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Foreword by the PIKOM Chairman

Ganesh Kumar Bangah



Once again, it is my privilege to release the annual PIKOM ICT Job Market Outlook in Malaysia 2019.

Through the years, this report has been a definitive gauge of the salary scales offered to talents in the tech industry and has served to facilitate decision-making by both employers and employees alike as to the constantly shifting opportunities in the market.

At the same time, the report also provides the context for salary trends and employment opportunities by painting an overview of national economic performance as well as the state of its increasingly-important component, the tech industry and the overall digital economy.

This year's report is particularly relevant given the challenging landscape for both the national economy and the industry amid a recalibration of risks and opportunities facing the nation and its people. It is pertinent to point out that Malaysia's economic growth moderated to 4.7% in 2018 while the expansion of the digital economy is also showing signs of a corresponding slowdown.

Let me take this opportunity to thank Jobstreet.com for its continuing support and collaboration with PIKOM in publishing this report. Jobstreet.com's provision of data allows PIKOM to carry out the necessary analysis in providing estimates and forecasts of salary scales.

Besides Jobstreet.com, we have also leveraged on other sources of data such as the Department of Statistics Malaysia (DOSM), Bank Negara Malaysia (BNM) and Payscale as well as various other local and global organisations.

PIKOM is also appreciative of the contributions of all our advertisers, whose support is invaluable in ensuring the timely production of this publication. Thank you also to the PIKOM Research Committee and publication team for once again producing a report that is immensely useful to the tech industry.

PIKOM hopes to build on this legacy and sustain our role as the voice of the tech industry in the years to come.



Preamble from PIKOM Research Committee Chair

Woon Tai Hai



Now into its 12th edition, the PIKOM Job Market Outlook in Malaysia is one of the longest annually-published series of its kind in the country. We are proud that the publication has been widely accepted and acknowledged as a valuable resource of employment and salary data specifically tailored to the tech industry, which remains among the fastest growing segments of the Malaysian economy.

This year's publication is all the more relevant since we are at a unique crossroads with a new Government at the helm; an economy coping with considerably lower public sector expenditure as well as an uncertain global market environment; and an industry gearing up to spearhead the 4th Industrial

Revolution (4IR) with emphasis on Industry4WRD, artificial intelligence (AI), the internet of things (IoT) and many other emerging technologies.

As always, the report provides the context to this exposition of salary trends with an overview of the economy and tech industry. For the record, Malaysia's economy grew by 4.7% in 2018 and PIKOM expects the growth rate to dip further to 4.6% in 2019 before rebounding on an upward trajectory by mid-2020. In the case of the tech industry, its contribution to national gross domestic product (GDP) registered a marginal growth to 18.3% of GDP in 2017 based on figures sourced from the Department of Statistics Malaysia (DOSM), which only releases annual data in October the following year. In view of the tepid growth for 2017, PIKOM is not optimistic that the tech industry can reach the targeted 20% of the economy by 2020.

Nevertheless, salary scales for jobs in the industry continued to grow but at a slower pace than previous years. This report releases all relevant salary information for various position levels as well as in several industries. The overall monthly salary for ICT professionals in 2018 increased by 4.0% over the year before and is projected to grow by a lower rate of 3.8% in 2019. Meanwhile, the number of job openings last year reached 17,159 representing a 12.9% increase over 2017. There was a surprising change in the top five paying industries for ICT professionals in 2018, with the Financial Services / Securities / Insurance industry segment dropping out to be replaced by Manufacturing / Production. The other four industries remained the same as in 2017: Call Centre / IT-Enabled Services / BPO; Computer / IT (Hardware), Banking; and Telecommunication.

Beyond the salary trends, the publication also showcases tech industry wages in other economies to provide a benchmark for Malaysian employers and employees to compare against. Lastly, we also feature a job employment confidence index to indicate job seekers' confidence in landing a job.

The PIKOM ICT Job Market Outlook in Malaysia 2019 is an essential read for wide swathes of the Malaysian economy, from policy makers and private sector interest to academics, researchers and of course, employees and fresh graduates.



PIKOM Research Committee 2019

Woon Tai Hai

- Secretary-General, Asian-Oceanian Computing Industry Organization (ASOCIO)
- Advisor, PIKOM Council; Chair, PIKOM Research Committee and PIKOM Oversight Committee
- Ex-Officio Malaysia-Australia Business Council (MABC)
- Advisor and Ambassador, Asia Cybersecurity Exchange (AsiaCyberX)
- Executive Director, BDO Consulting Sdn Bhd, Malaysia (2014-2017 Retired)
- Partner/Executive Director, KPMG Risk and Management Consulting Sdn Bhd, Malaysia (1998-2013 Retired)
- Over 35 years in the tech industry and management consulting
- Master of Business Administration (MBA) - University of Technology, Sydney, Australia (UTS)
- Post Graduate Diploma (Finance and Accounting) - University of Technology, Sydney, Australia (UTS)
- Bachelor of Science - University of New South Wales (UNSW), Australia



Alan Fung

- CEO, PIKOM (2018 - current)
- Over 30 years in the tech industry
- Founding member, MDEC GAIN programme (To globalise high-growth local tech companies)
- Former Head of Outsourcing, MDEC
- Former CEO, TX123, an associate company of Maybank
- Associated with Digital Equipment Corp (World's second largest IT company in the 1990s)
- Selected as one of Malaysia's top 50 local IT personalities in December, 1999 by ComputerWorld magazine
- Degree in Computing Science and Business Administration, University of Guelph, Ontario 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 tech industry remains vibrant and subject to new and exciting trends such as the emergence of the Fourth Industrial Revolution (4IR) driven by next generation technologies such as Industry 4.0, artificial intelligence (AI), the internet of things (IoT), big data in the cloud as well as cognitive cybersecurity.

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 2019* 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.

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 five sections, as follows:

- Section A: *Economic Outlook in Malaysia 2019*
- Section B: *ICT Industry Outlook in Malaysia 2019*
- Section C: *ICT Salary Trends in Malaysia*
- Section D: *Job Employment Outlook Perception*
- Section E: *Special Article: Personalising Employee Experience, Improving Employee Engagement*

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

- Growth rate of salaries in 2018;
- Salary trends by job category;
- Top paying industries in 2018; and
- Hiring trends in 2018.

PIKOM is the national representative of the tech industry with close to 900 members as at end December, 2018. Its members contribute about 80% of the total ICT revenue in the country. PIKOM membership profiles can be broadly categorised as tech providers like wholesalers, retailers, solution providers and web service providers; tech user community especially large-scale users in banking, insurance, telecommunications, transportation etc., and tech-enabled service providers, in particular in the shared services and outsourcing sector. Functionally, PIKOM undertakes tech 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.



TABLE OF CONTENTS

Section A: Economic Outlook in Malaysia 2019	13
Section B: ICT Industry Outlook in Malaysia 2019	27
Section C: ICT Salary Trends in Malaysia	39
Section D: Job Employment Outlook Perception	65
Section E: Special Article: Personalising Employee Experience, Improving Employee Engagement	69



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SECTION A

Economic Outlook in Malaysia 2019

The Malaysian economy grew at 4.7% in 2018 following a stronger than expected fourth quarter performance to record a gross domestic product (GDP) for the year of RM1.23 trillion at constant prices.

GDP growth for Q4, 2018 was 4.7%, arresting a declining trend over the previous four quarters beginning with Q4, 2017 (5.9%) and continuing to Q1, 2018 (5.4%), Q2, 2018 (4.5%) and Q3, 2018 (4.4%).

Notwithstanding the last quarter rally, the growth rate for 2018 was a significant come-down from 5.9% in 2017 due to several factors including the dip in commodity prices particularly palm oil, the new Government's rationalisation on expenditure as well as global economic uncertainty arising from the on-going US-China trade impasse.

Reflecting the lower GDP growth rate for the year, several key economic indicators also showed a downward trajectory.

The economy's largest sectors, Services and Manufacturing, which collectively account for almost 80% of GDP, registered lower growth of 6.9% and 4.7% respectively against the previous year's corresponding rates of 7.2% and 5.0%.

Likewise, exports posted a lower growth rate of 6.7% for the year as compared against an increase of 18.9% in 2017. Nevertheless, it is noteworthy that the value of Malaysia's exports has almost reached the RM1 trillion milestone at RM998.0 billion in 2018.

Meanwhile, the recovery of the Ringgit in the first quarter of 2018 stalled and then reversed during the following eight months, falling from USD1 to RM3.886 at the start of April to USD1 to RM4.185

beginning November.

On the flip side, inflation dropped significantly to 1.0% in 2018 from 3.7% the previous year while the unemployment rate remained low at 3.3%, the same as in 2017.

Looking ahead, economic growth is expected to moderate in 2019 with most projections by domestic and international agencies falling within the 4.3% to 4.8% range given the persistent uncertainties in global trade and other factors. At this stage, the economy is expected rebound in the second half of 2020.

GDP Performance 2018

Malaysia's GDP growth of 4.7% in 2018 fell short of earlier projections by Bank Negara Malaysia (BNM), which along with PIKOM had forecast an increase of 4.8%. However, it should be noted that PIKOM's projection of 4.8% made in June that year was subsequently revised to 4.6% in November following the dip in the Q3, 2018 performance. **Chart 1** shows Malaysia's economy has been growing for nine consecutive years since the contraction in 2009 following the Global Financial Crisis (GFC).

GDP for 2018 was bolstered by a stronger performance in Q4, 2018 (**See Chart 2**) on the back of private consumption and private investment, which grew by 8.5% and 4.4% respectively in the last three months of the year.

Meanwhile, public consumption expanded by 4.0% in Q4, 2018 but public sector investment continued its downward trend for the whole year by registering a contraction of 4.9%. The GDP value for the quarter was RM322.6 billion.

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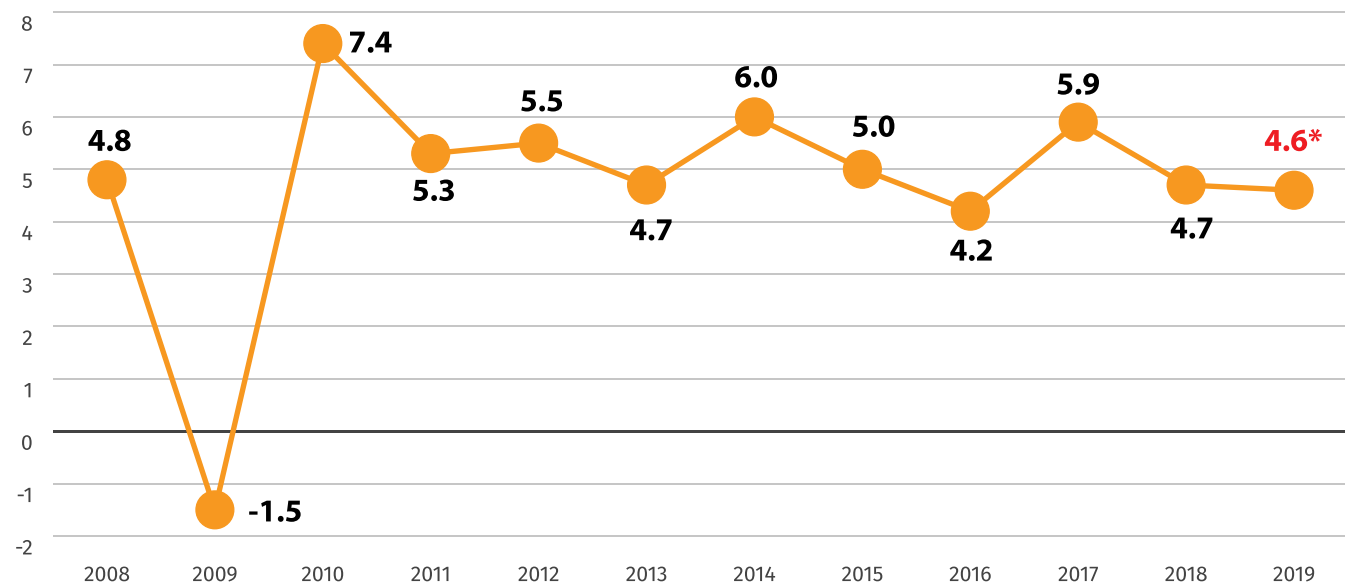


