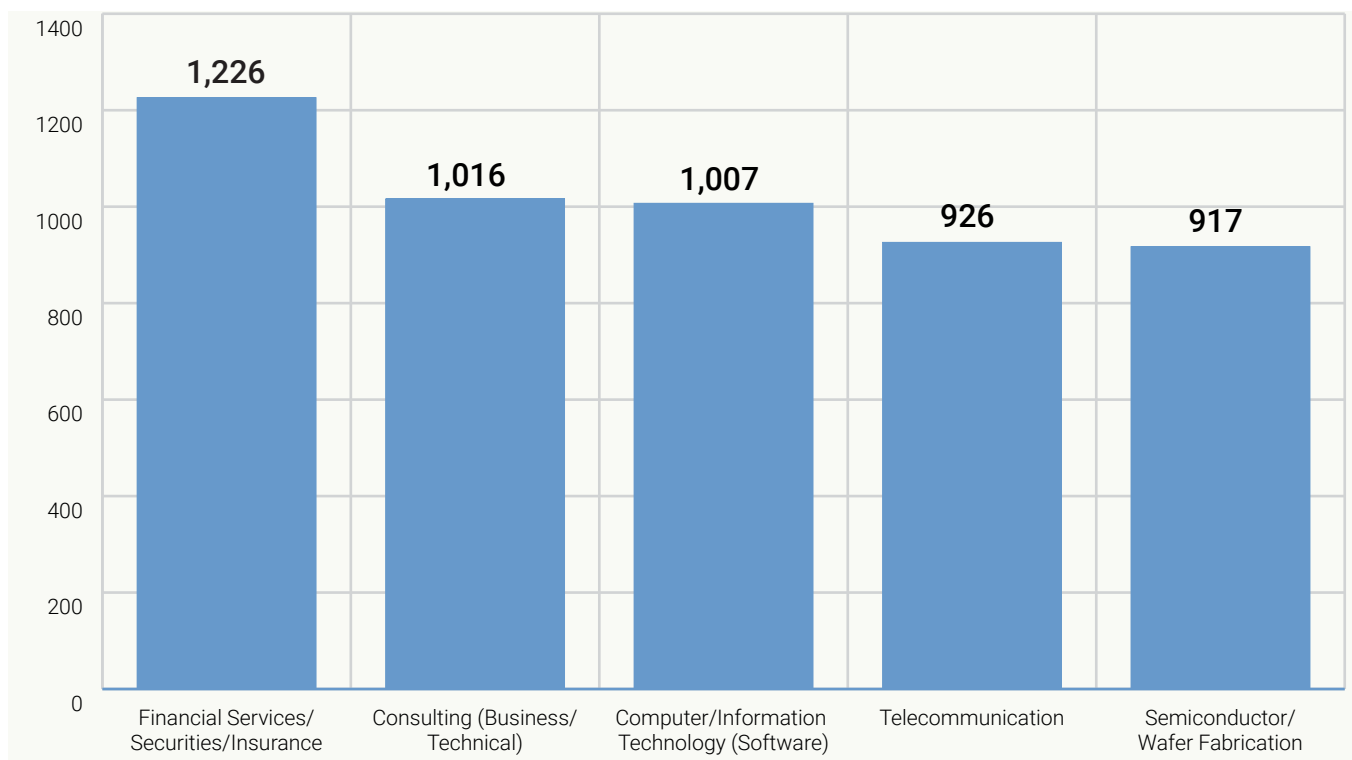
Chart 5: Overall Top Hiring Industries for ICT Professionals in the Philippines in 2017



Source: Jobstreet.com and PIKOM Estimates



Chart 6: Overall Top Paying Industries for ICT Professionals in the Philippines in 2017 (US\$)



Source: Jobstreet.com and PIKOM Estimates

VIETNAM

Vietnam had the lowest number of ICT-related jobs advertised among the seven economies in Table 1, with just 3,804. The figure was about one tenth the number of advertised ICT-related jobs in Hong Kong with 37,173.

Computer / Information Technology (Software) offered nearly half of the total jobs with 1,778 (**Chart 7**). But the remaining industries in the top five category offered relatively less jobs with Consulting (Business/Technical) industry at a distant second place with 499 jobs followed

by Wholesale / Retail / Trading (369), Banking (246) and Computer / Information Technology (Hardware) with 118 jobs.

Top Paying Industries in 2017

Banking was the top paying industry for ICT professionals in Vietnam in 2017, offering an overall average monthly salary of US\$890, followed closely by Call Centre / IT-Enabled Services / BPO (US\$822), Consulting (Business / Technical) at US\$803, Computer / Information Technology (Software) at US\$780 and Telecommunication at US\$733 (**Chart 8**).