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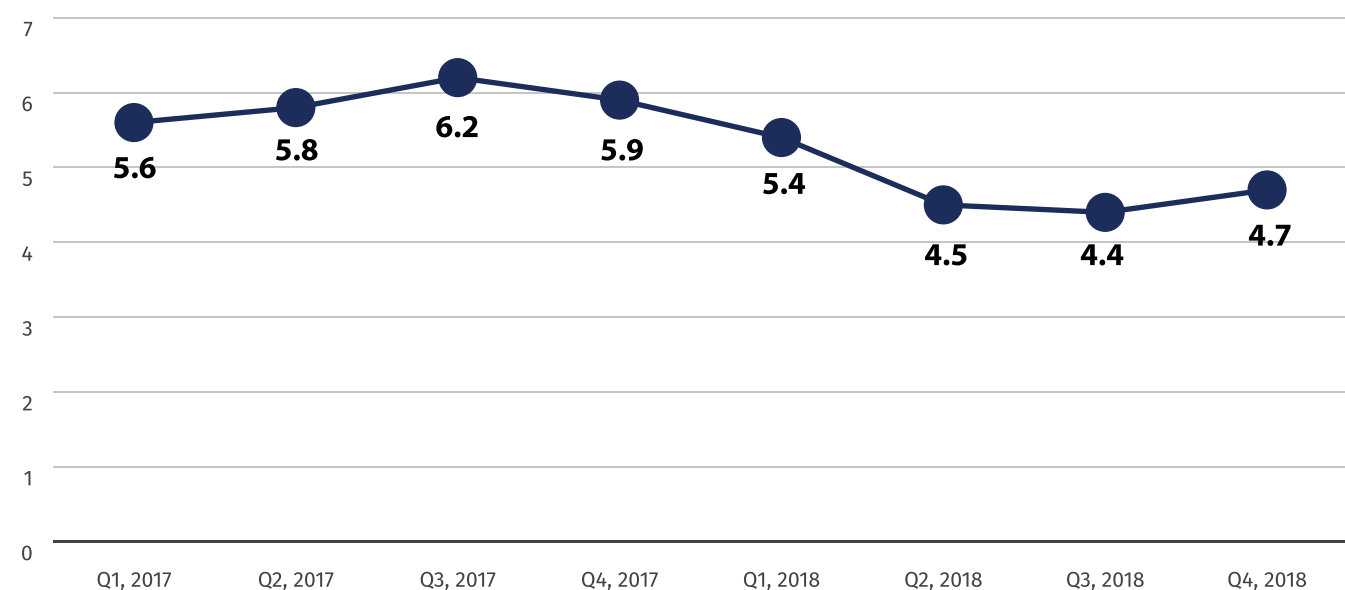
Chart 1: Malaysia's Annual GDP Growth Rate (%) : 2008-2018



*Forecast

DOSM and PIKOM Estimates

Chart 2: Malaysia's Quarterly GDP Growth Rate (%) : Q1, 2017 - Q4, 2018



Source: DOSM

Sectorial Performance

The economy's slower growth in 2018 was reflected by the performance of the five economic sectors, with every sector except Services recording a lower performance year-on-year **(See Chart 3)**.

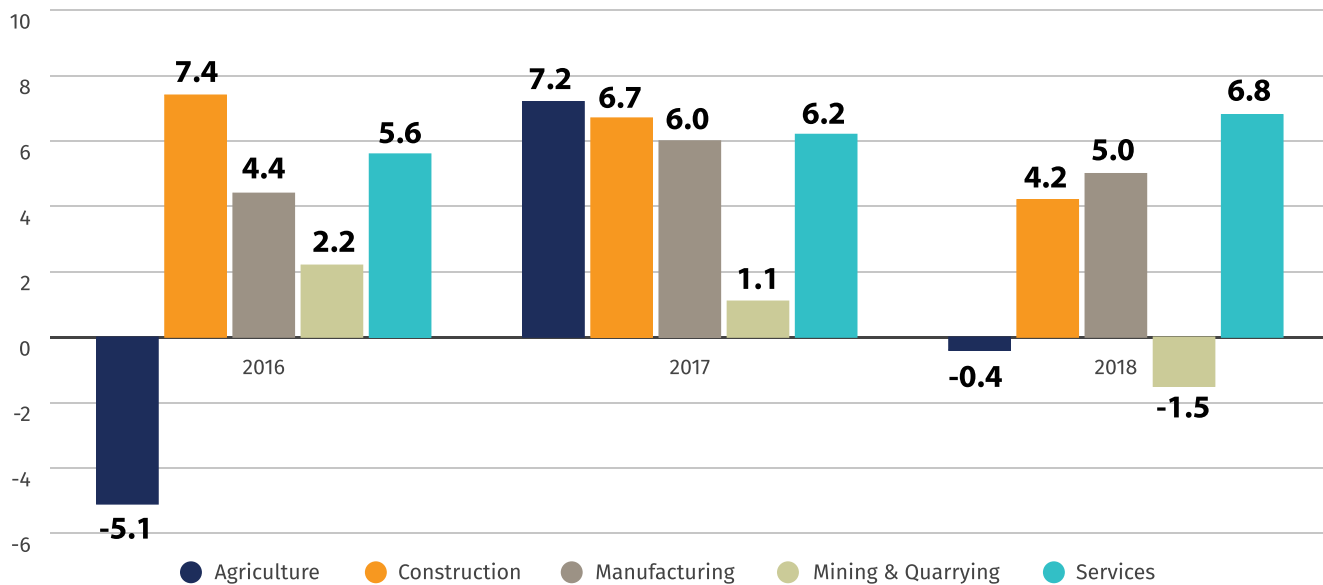
The Agriculture sector dipped significantly with a contraction of -0.5% from the highest growth rate of 7.2% among all economic sectors in 2017

while Mining & Quarrying also registered negative growth of -1.5% from 1.1% the previous year.

Manufacturing and Construction maintained their upward trend, albeit at lower rates of 5.0% and 4.2% respectively as compared with the corresponding rates of 6.0% and 6.7% the year before. The Services sector, however, bucked the trend with higher growth of 6.8% in 2018 against 6.2% previously.

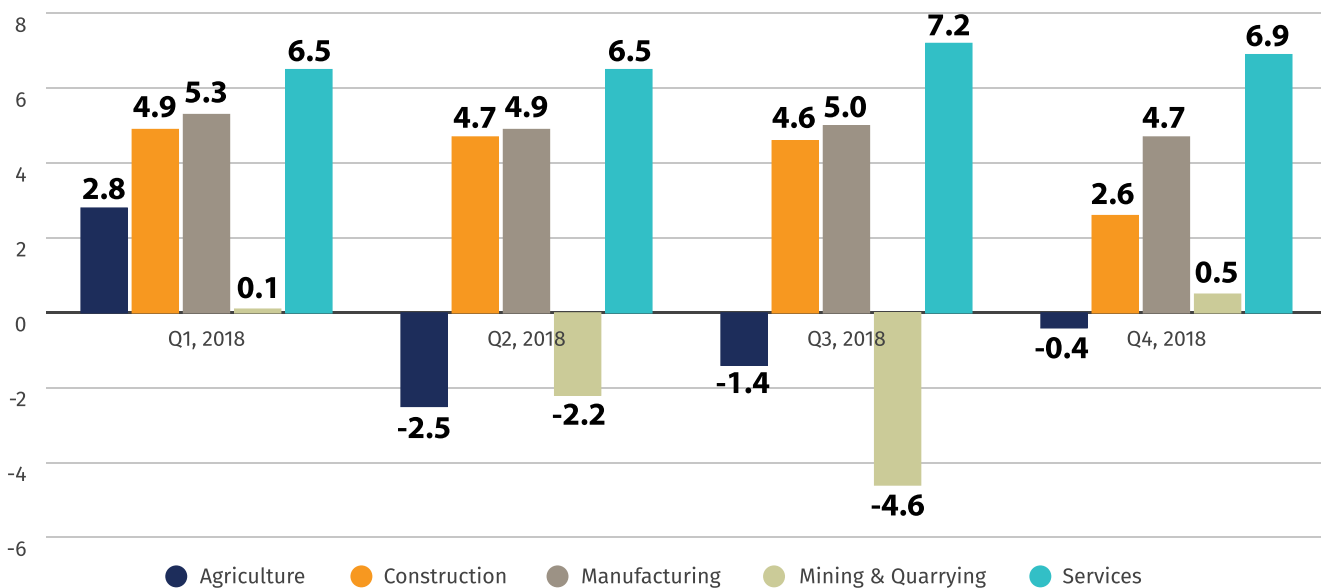


Chart 3: Performance of Economic Sectors: 2016 - 2018 (% Growth)



Source: DOSM

Chart 3a: Performance of Economic Sectors: Quarter-by-Quarter for 2018 (% Growth)



Source: DOSM

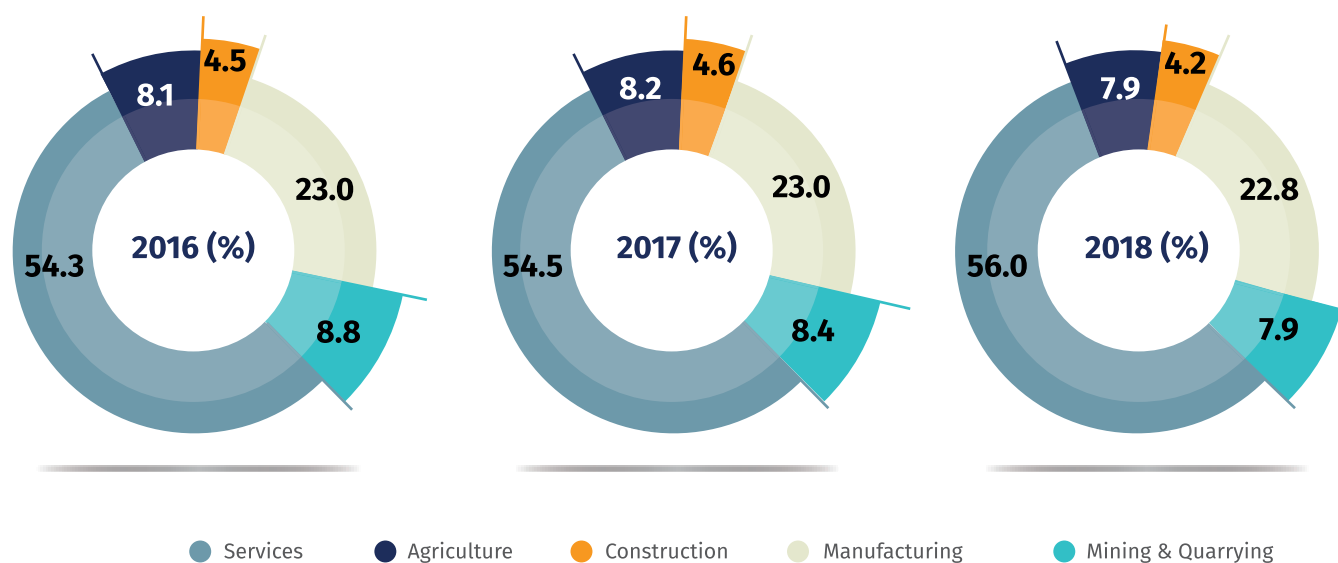
Likewise, Services showed resilience throughout the year with the highest growth rates in all four quarters of 2018 (**See Chart 3a**).

The Manufacturing sector also sustained its performance although growth in Q4, 2018 was its lowest at 4.7%. Construction, however, slowed down in the last quarter with growth of 2.6% against the steady rates of 4.6% - 4.9% in the previous three quarters.

Mining & Quarrying achieved a mini-comeback in Q4, 2018, registering growth of 0.5% after contracting in the preceding two quarters. In the case of Agriculture, the sector continued to languish in the negative zone although its contraction of -0.4% in the last quarter was not as acute as Q2 and Q3.

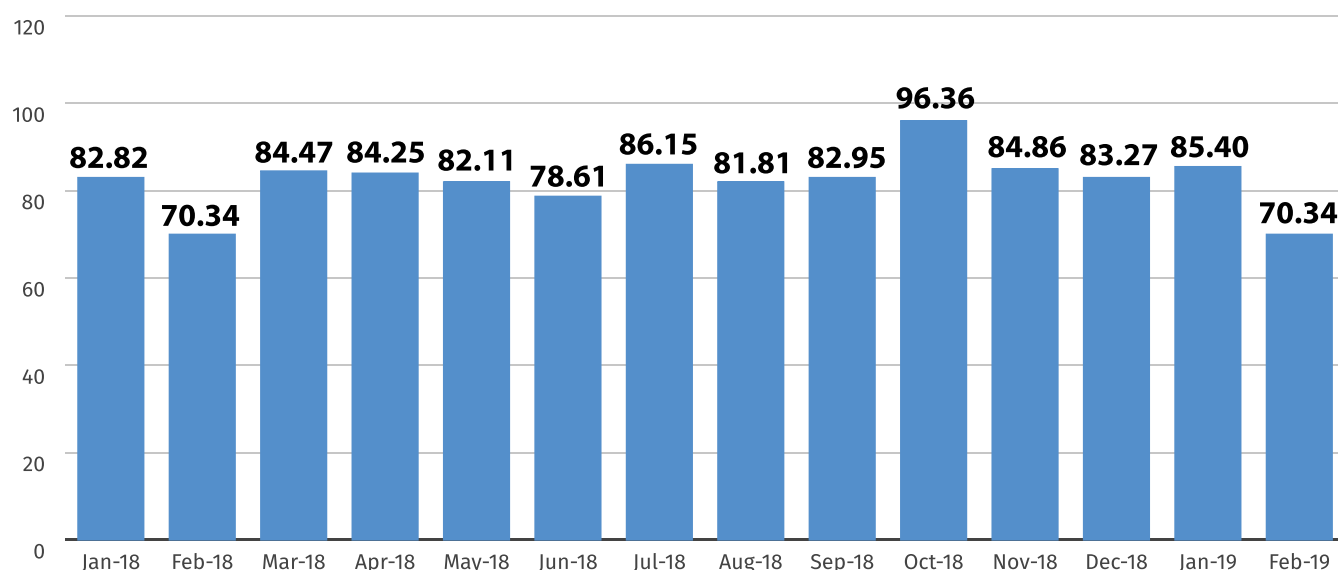
Services remained the largest economic sector in 2018, accounting for 56% of GDP followed by the

Chart 4: GDP Contribution by Economic Sectors (2016 – 2018)



Source: DOSM

Chart 5: Exports by Month January 2018 - February 2019 (RM billion)



Source: MATRADE

Manufacturing sector with 22.8% (**See Chart 4**). Mining & Quarrying, Agriculture and Construction collectively made up one fifth of the economy.

Exports

As a trading economy, Malaysia's growth depends considerably on exports which in 2018 continued to grow but at a slower pace compared with

the previous year. Exports increased by 6.7% to RM998.0 billion against growth of 18.9% in 2017.

Meanwhile, imports grew by 4.9% in 2018 to RM877.7 billion for a total trade of RM1.9 trillion representing a combined growth of 5.9%.

Chart 5 shows the monthly value of exports, with February seemingly the slowest month and most likely due to festivities during that period.



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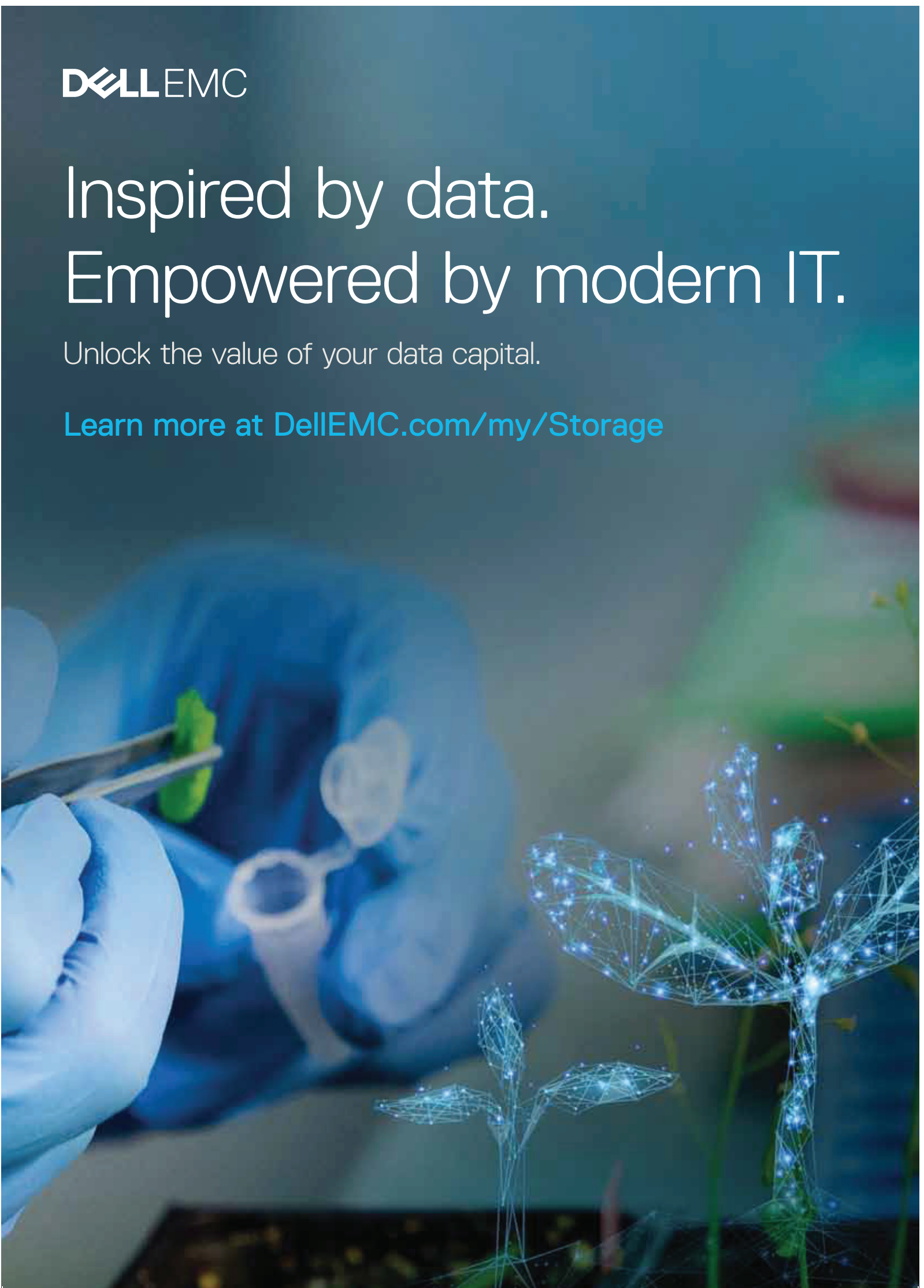
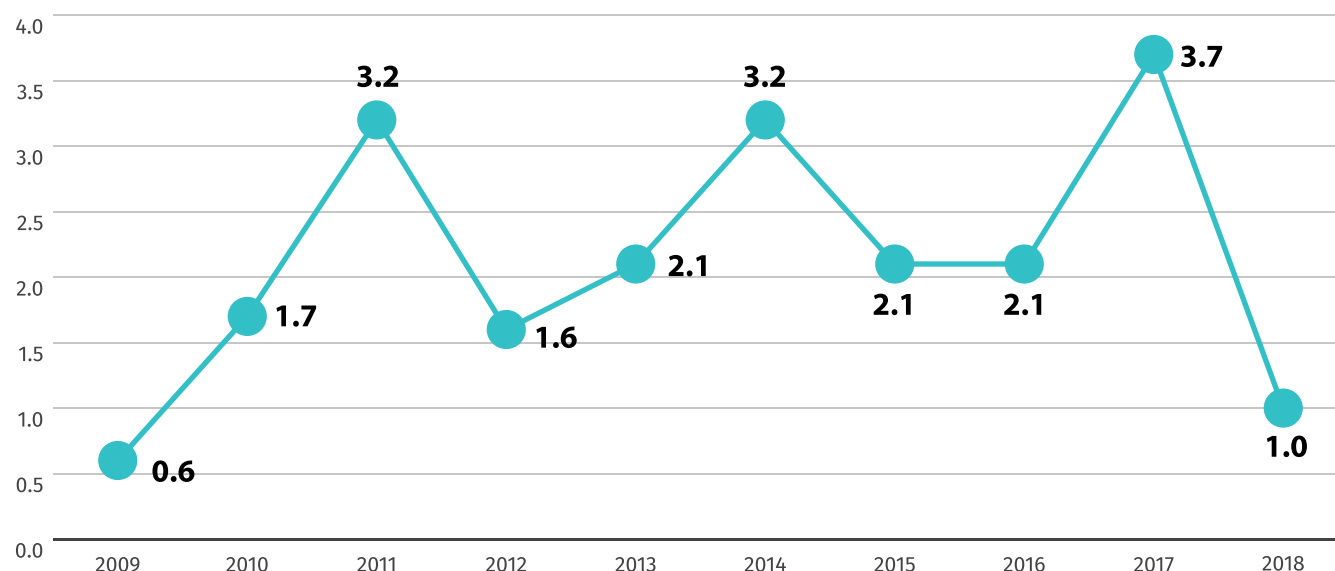


Chart 6: Malaysia's Inflation Rate: 2009 - 2018 (%)



Source: DOSM & BNM

Going forward, export growth is expected to ease further in 2019 with BNM projecting an increase of 3.4% based on sustained demand from key trading partners as well as Malaysia's diversified manufacturing export offerings.

In particular, BNM forecasts higher trade with east Asian economies Hong Kong, Taiwan and China as well as Singapore and the European Union.

Inflation

Inflation in 2018 dropped markedly from 3.7% to 1.0% in 2018, its lowest rate over nine years (**See Chart 6**). The dip in inflation rate for the year is attributed to the removal of the multi-tiered Goods and Services Tax (GST) on June 1 and replacement with the original single-tier Sales and Services Tax (SST) on September 1.

This is clearly evident by the immediate decrease in monthly inflation as shown in **Chart 7** when the rate fell and remained below the 1.0% mark from June 2018 until February 2019.

For the current year, BNM expects an inflation rate of 0.7% to 1.7% due to the impact of increasing cost factors which are partially tempered by domestic retail fuel prices in which the price ceilings for RON95 petrol and diesel will remain until the middle of the 2019.

On the other hand, the International Monetary Fund (IMF) predicts that Malaysia's inflation rate would rise further to over 2.0% on the basis that the effects of the GST repeal would be less of a factor in 2019.

Currency Exchange

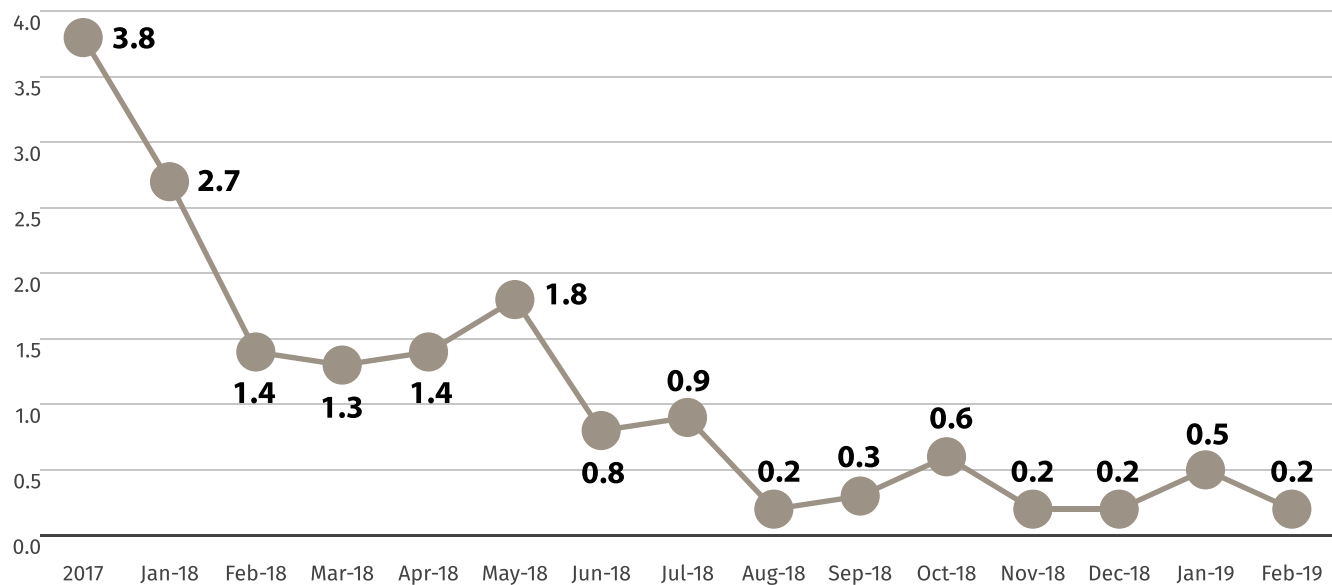
The Ringgit has weakened considerably since April 2018 from a high of RM3.886 to the US Dollar to a low of RM4.185 in November before recovering slightly to RM4.073 in March 2019 (**See Chart 8**). The local currency was at RM4.160 to the greenback as of May 12, 2019.

This marks 10 consecutive months the Ringgit has stayed above the USD1=RM4 threshold (July 2018 – April 2019), having been earlier dragged down by various external factors including the global trade turmoil involving the US and China, fluctuating crude oil prices and also the strengthening of the US dollar.

Indeed, the strengthening greenback has fuelled capital outflow from emerging markets like Malaysia and exposed their respective currencies to downside risks. This situation could potentially worsen with the latest news that FTSE Russell, the operator of British Bourse FTSE 100, stated it may remove Malaysia from its World Government Bond Index in mid-April 2019.