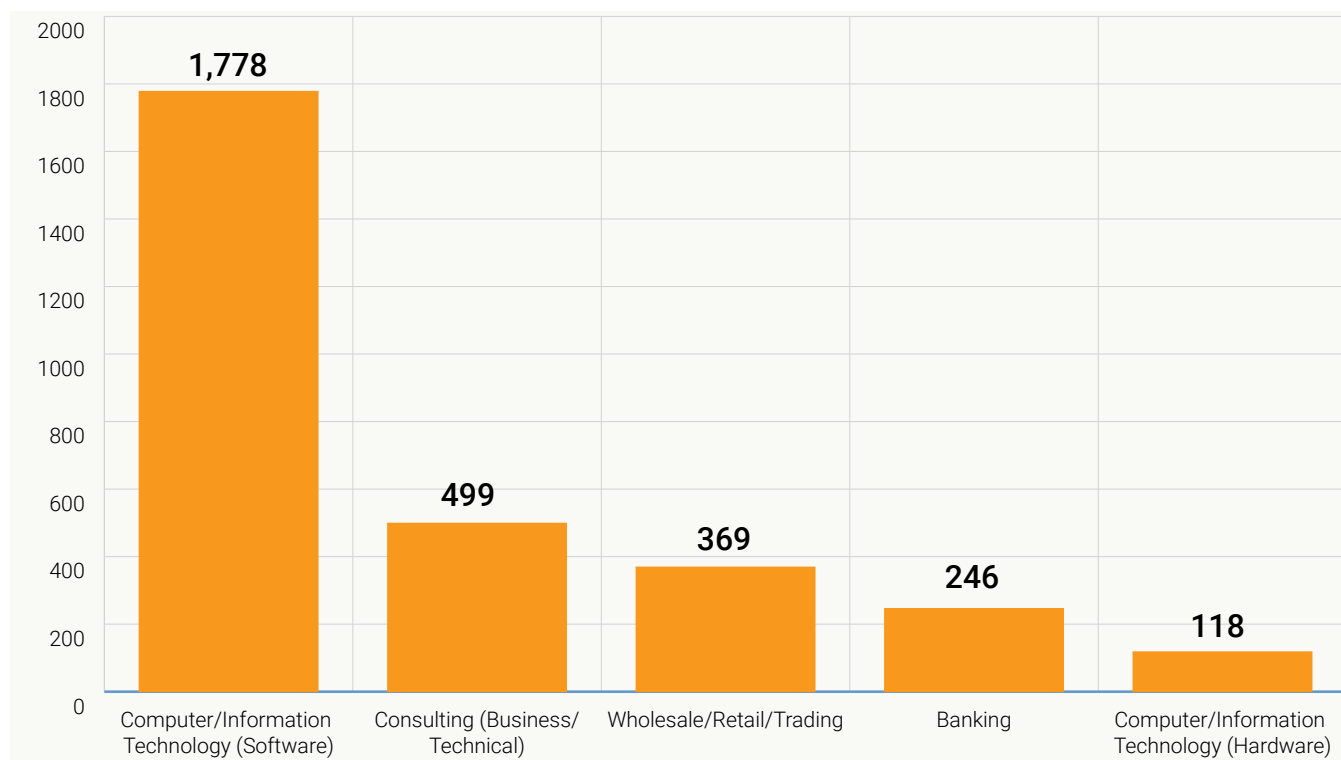
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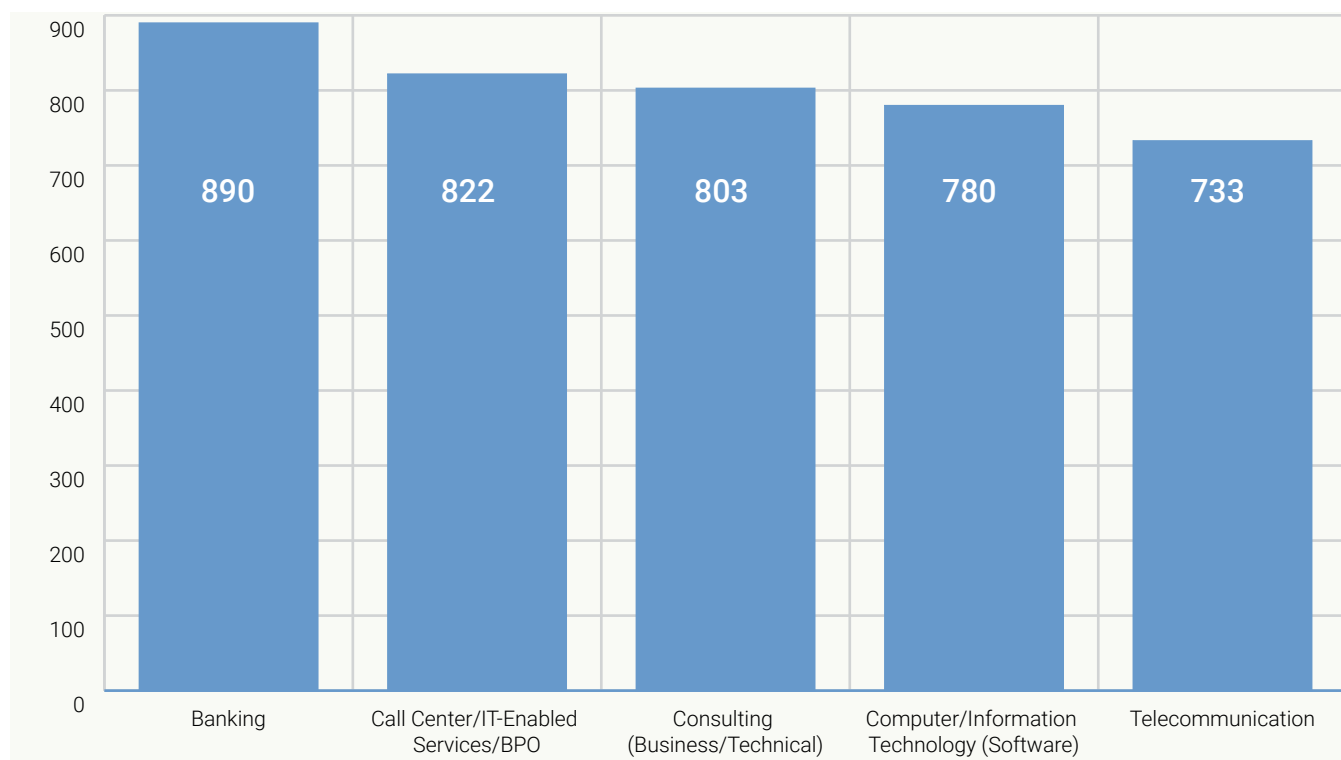