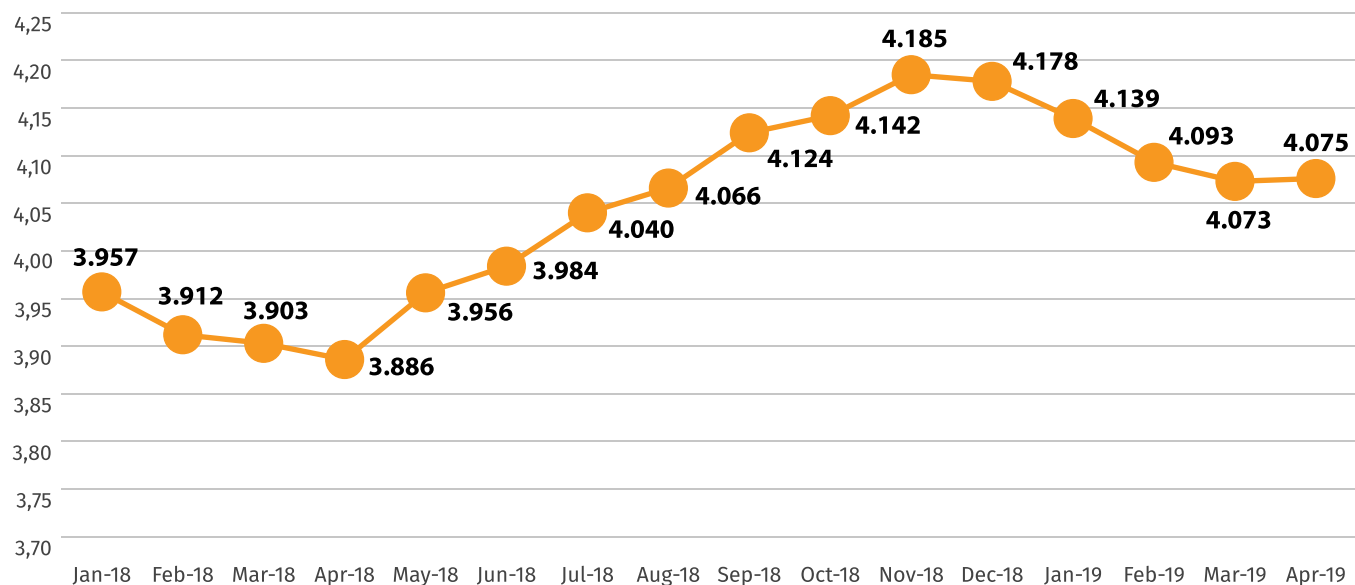


Chart 7: Malaysia's Inflation Rate: 2017 and Month-by-Month 2018 to February 2019 (%)



Source: DOSM & BNM

Chart 8: Foreign Exchange Rate: USD-MYR by Month: January 2018 – April 2019 (RM)



Source: BNM. Rate is as per the first working day of each month.

If this were to happen, market analysts warn that it could result in capital outflow amounting to as much as USD8 billion at a time when many global funds are already selling Malaysian stocks.

Employment

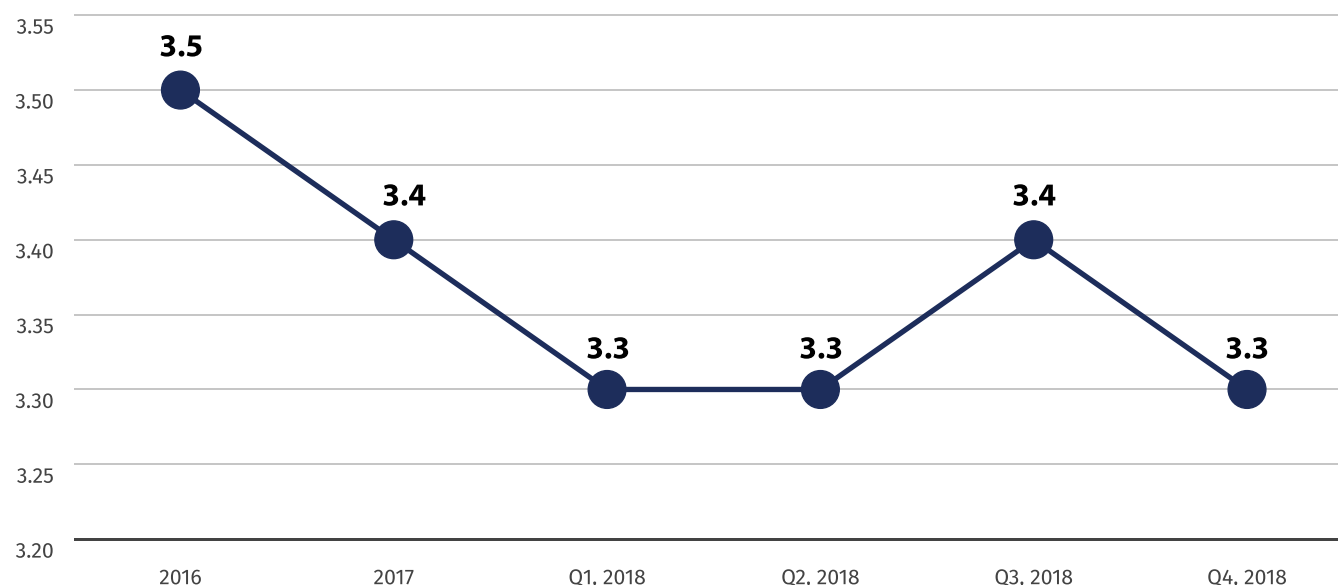
Malaysia's employment market remained strong in 2018 with unemployment pegged at 3.3% as it was the year before and a labour participation

rate that increased to 68.4% from 68.0% in 2017 (See Chart 9).

Employment grew by 2.5% during the year with the addition of more than 360,000 people to the workforce. Labour participation also improved further to 68.5% in February 2019.

At this time, a total of 15.03 million people were employed against 14.72 million at the same period the previous year.

Chart 9: Unemployment Rate: 2016, 2017 and Quarter-by-Quarter 2018 (%)



Source: DOSM

FACTORS IMPACTING THE ECONOMY 2018 AND BEYOND

As a trading nation as well as export-led and investment-driven economy, Malaysia's economic performance is tied to a confluence of global and domestic factors: among them the global trade landscape and financial market environment, commodity prices, currency exchange and domestic consumption encompassing the private and public sectors.

Global Economy

The global economy grew by 3.8%* in 2018 after encountering numerous headwinds such as the continuing trade war between the US and China, volatility in commodity prices and uncertainty in world financial markets. *Source: IMF

Nevertheless, developed economies achieved moderate growth through consumption activity while emerging economies banked on domestic demand amid a general slowdown in external demand.

Meanwhile, the IMF anticipates that global growth will slide further in 2019, having revised its projection of 3.5% announced in January to 3.3% in April this year. This growth rate will be the lowest since the GFC 10 years ago. On a brighter

note, the IMF forecasts an upswing in growth for 2020 of 3.6%.

US-China Trade Conflict

This year-long trade dispute remains unpredictable with recent news that it could be headed for resolution subsequently quashed by accusations of deceit followed by further threats of tariff hikes.

On balance, the trade spat has negatively impacted on Malaysia for several reasons including the impact on global markets and disruption to demand for Malaysian-made exports. In addition, US trade policies detrimental to China has a knock-on effect on Malaysia since the East Asian economy is a major market for the export of Malaysian intermediate goods.

An end to the trade impasse will be a boon to Malaysian exports, in which growth has been trending downwards from 18.9% in 2017 to 6.7% in 2018 and is forecast for 3.4% this year (2019).

Brexit

The circus that is the intended British exit from the EU (Brexit) is continuing to provide a spectacle of 'are they?' and 'are they not?' to the rest of the

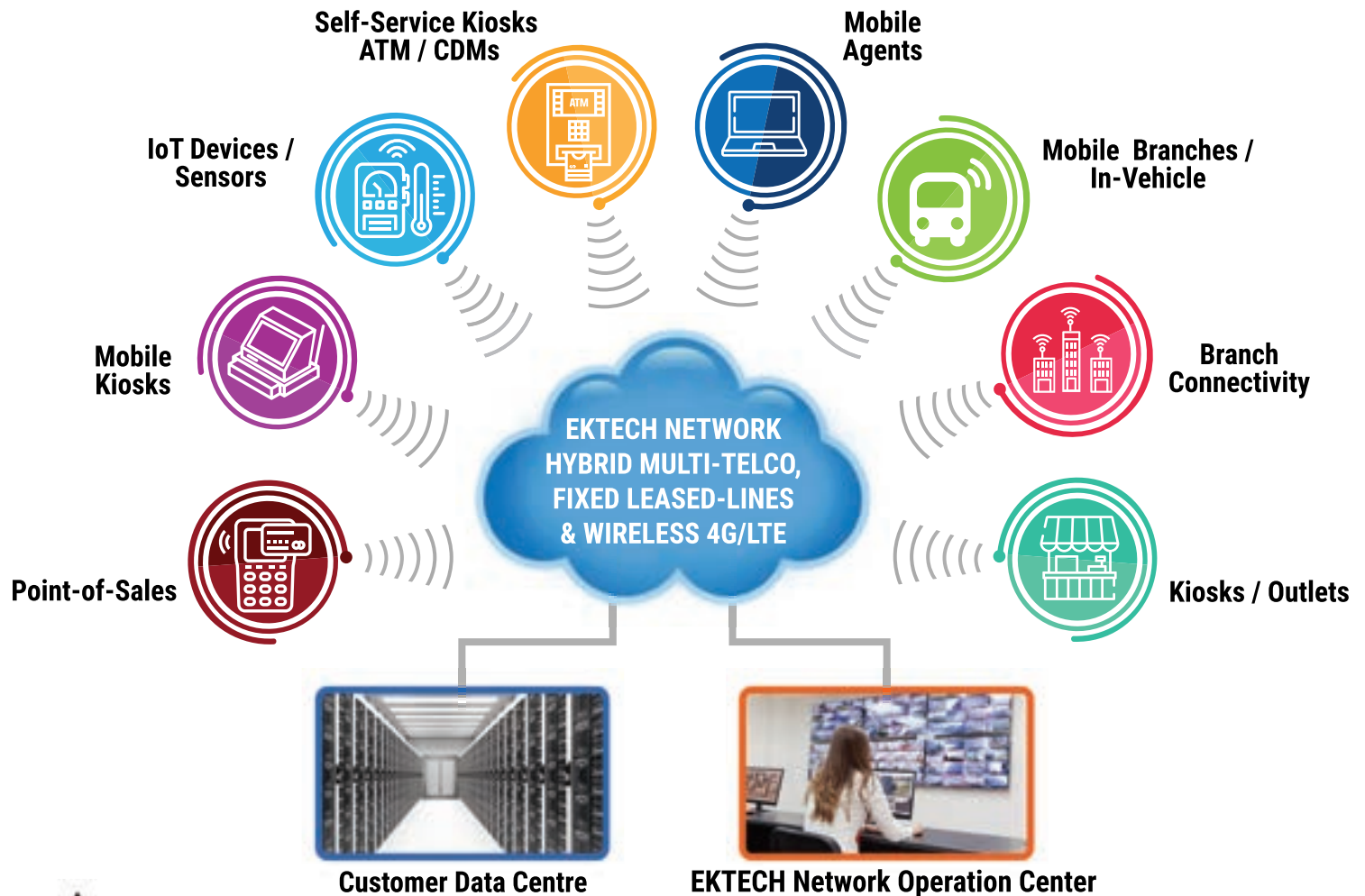


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world. As it stands, Britain is scheduled to pull out on October 19, 2019 in a move expected to affect the British and EU markets; financial, trade or otherwise.

Beyond creating chaos in European markets spilling over to the global environment, Brexit is not anticipated to have any major repercussions to the Malaysian market.

Commodity Prices

Oil & gas and palm oil collectively account for almost one fifth of the local economy and is a major component of Malaysia's exports. This being the case, the nation's export income is dictated by global prices of crude oil and crude palm oil (CPO).

- **Crude oil prices**

The price of crude oil fluctuated significantly throughout the year and into 2019, recovering from USD30 in 2016 to just below USD70 at the start of 2018 and exceeding USD80 in the last quarter before falling rapidly below USD60 this year. At the time of reporting, the price has recovered marginally and is expected to stabilise around the USD65 mark through the rest of the year. A high crude oil price is key to healthy government coffers owing to the share of profits from state-owned oil company, Petronas.

- **Crude palm oil prices**

The price of CPO has been in decline since 2016 when it fell from USD811 per metric tonne (mt) at end 2016 to USD679 per mt at end 2017 and USD535 per mt at the start of 2019. The falling prices have impacted on Malaysia's agricultural exports and is the primary reason for negative growth of this sector in 2018. Most analysts predict that the price of CPO will recover in 2019 to support economic growth this year and the next. Malaysia is the world's second largest producer and exporter of palm oil.

Renegotiation of Mega Projects

Since its formation, Malaysia's new Government has cancelled, postponed or scaled down a host of mega infrastructure projects in a bid to rationalise spending, reduce external debt and lower the economy's exposure to external risks.

Nevertheless, the decrease in public sector spending has impacted on the local economy by reducing overall consumption.

The projects have included the Light Rail Transit 3 (LRT3) and MRT Circle Line 3 (MRT3) in the Klang Valley, the High Speed Rail (HSR) between Kuala Lumpur and Singapore, the Trans Sabah Gas Pipeline (TSGP) and National Immigration Control System (SKIN).

At the time of reporting, the Government has agreed to the East Coast Rail Link (ECRL) project to be undertaken by Chinese firms following successful negotiations to bring down the cost to RM44 billion from RM66 billion previously. By partially offsetting cancellation or postponement of the other projects, this latest development will boost the Construction sector and general activity within the local economy.

Interest Rates

BNM's Overnight Policy Rate (OPR) remained constant throughout 2018 at 3.25%, having raised it from 3.00% in November 2017. The Government considers this rate as a reasonable balance between the need to stimulate economic growth and temper inflation. The central bank has since April 7 reduced the OPR to 3.00% to offset the tightening of financial conditions.

Fiscal Policy

The Government is prioritising economic competitiveness and sustainable growth in its fiscal policy. As part of these objectives, the Government is implementing a rigorous expenditure optimisation exercise to reduce wastages and leakages in order to ensure debt sustainability while at the same time stimulating the economy.

ECONOMIC OUTLOOK

Most domestic and international agencies have forecast a growth of between 4.4% and 4.9% for the Malaysian economy in 2019. On our part, PIKOM predicts the economy will expand by 4.6% from 4.7% in 2018 before recovering from mid-2020 onwards.