Chart 7: Overall Top Hiring Industries for ICT Professionals in Vietnam in 2017



Source: Jobstreet.com and PIKOM Estimates

Chart 8: Overall Top Paying Industries for ICT Professionals in Vietnam in 2017 (US\$)



Source: Jobstreet.com and PIKOM Estimates



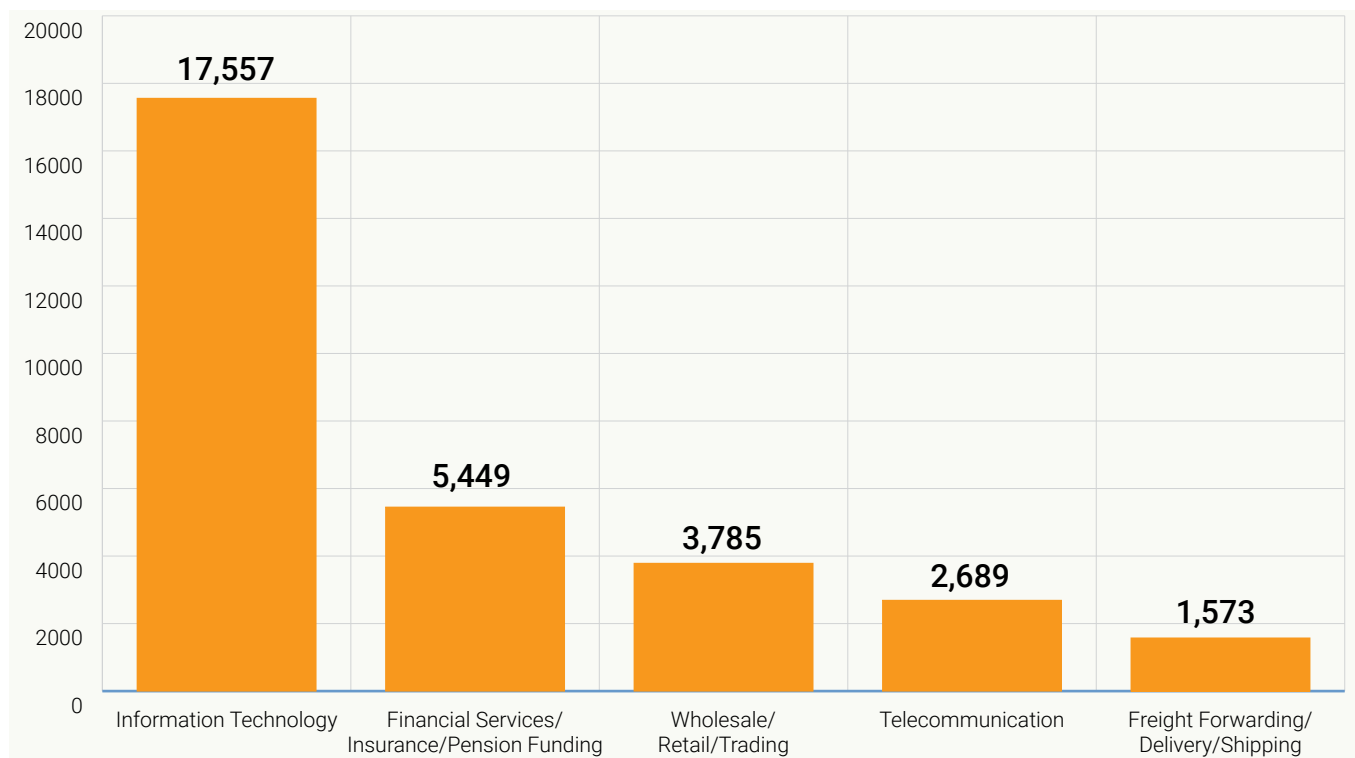
HONG KONG

Nearly half of the advertised ICT-related jobs in Hong Kong in 2017 were offered by the Information Technology core industry sector with 17,557 jobs (**Chart 9**). This was significantly higher than the Financial Services / Insurance / Pension Funding industry which came in second with 5,449 jobs. Wholesale / Retail / Trading industry, Telecommunication and Freight Forwarding / Delivery / Shipping were the remaining top hiring industries in Hong Kong, offering 3,785, 2,689 and 1,573 jobs respectively.

Top Paying Industries in 2017

Banking industry was the top hiring industry for ICT professionals in Hong Kong 2017, offering an overall average monthly salary of US\$3,912 (**Chart 10**). Management Consultancy / Service industry was the second highest paying industry at US\$3,760 followed by Financial Services / Insurance / Pension Funding at US\$3,464 and General Business Services and Electronics / Electrical Equipment at US\$3,452 and US\$3,366 respectively.

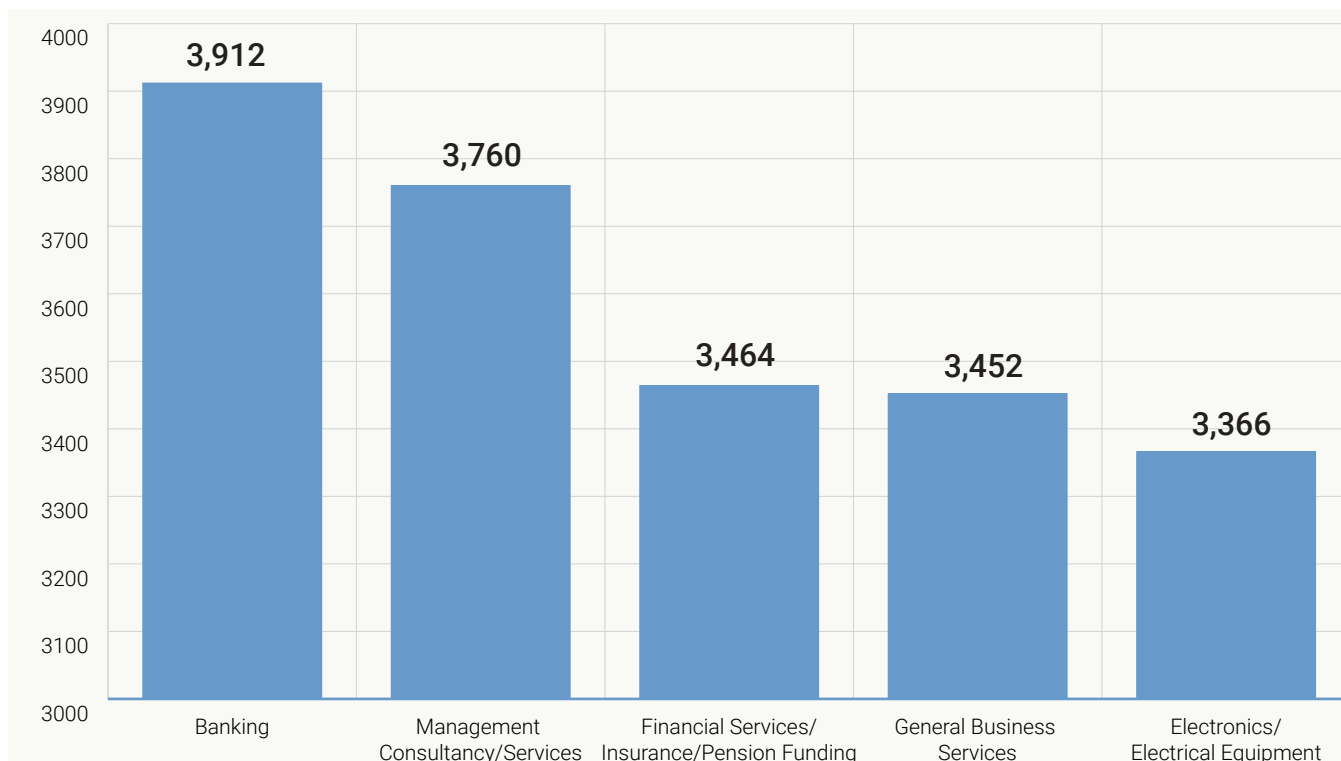
Chart 9: Overall Top Hiring Industries for ICT Professionals in Hong Kong in 2017