At the lower end of the scale, Moody's recently scaled down Malaysia's GDP growth forecast from 4.7% projected in January to 4.4% for 2019 and 4.3% for 2020. The Malaysian Institute of Economic Research (MIER) has pegged its forecast at 4.5% as a response to the slowdown in domestic and global demand as well as trade policy uncertainties and weakening financial market sentiments.

Meanwhile, BNM has also cut its projection from its November 2018 rate of 4.9% to 4.3% - 4.8%, attributing the lower range to the slower expansion of export growth and continuing US-China trade dispute. In addition, BNM has also pointed to the potential effects of China's economic slowdown on Malaysia.

Both the IMF and World Bank retain a more bullish picture, capping Malaysia's 2019 growth at 4.7%. According to the IMF, Malaysia's medium-term outlook remains favourable despite the downside risks arising from the external environment, oil prices and rising protectionism. The IMF has also predicted Malaysia's inflation will rise to 2.0% from 1.0% in 2018 with the tailing off of the effect caused by the removal of GST. The World Bank has forecast a growth rate of 4.6% and expects Malaysia to achieve high-income nation status by 2024.

At the top end of the scale, MIDF research has set 4.9% as the economic growth rate for 2019 on the basis of the robust domestic and external trade sectors.

PIKOM's Projections

We expect the Malaysian economy to shrug off its current lethargic performance and come good by mid-2020 at a time when some of the Government's newly introduced initiatives and programmes begin to bear fruit. These initiatives will be poised to generate a positive spin-off effect on the economy

In addition, mid-2020 will mark the mid-point between the inauguration of the new Government and the next General Election. This being the case, the Government can be expected to focus on desirable outcomes in its mandate on the rakyat's welfare, wellbeing, ensuring a clean government, enhancing transparency and boosting greater efficiency as well as enlarging the employment market.

As an investment-led economy, Malaysia can also look forward to a rebound in foreign direct investment (FDI) particularly with the influx of IT and other businesses from China into our shores.

This will be a welcome sight given that FDI into Malaysia had slowed from an average of RM39 billion a year to only RM33 billion in 2018 according to the Unctad World Investment Report.

On the other hand, commodity prices such as crude and palm oil remain volatile. This poses a risk which is to an extent offset by China's commitment to buy Malaysian palm oil. We expect the Ringgit to weaken further in 2019, resulting in more capital outflow. On the brighter side, we have strong foreign reserves amounting to just over USD100 billion, sufficient to finance 7.4 months of retained imports. *Source: BNM*

Meanwhile, the Government is directing its attention to the 4IR, Industry4WRD, robotics, analytics and AI as the enablers of our future economy. In this case, it is imperative that we address the country's human capital requirements to catalyse these industries.

The encouraging news is that many of our economic indicators such as employment, domestic investment, inflation, interest rates and exports are still healthy. Yet, we must not rest on our laurels as global factors are beyond our control.





SECTION B



ICT Industry Outlook in Malaysia 2019

The ICT industry in Malaysia continues to grow in size and contribution to the economy, albeit at a pace slower than the desired rate to reach 20.0% of national gross domestic product (GDP) by 2020.

As reported in PIKOM's ICT Strategic Review 2018/2019 published in November 2018, the industry grew by 10.3% year-on-year in 2017 to contribute RM247.1 billion or 18.3% to the national economy. However, this was a mere increase of 0.1 percentage points over the 18.2% share of GDP in 2016.

At this stage, it should be noted that the 11th Malaysia Plan has envisaged a growth rate of at least 17.0% per annum from 2016 – 2020 in order for the industry's GDP contribution to reach the 20.0% milestone.

Given the prevailing rate of growth, PIKOM had previously expressed doubts the industry could achieve 19.0% of the national economy by 2018. According to PIKOM's projections, this figure should reach 18.6% in 2018, 18.8% in 2019 and potentially pass the 20.0% milestone only in 2022.

It is interesting to note that research house IDC expects the industry to account for 21.0% of GDP by 2022. Nevertheless, any slowdown in the growth rate in recent times is expected to be arrested

with the latest moves to develop Malaysia as a digital nation powered by Industry4WRD or smart manufacturing, the internet of things (IoT), blockchain, cloud computing and artificial intelligence. The latest developments in these areas are discussed later on in this section.

SIZE OF ICT INDUSTRY 2018

The Department of Statistics Malaysia's (DOSM) ICT Satellite Account reported the value of ICT's contribution to GDP at RM247.1 billion, comprised of ICT-GDP of RM178.2 billion and non-ICT industry e-commerce of RM68.9 billion. **(See Table 1)**

The ICT-GDP is the sum total of contributions by the various industry segments: ICT Services; ICT Manufacturing; ICT Trade; and Content & Media while non-ICT industry e-commerce takes into account the value of retail e-commerce and B2B transactions in other industries.

• ICT-GDP by Industry Segments

ICT-GDP increased by 8.4% to RM178.2 billion from RM164.4 billion in 2016. **Chart 1** shows the value of the industry segments from 2010 to 2017. **Chart 2** depicts the share of contribution to ICT-GDP by the respective industry segments in 2017.

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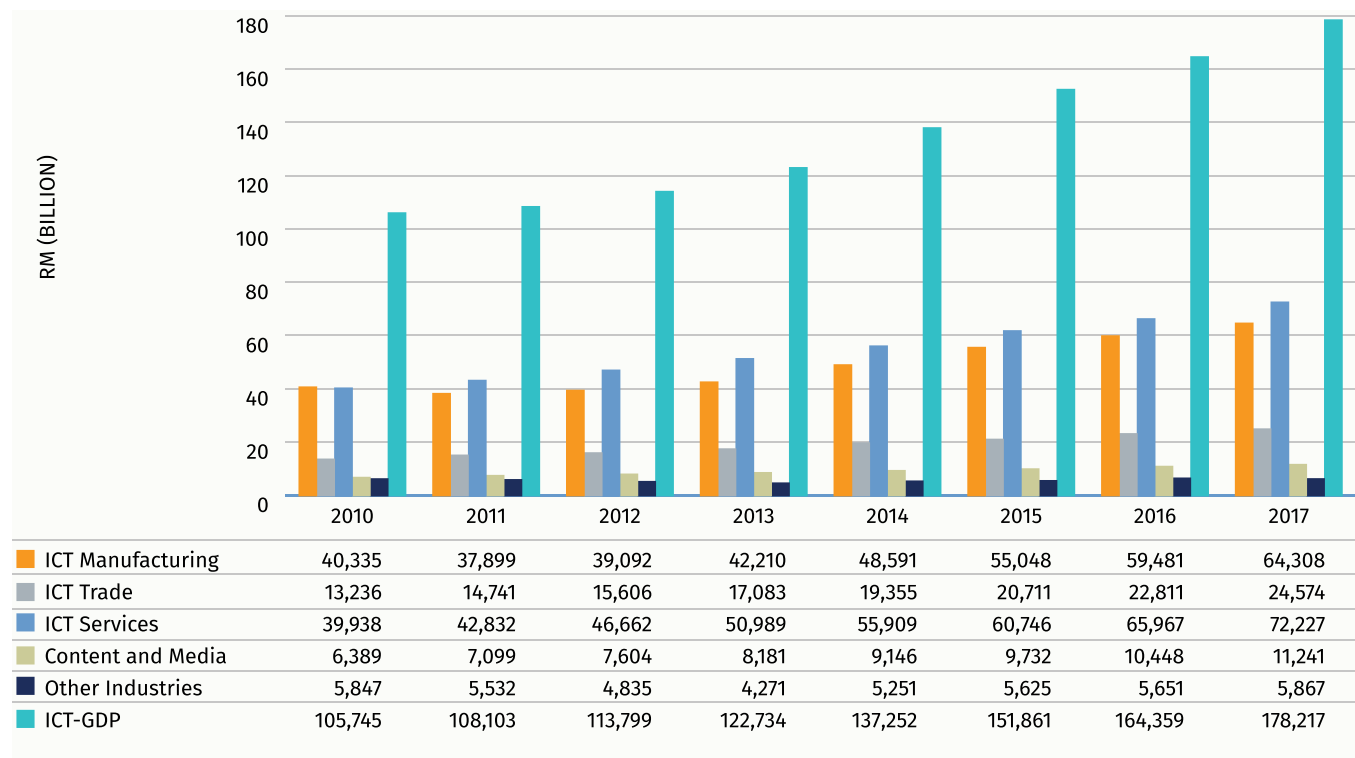


Table 1: ICT Industry Contribution to GDP: 2010 - 2017

Year	Contribution of ICT to the Economy (RM billion)	Share of the ICT Industry to the Economy (%)	ICT-GDP (RM million)	ICT-GDP (%)	e-Commerce of non-ICT industries (RM million)	Share of e-commerce of non-ICT industries to GDP (%)	GDP at current prices (RM billion)	Share of e-commerce to GDP (%)	e-commerce gross value added (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	912	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	1,019	5.4	55,261
2014	188.0	17.0	137,252	12.4	50,723	4.6	1,106	5.8	63,636
2015	205.9	17.8	151,861	13.1	54,077	4.7	1,159	5.9	68,290
2016	223.9	18.2	164,359	13.4	59,578	4.8	1,231	6.1	75,039
2017	247.1	18.3	178,217	13.2	68,858	5.1	1,353	6.3	85,775

Source: DOSM

Chart 1: ICT-GDP by Industry Segments: 2010 - 2017



Source: DOSM



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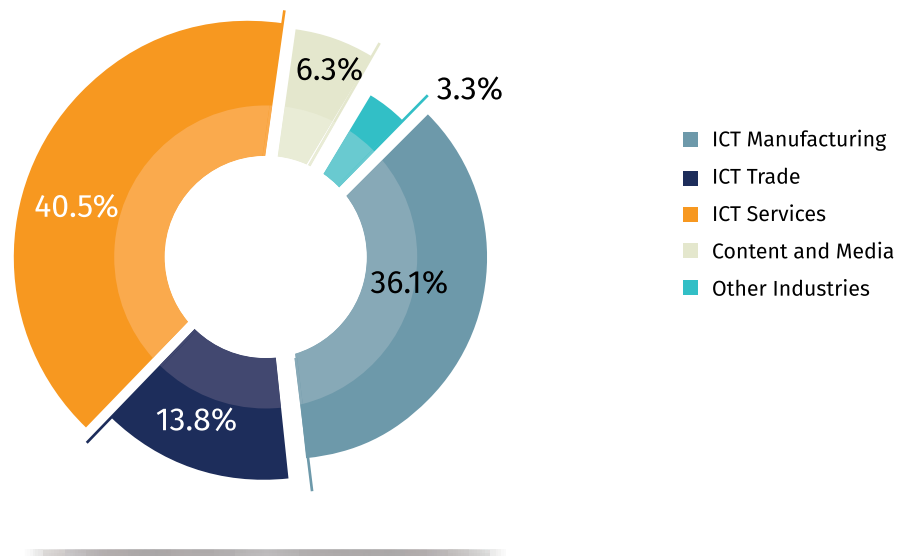
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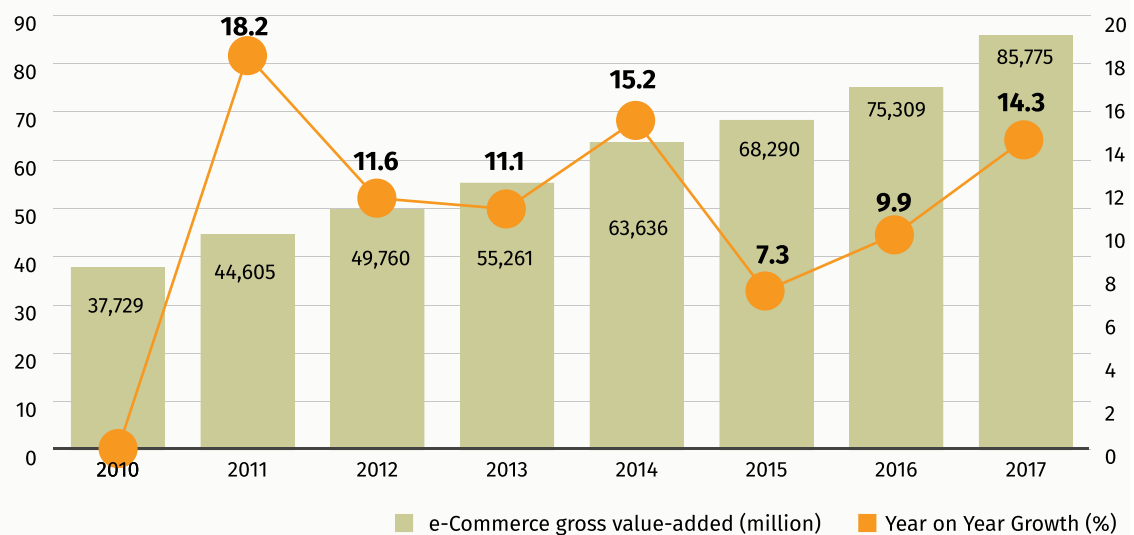


Chart 2: Share of ICT-GDP by Industry Segment: 2017



Source: DOSM

Chart 3: E-commerce Gross Value-Added: 2010 – 2017 (RM million)