Source: Jobstreet.com and PIKOM Estimates



Chart 10: Top Paying Industries for ICT Professionals in Hong Kong in 2017 (US\$)



Source: Jobstreet.com and PIKOM Estimates

THAILAND

Almost 20,000 ICT-related jobs were offered in Thailand in 2017 with more than 80% of the offers coming from the Information Technology core industry (8,868) as well as the Financial Services / Insurance / Pension Funding (2,614), Wholesale / Retail / Trading (2,338), Telecommunication (1,673) and Electronics/Electrical Equipment industries (788) (**Chart 11**).

Top Paying Industries in 2017

Financial Services/Insurance/Pension Funding was the highest paying industry for ICT professionals in Thailand in 2017, offering an overall average monthly salary of US\$1,668 (**Chart 12**). This was followed by Management Consultancy / Service at US\$1,477, Telecommunication (US\$1,410), Utilities (US\$1,354) and Media / Publishing / Printing (US\$1,263).



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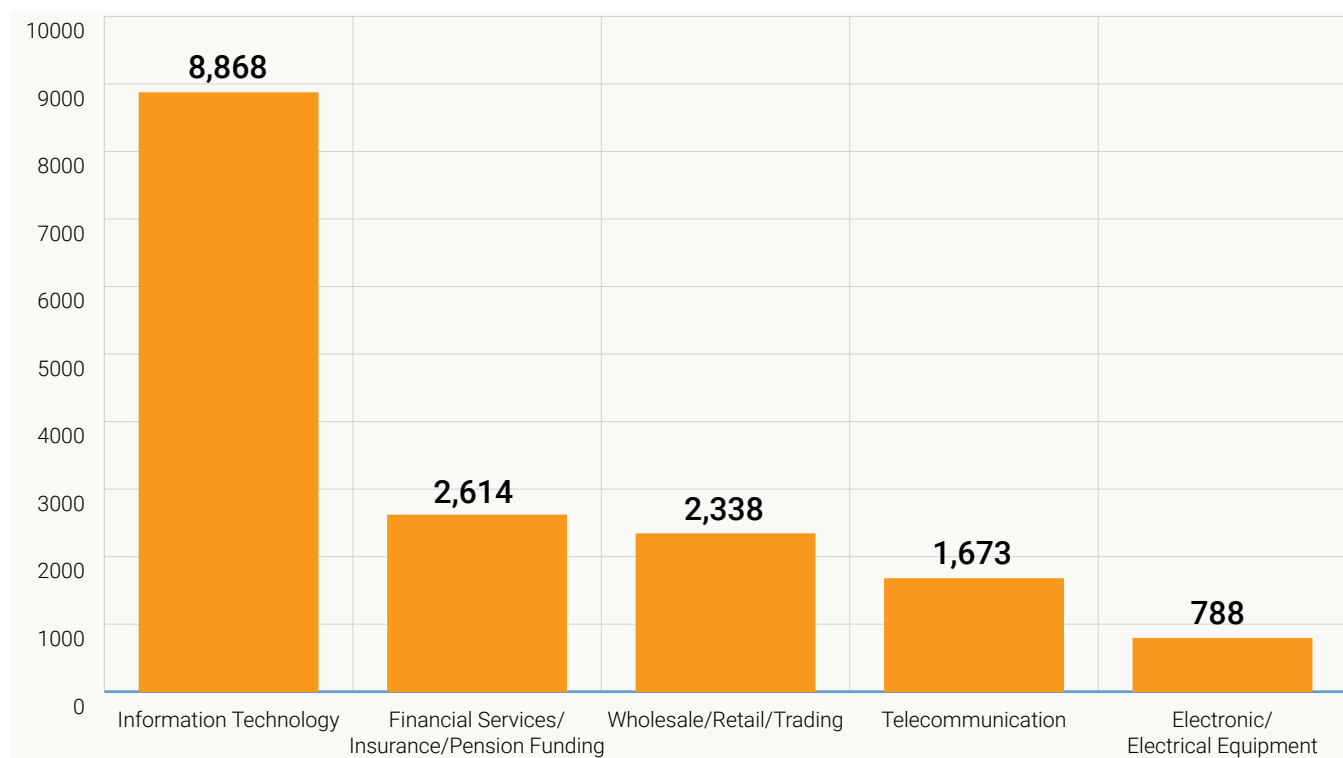
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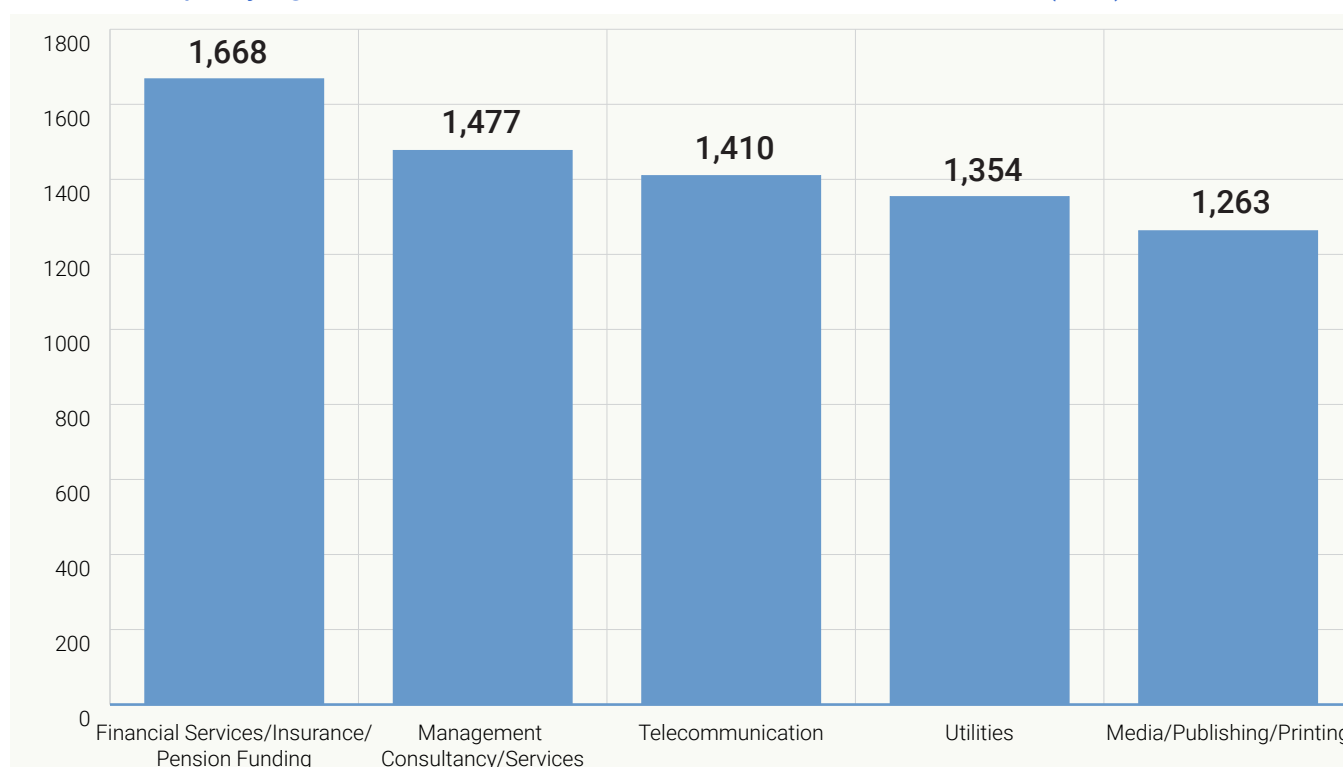


Chart 11: Top Hiring Industries for ICT Professionals in Thailand in 2017



Source: Jobstreet.com and PIKOM Estimates

Chart 12: Top Paying Industries for ICT Professionals in Thailand in 2017 (US\$)



Source: Jobstreet.com and PIKOM Estimates





SECTION D

JOB Employment Outlook Perception

The JOBSTREET.COM Employment Confidence Index (JECI) is a measure of a jobseeker's confidence in getting a job. It ranges from a scale of 0 to 100 to indicate very poor to very good. A low index implies a tough job market while a high index reflects a comfortable situation where many good jobs can be secured.