Source: DOSM

- **E-commerce**

The e-commerce gross value-added grew by 14.3% to RM85.8 billion in 2017 from RM75.0 billion in 2016, with non-ICT industry e-commerce the main contributor at RM68.9 billion. **(See Chart 3)**

- **Employment in ICT Industry**

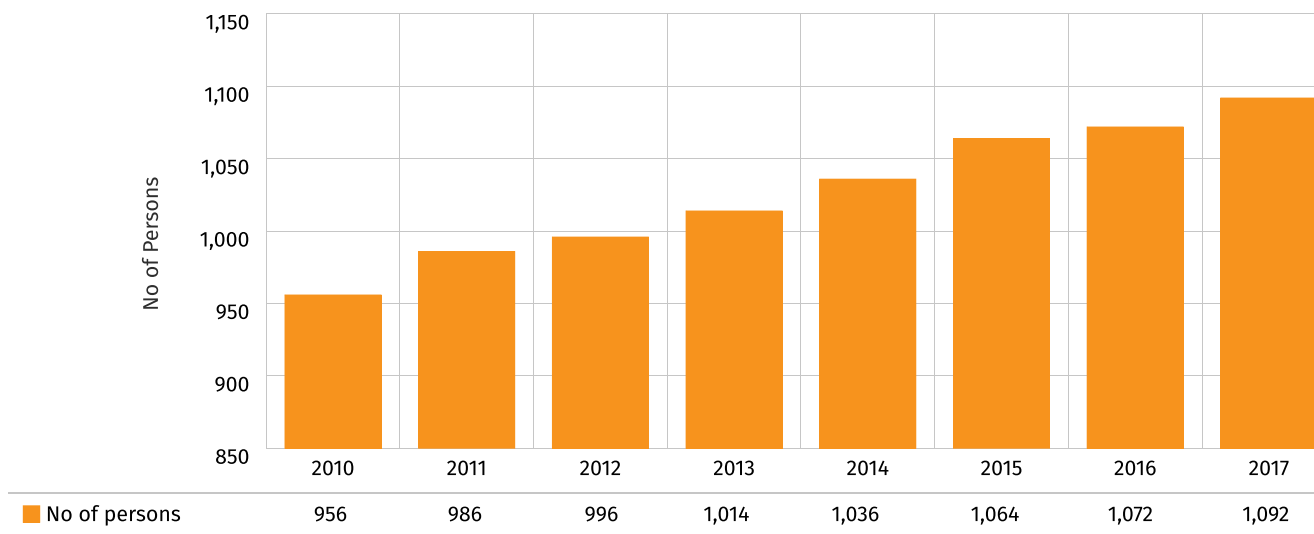
The number of employees in the ICT industry grew by almost 2.0% from 1.07 million in 2016 to 1.09 million in 2017. ICT workers are those

working in the four ICT-producing industries: ICT Services; ICT Manufacturing; ICT Trade; and Content and Media.

ICT Manufacturing employed the most people at 411,000, representing more than a third of the total ICT workforce. This was followed by ICT Services with 301,000, ICT Trade with 224,000 and Content and Media with 155,000. **(See Chart 4 and Chart 5)**

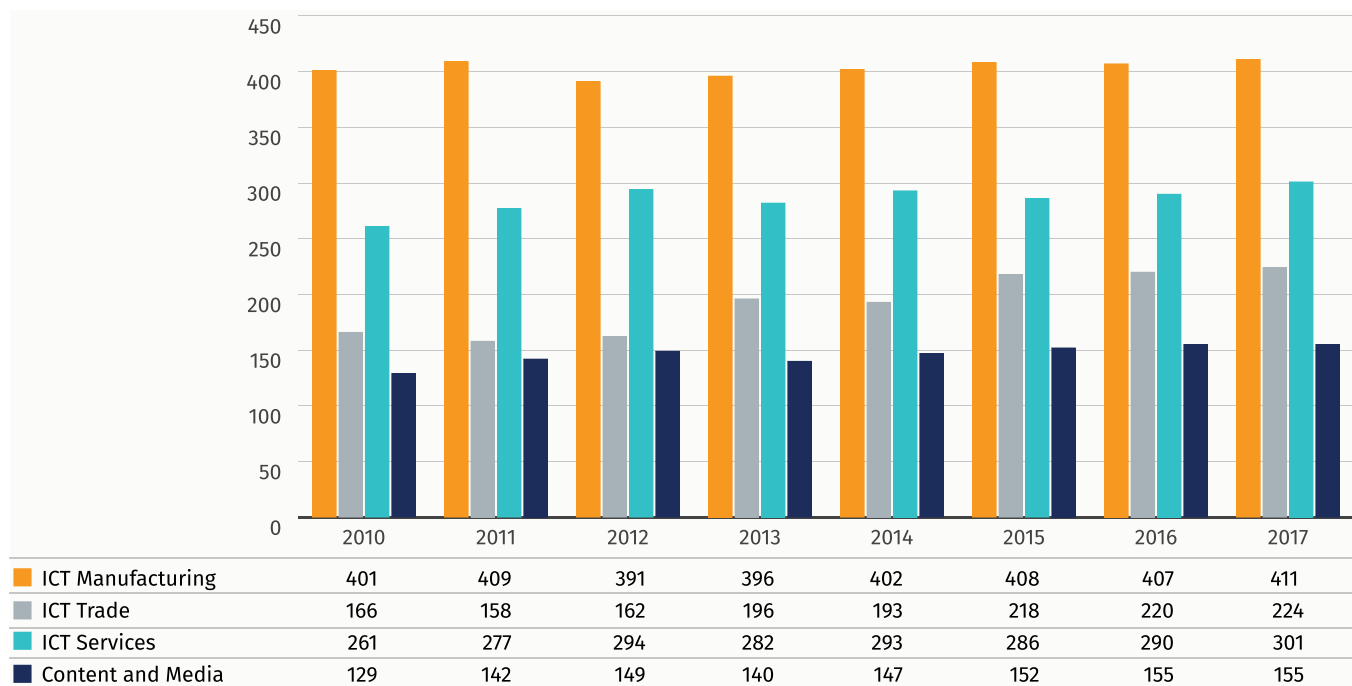


Chart 4: Number of Employees in ICT Industry: 2010 – 2017



Source: DOSM

Chart 5: Employee Breakdown by Industry Segment: 2010 - 2017



Source: DOSM

DEVELOPMENTS AND PROSPECTS

Given the growing importance of ICT to the economy, Malaysia harbours aspirations to become a thriving digital nation for the development and deployment of a range of emerging digital technologies.

These include technologies for the 4th Industrial Revolution (4IR), Industry 4.0, fintech, blockchain,

big data in the cloud, IoT, cognitive cybersecurity and artificial intelligence (AI). In this section, we look at the latest developments in several of these areas in Malaysia:

Accelerating 5G

Malaysia is poised to deploy 5G mobile networks within the next three years as the nation migrates



towards the 4IR. The Malaysian Communications and Multimedia Commission (MCMC) is currently laying the groundwork for the onset of 5G technology.

5G networks are the next generation of mobile internet connectivity characterised by a huge spike in speeds of up to 1Gbps and much more reliable connections. Set to be introduced in the US and Britain next year (2020), 5G is expected to be the platform for a smarter and more connected world via IoT and other emerging digital phenomena. According to the MCMC, Malaysia is among the first countries in Asean and even Asia to launch a test bed and showcase of 5G technology and its potential impact on economy, society and government.

As noted by Communications and Multimedia Minister Mr Gobind Singh Deo recently, a 10 percentage point increase in internet speed has resulted in a 1.38% growth in GDP of developing economies.

Driving Industry4WRD

Malaysia launched Industry4WRD, its version of the Industry 4.0 data-driven autonomous decision-making manufacturing framework, in October 2018 as the next step towards revolutionising and galvanising the manufacturing sector.

To a large extent, Industry4WRD is intended to accelerate adoption of digital technologies among small and medium-sized enterprises (SMEs), which in 2018 accounted for 98.5% of businesses and 42.0% of employment but tellingly only 37.1% of GDP. *Source: DOSM, MITI and SME Corp.*

For starters, the Government has announced the following incentives:

- Matching grant of RM245 million for smart manufacturing upgrades; and
- Capital allowances of 200% on automation equipment and claimable capital allowances for ICT equipment for 2018 – 2020.

The Ministry of International Trade and Industry (MITI) has also drafted a National Industry4WRD Policy, which outlines 13 strategies aimed at transforming the sector over the next decade and in particular the industries of electrical & electronics, machinery & equipment, chemical, medical devices and aerospace.

Given this drive, it is heartening to note that a recent World Economic Forum (WEF) and AT Kearney global assessment, *Readiness for the Future of Production Report 2018*, ranked Malaysia in the 'Leader' quadrant, making the country one of two (the other being China) non high-income economies placed in this category.

Thinking Ahead for AI

As it stands, Malaysia is not ready for the game-changing application of AI in business and industry, according to a recent study by Microsoft and IDC Asia Pacific entitled *Future Ready Business: Assessing Asia Pacific's Growth Potential Through AI*.

The study indicated Malaysia lagged behind other economies in Asia Pacific in terms of 'investment readiness' and 'data readiness', two areas it needs to focus on before any broad-based assimilation of AI technologies.

Less than 30% of organisations in Malaysia have started incorporating AI into their processes, a move that has the potential of doubling the rate of innovation and greatly improving employee productivity.

Such issues are expected to be addressed under a National AI Framework being developed by the Malaysia Digital Economy Corporation (MDEC) and scheduled for completion at year end (2019).

Industry players are eagerly awaiting the unveiling of this framework, which is essentially an extension of the existing National Big Data Analytics Framework launched in 2015.



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Unlocking Potential of Blockchain

By providing a common digital and distributed platform for keeping and accessing records, blockchain technologies are perceived as critical to the sustainability of several industries by the Malaysian Government.

The Malaysian Industry-Government Group for High Technology (MIGHT) is spearheading the move to implement blockchain in the industries of agriculture, renewable energy and Islamic finance.

For instance, certifications such as the Roundtable on Sustainable Palm Oil (RSPO) can be showcased on blockchain, thereby raising the level of trust and confidence among importers of Malaysian palm oil products.

In the case of renewable energy, blockchain can facilitate the sale and purchase between individual users and private producers of electricity generated via solar panels or bio-composting. The technologies can also mitigate administrative costs associated with Islamic banking.

Commercialising IoT

IoT is currently being prioritised for its vital role in developing smart city infrastructure including smart highways, intelligent traffic management, energy management and also crime prevention.

In support of IoT, the private sector has seen the growth of the data industry to 26 data centre companies and almost 200 cloud computing service providers including multinational corporations setting up regional headquarters in the country.

At present, software-as-a-Service (SaaS) has the highest adoption rate in cloud computing while hybrid clouds are increasingly being deployed by enterprises and are potentially a key growth market.

The 2018 figures will only be released by DOSM in October this year.



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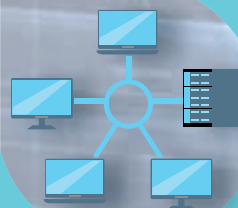
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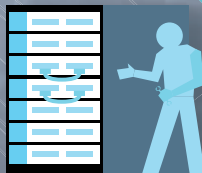
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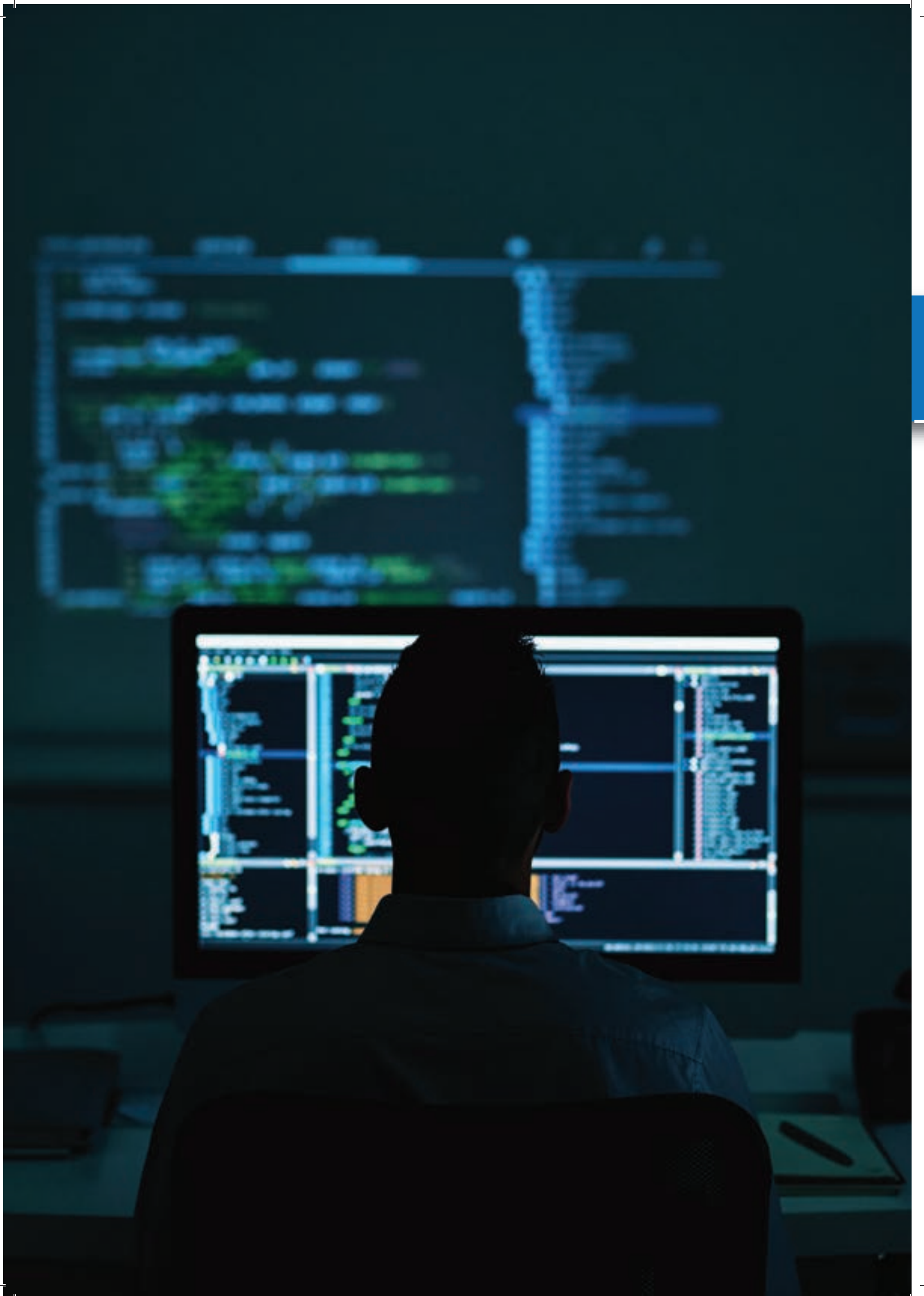
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SECTION C