The index fluctuates with time and its trend is an important indication of the production and economic development of the nation. The jobseekers are asked to answer one question: "What are the chances of securing a reasonable job in the Malaysian job market today?".



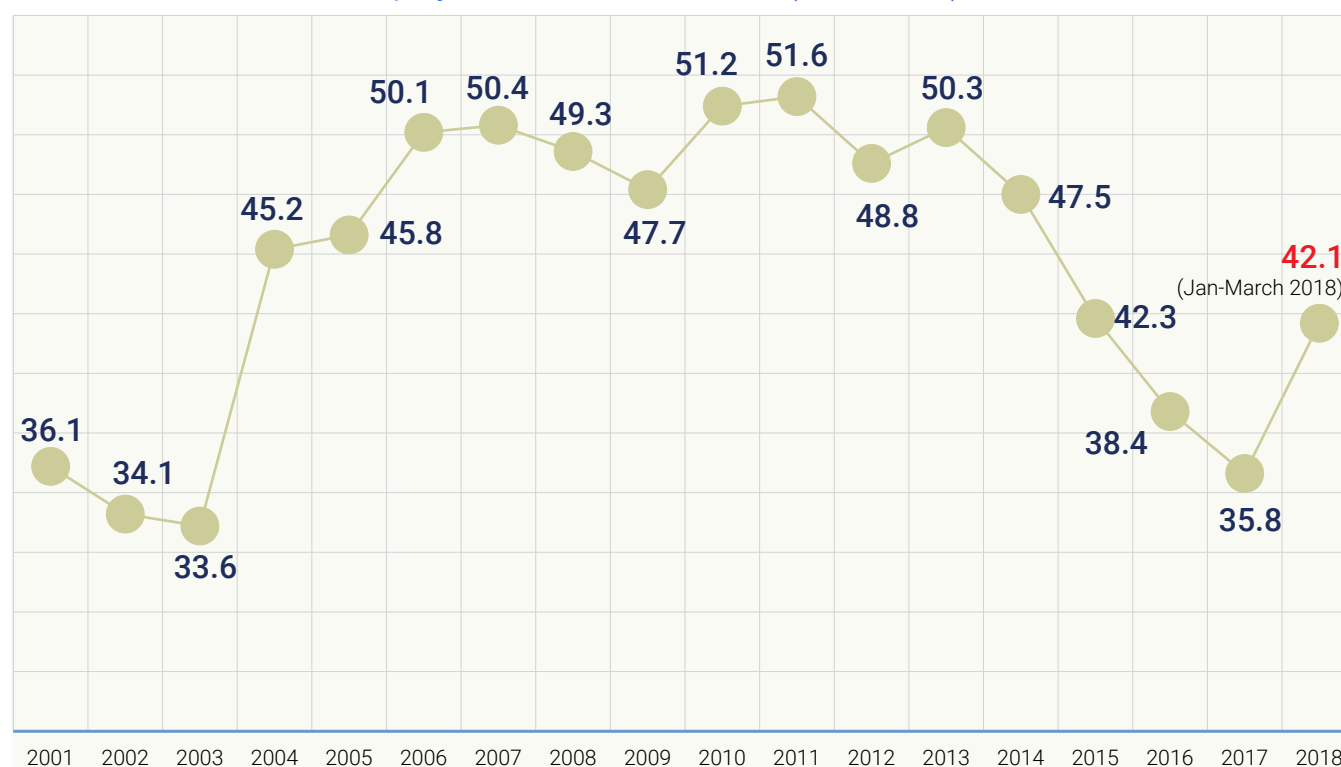
The average JECI data, tabulated since 2001, shows a declining trend since 2013 (**Chart 1**) when the index was at 50.3. The average JECI was at 35.8 in 2017, which was lower than the 2001 index of 36.1. The 2017 index is the third lowest over 16 years.