ICT Salary Trends in Malaysia

Human capital is the defining asset of the ICT industry and having a sufficient pool of ICT talents with the requisite knowledge, skills and innovative spirit is critical to the development of Malaysia's digital economy.

In this section, we look at the job landscape for ICT professionals in the country including the salary trends of various positions according to years of experience in the industry. All figures reported are based on data from Jobstreet.com and PIKOM estimates. The data is derived from job openings advertised by companies in Jobstreet.com.

Besides tracking the salary growth of ICT professionals, the issues covered in this section are the top-paying and top-hiring industries. However, unlike previous editions of this report, we are not extending our analysis to a regional benchmarking of salaries against other countries and cities.

Salary and Employment Trends at a Glance

Salaries in the ICT industry grew at the slowest pace this decade with the overall average monthly salary in 2018 only 4.0% higher than the previous year and significantly below the average annual growth rate (AAGR) of 6.7% over the nine-year period of 2009 – 2018.

The slowdown in salary growth reflects the tepid expansion of the ICT industry, whose share of GDP increased by only 0.1 percentage point to 18.3% in 2017. The growth rate is expected to moderate further to 3.8% in 2019. **(See Chart 1)**

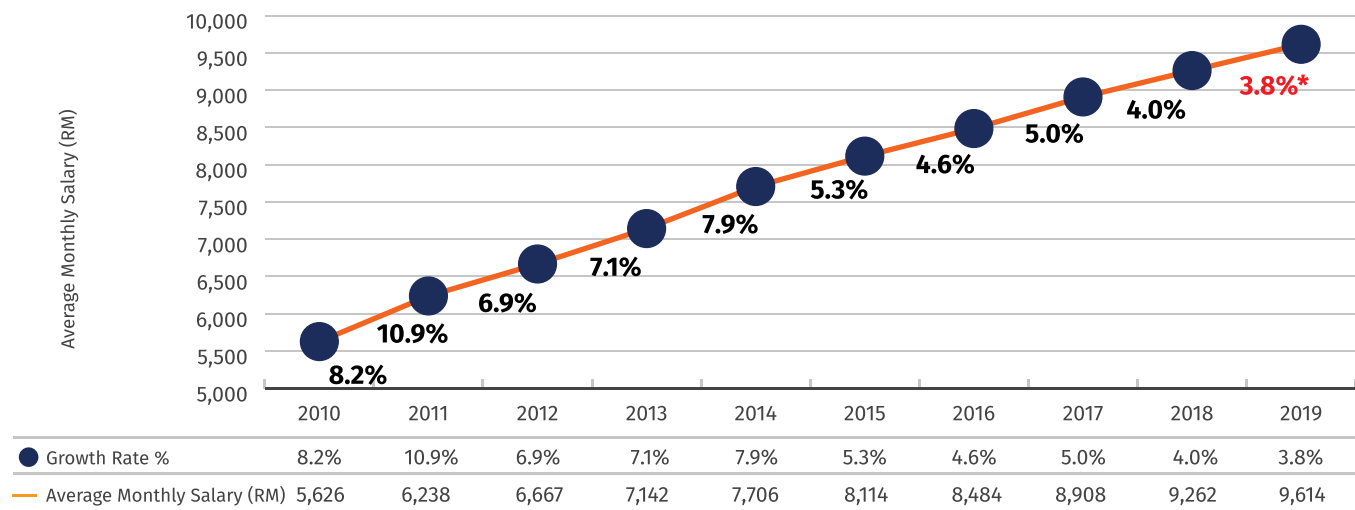
In a surprising turn of events, the Financial Services / Securities / Insurance industry cluster fell from its premier position in 2017 to drop out of the top five paying industries bracket for ICT professionals in 2018. The reason for this was the much lower number of jobs advertised for this industry segment with only 473 openings through the year.

In its place is the Call Centre / IT-Enabled Services / BPO segment followed by the usual suspects of Computer / IT (Hardware), Banking and Telecommunication. The Manufacturing / Production industry was the new entry in this list. **(See Chart 2)**

The downtrend in growth rate of ICT salaries is mirrored by a considerably lower increase in industry jobs during 2018. Whereas job openings grew by 35.0% to 15,197 the previous year, the quantum of increase this time around was only 12.9% to 17,159. However, this may well be a natural correction following the exceptionally high rate of increase in 2017. **Chart 3** offers a comparison of jobs advertised in Jobstreet.com over the past four years.

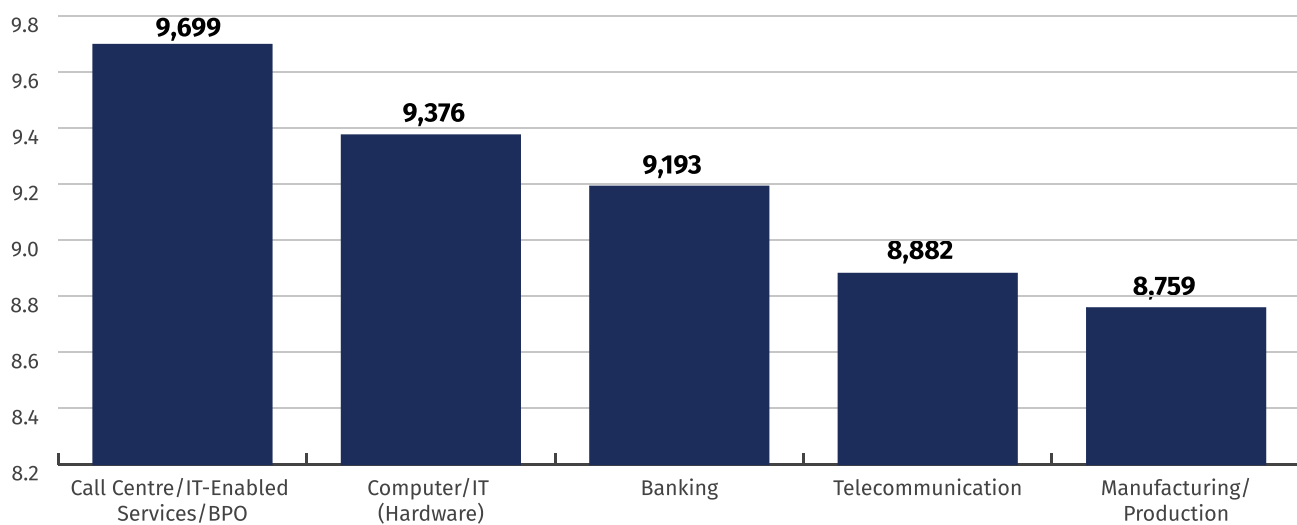
While demand for ICT jobs remain healthy, employers seem to be more discerning in their employment choices. Job providers in 2018 appear to be more conservative in their remuneration and at the same time more demanding in terms of experience and specific skill sets.

The declining growth trends of both salaries and job openings is likely a response to the recalibration of the economy following the change in Government in 2018, resulting in employers taking on a more cautious and wait-and-see attitude.

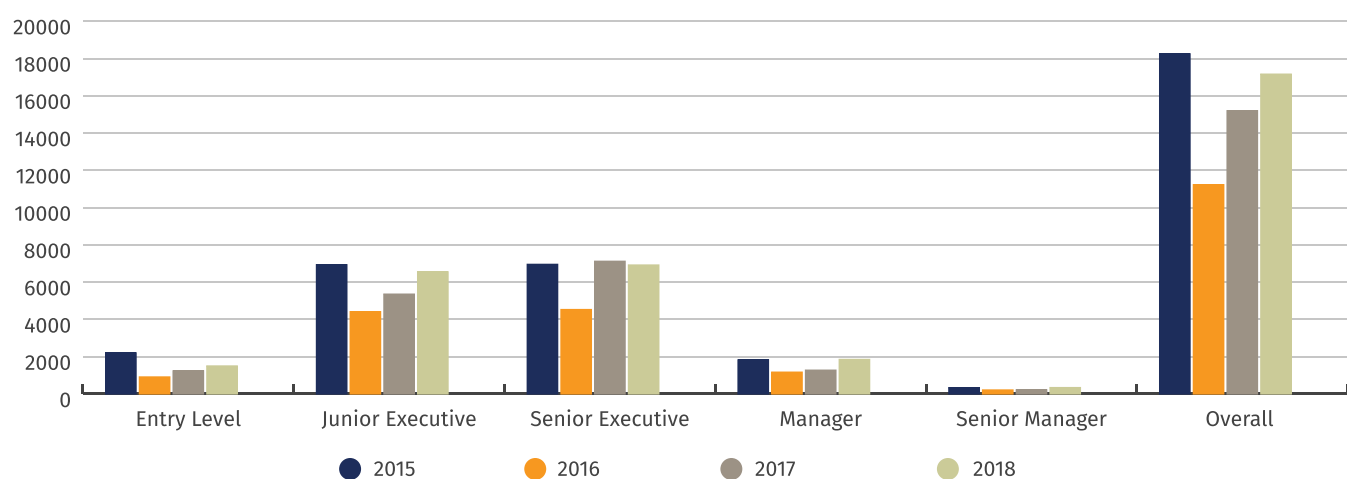

Chart 1: Overall Average Monthly Salary of ICT Professionals: (2010 – 2019)


*PIKOM forecast

Source: Jobstreet.com and PIKOM estimates

Chart 2: Top Paying Industries for ICT Professionals in 2018


Source: Jobstreet.com and PIKOM estimates

Chart 3: Comparison of Job Openings for ICT Professionals (2015 – 2018)


Source: Jobstreet.com and PIKOM estimates

Salary and Employment Tracking Parameters

All salary figures and number of job openings are based on the same 22 industries tracked in previous years and segmented into five position levels according to years of experience.

The industries 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.

The position levels are:

Entry Level:	Less than a year's experience
Junior Executive:	1 – 4 years' experience
Senior Executive:	3 – 7 years' experience
Manager:	6 – 10 years' experience
Senior Manager:	more than 10 years' experience

Growth Rates of Salaries in 2018

The overall average monthly salary of ICT professionals increased by 4.0% year-on-year to RM9,262 in 2018, a year in which the respective growth rates went up with every higher position from Entry level to Junior Executive, Senior Executive, Manager and Senior Manager. **(See Table 1)**

At the lower end of the spectrum, the average monthly salary of Entry level ICT professionals increased by only 4.1% while the Senior Manager level recorded a growth of 7.2%. The bottom two position levels (Entry and Junior Executive) registered lower growth rates as compared with the previous year while the other three levels (Senior Executive, Manager and Senior Manager) recorded higher year-on-year growth rates than in 2017.

This is also reflected in the growing ratio between the salaries of each position level measured against a value of 1.0 for Entry level professionals. For example, the ratio between the average monthly salaries of the Senior Manager and Entry levels was 6.66 in 2018 in comparison to 6.47 the year before. **(See Table 1a)**

The widening of the salary gap between the entry and higher position levels is a cause for concern as this has the potential of drawing away interest in ICT-related careers and education at a time when the industry is facing a shortage of innovative talent.

Methodology

The data from Jobstreet.com was first sanitised by converting any figures in foreign currency, then removing records of interns followed by extreme values and missing information. At this stage, the data quality appeared to fluctuate considerably compared to previous years. As such, the source data was subjected to additional smoothing using the five-year moving averages before arriving at the trends for 2018 and forecast for 2019.