However, this year's index indicates that jobseekers are more confident now compared to previous years. The average JECI for the first three months of the year is at 42.1, exceeding the levels in 2017 and 2016 and almost reaching the 2015 index of 42.3. The readings for January, February and March are 43.5, 39.0 and 43.8 respectively.

Although we have seen a relatively-low JECI in 2017, the employment market appears to be more positive since the second half of 2017, when the unemployment rate fell from 3.5% in July 2017 to 3.3% in December 2017. It rose to 3.4% in January this year and has been steady at 3.3% in February and March. (**Chart 2**)

According to the Department of Statistics, Malaysia (DOSM), the labour force increased by 0.7% in the first quarter of 2018 to 15.19 million people as compared with 15.09 million in the last quarter of 2017. The employed population grew by 103,100 from 14.58 million in the last quarter of 2017 to 14.68 million in the first quarter of 2018.

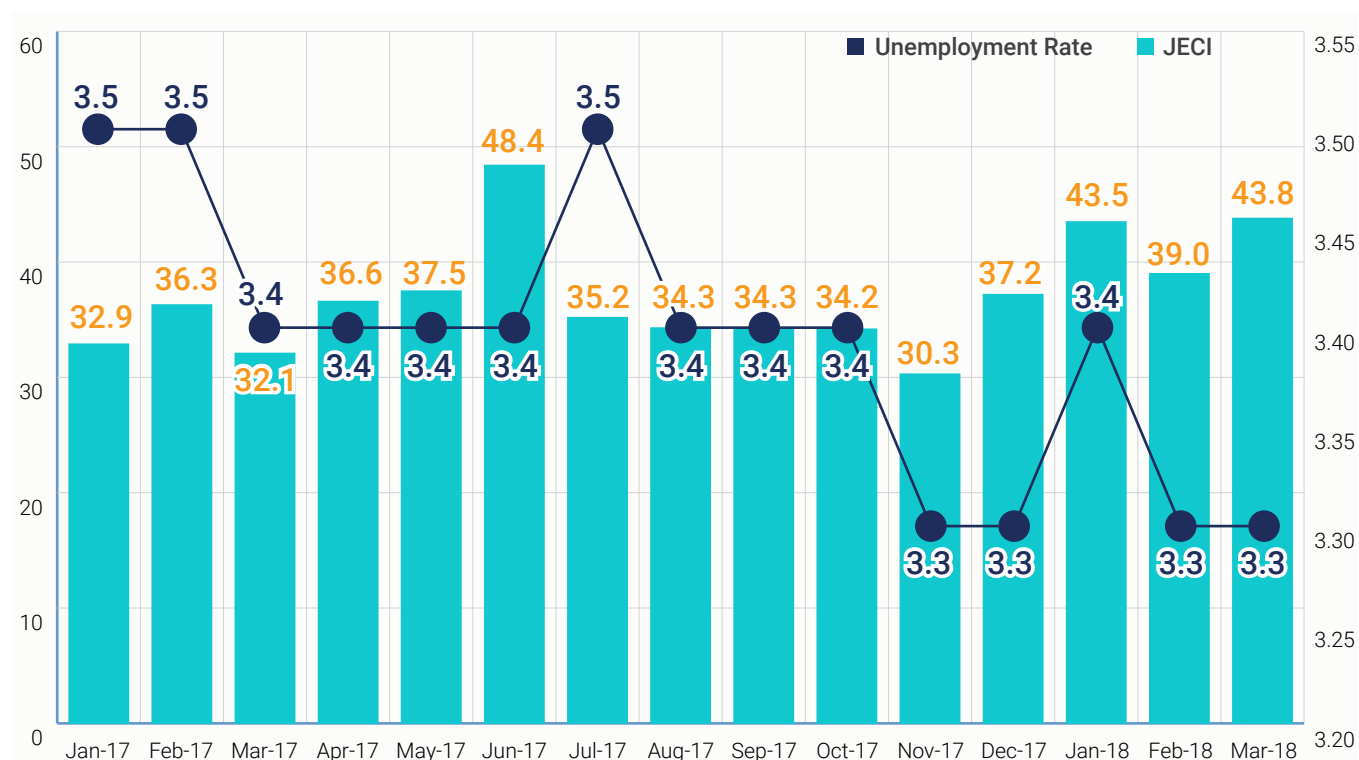
Chart 1: Jobstreet.com Employment Confidence Index (2001-2017)



Source: Jobstreet



Chart 2: Comparison of Jobstreet.Com Employment Confidence Index (JECI) with Unemployment Rate (Jan 2017-March 2018)



Source: Jobstreet and DOSM

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