In addition, the low starting salaries on offer may worsen the long-standing issue of brain drain with many local talents opting for the higher wages and more favourable currency exchange rates against the weakening Ringgit in regional markets such as Singapore, Thailand, China and Australia

Given the lower growth rate for 2018, the AAGR of salaries in 15 industries for the period 2009 - 2018 dropped to 6.6% as compared with the respective AAGRs of the previous two nine-year periods (7.9%: 2008 – 2017 and 7.6%: 2007 – 2016).

Based on the prevailing trend, PIKOM anticipates that the overall average monthly salary of ICT professionals will grow by an even lower rate of 3.8% to RM9,614 in 2019. The projected dip in growth rate of salaries is given weight by Jobstreet.com's Job Employment Confidence Index (JECI), which shows that the indices for February and March 2019 are lower than their corresponding months the year before.

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Table 1: Average Monthly Salary of ICT Professionals (Overall and by Position Level)

Job Category	Entry Level		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	1971		2800		4332		6163		10368		5200	
2010	2181	10.7	2936	4.9	4514	4.2	7005	13.7	10795	4.1	5626	8.2
2011	2238	2.6	3151	7.3	5039	11.6	7837	11.9	12166	12.7	6238	10.9
2012	2324	3.8	3205	1.7	5344	6.1	8434	7.6	13674	12.4	6667	6.9
2013	2438	4.9	3439	7.3	5744	7.5	8986	6.5	14661	7.2	7142	7.1
2014	2581	5.9	3719	8.1	6157	7.2	9591	6.7	16057	9.5	7706	7.9
2015	2718	5.3	3894	4.7	6483	5.3	10195	6.3	17053	6.2	8114	5.3
2016	2817	3.6	4052	4.1	6727	3.8	10646	4.4	18132	6.3	8484	4.6
2017	2958	5.0	4259	5.1	7057	4.9	11168	4.9	19147	5.6	8908	5.0
2018	3080	4.1	4458	4.7	7469	5.8	11888	6.4	20521	7.2	9262	4.0
*2019	3210	4.2	4663	4.6	7865	5.3	12589	5.9	21916	6.8	9614	3.8
AAGR 2009-2018 %"		5.1		5.3		6.3		7.6		7.9		6.6

*Forecast for the year 2019

Source: Jobstreet.com and PIKOM estimates

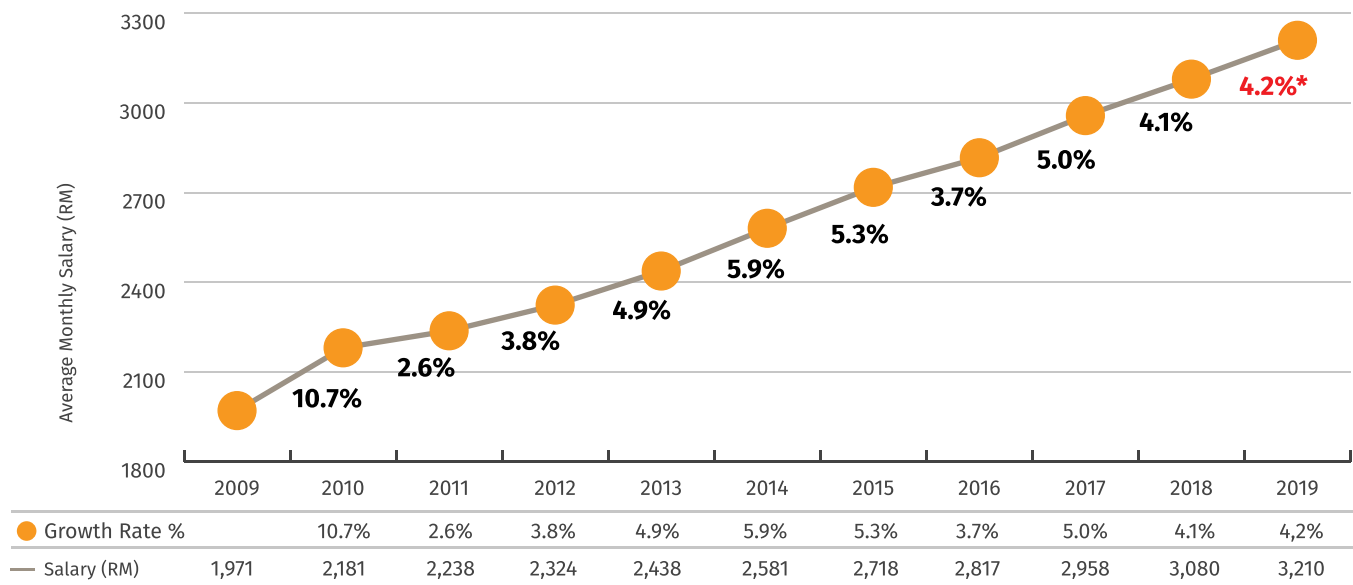
Table 1a: Ratio between Salaries of Position Levels Against Entry Level as Base

Job Category	Entry Level	Junior Executive	Senior Executive	Manager	Senior Manager	Overall
YEAR	Ratio	Ratio	Ratio	Ratio	Ratio	Ratio
2009	1.00	1.42	2.20	3.13	5.26	2.64
2010	1.00	1.35	2.07	3.21	4.95	2.58
2011	1.00	1.41	2.25	3.50	5.44	2.79
2012	1.00	1.38	2.30	3.63	5.88	2.87
2013	1.00	1.41	2.36	3.69	6.01	2.93
2014	1.00	1.44	2.39	3.72	6.22	2.99
2015	1.00	1.43	2.39	3.75	6.27	2.99
2016	1.00	1.44	2.39	3.78	6.44	3.01
2017	1.00	1.44	2.39	3.78	6.47	3.01
2018	1.00	1.45	2.42	3.86	6.66	3.01
2019	1.00	1.45	2.45	3.92	6.83	3.00

Source: Jobstreet.com and PIKOM estimates



Chart 4: Average Monthly Salary of Entry Level ICT Professionals (2009 – 2019)



*PIKOM forecast

Source: Jobstreet.com and PIKOM estimates

Salary Trends by Job Category

Entry Level

The average monthly salary of Entry level ICT professionals with less than a year's experience increased by a lower rate of 4.1% to RM3,080 in 2018 against the year-on-year growth of 5.0% the previous year. **(See Chart 4)**

The growth rate for 2018 is markedly lower than the AAGR of 5.1% for this position level in the period 2009 – 2018. The AAGR is based on salaries in 15 of the 22 industries tracked for this report.

The highest year-on-year increase of salaries for this position level were from the industry segments of Automotive / Heavy Industry / Machinery (9.3%), Electrical & Electronics (9.0%) and Construction / Building / Engineering (8.5%). **(See Table 2)**

Similarly, the highest AAGR for the period 2009 – 2018 were recorded in the Automotive / Heavy Industry / Machinery (13.6%) segment followed by Construction / Building / Engineering (11.6%) and Electrical & Electronics (11.3%).

• Outlook in 2019

Fresh graduates continue to fall short of the digital skill sets required by the new wave of ICT opportunities in the market, according to Jobstreet.com. The employment portal

also cited a survey which indicated that the majority of employers felt fresh graduates had 'unrealistic' expectations of starting salaries and benefits.

Other employment agencies also highlighted the soft economic outlook for the country in 2019 as a reason for employers cutting costs and seeking to pare down their salary scales and wage bills.

Given the relatively flat job market environment for fresh graduates, the average monthly salary for Entry level ICT professionals is only expected to increase by 0.1 percentage points to 4.2% in 2019. This works out to a monthly wage of an estimated RM3,200.

However, PIKOM is optimistic that the job market for Entry level professionals will rebound in 2020 following a lacklustre 2019 due to the rapid adoption of digital technologies across all economic sectors.

Junior Executive

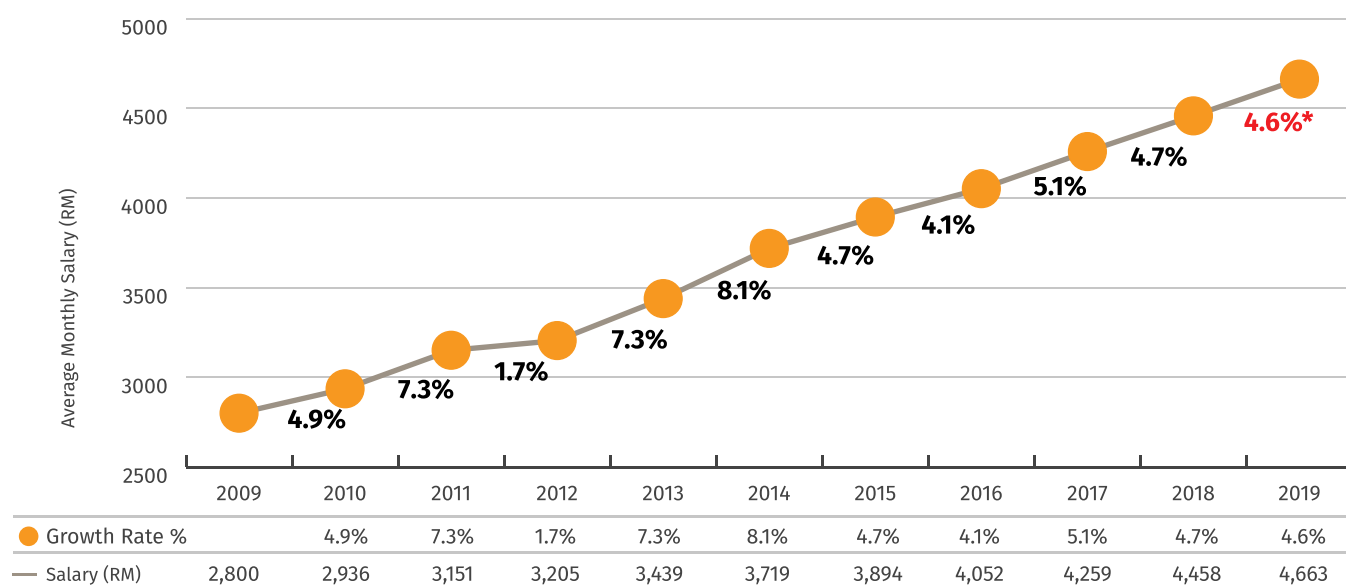
Similar to Entry level ICT professionals, the average monthly salary of Junior Executives with one to four years' experience went up in 2018 but at a slower pace compared to the previous year. On the average, Junior Executives took home RM4,458 per month or 4.7% more than in 2017. **(See Chart 5)**

Table 2: Average Monthly Salary of Entry Level ICT Professionals by Industry (2009 – 2019)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Y-o-Y Growth (2017-2018) %	AAGR (2009-2018) %
Automotive / Heavy Industry / Machinery	1,406	1,731	2,175	2,175	2,763	3,063	3,387	3,615	3,955	4,324	9.3	13.6
Banking	1,805	2,000	2,225	2,425	2,425	2,875	3,008	3,130	3,335	3,566	6.9	8.0
Call Center / IT-Enabled Services / BPO	2,025	2,125	2,275	2,275	2,375	2,575	2,660	2,714	2,819	2,928	3.9	4.2
Computer / Information Technology (Hardware)	2,072	2,155	2,213	2,368	2,385	2,485	2,541	2,607	2,697	2,784	3.2	3.3
Computer / Information Technology (Software)	2,125	2,244	2,400	2,450	2,553	2,763	2,861	2,934	3,059	3,189	4.2	4.6
Construction / Building / Engineering	1,301	1,546	1,800	2,023	2,394	2,494	2,722	2,934	3,200	3,472	8.5	11.6
Consulting (Business/ Technical)	2,000	2,125	2,275	2,325	2,525	2,625	2,742	2,832	2,965	3,094	4.4	5.0
Education	1,581	1,750	1,975	1,983	2,305	2,433	2,602	2,721	2,900	3,081	6.2	7.8
Electrical & Electronics	1,508	1,769	2,063	2,343	2,343	2,931	3,110	3,279	3,552	3,870	9.0	11.3
Hotel / Restaurant / Food Service / Hospitality	2,165	2,199	2,225	2,288	2,288	2,340	2,362	2,388	2,425	2,461	1.5	1.4
Manufacturing / Production	2,384	2,434	2,508	2,508	2,558	2,655	2,698	2,724	2,776	2,828	1.9	1.9
Printing / Publishing	2,033	2,131	2,225	2,300	2,300	2,300	2,310	2,391	2,452	2,497	1.8	2.3
Science & Technology / Aerospace / Bio Technology	1,967	2,162	2,350	2,500	2,500	2,500	2,521	2,683	2,806	2,899	3.3	4.5
Telecommunication	1,918	2,008	2,120	2,150	2,280	2,375	2,457	2,518	2,613	2,706	3.5	3.9
Wholesale / Retail / Trading	1,635	1,725	1,800	1,925	2,000	2,075	2,145	2,218	2,315	2,408	4.0	4.4

Source: Jobstreet.com and PIKOM estimates

Chart 5: Average Monthly Salary of Junior Executive ICT Professionals (2009 – 2019)



*PIKOM forecast

Source: Jobstreet.com and PIKOM estimates

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Table 3: Average Monthly Salary of Junior Executive ICT Professionals by Industry (2009 – 2019)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Y-o-Y Growth (2017- 2018) %	AAGR (2009- 2018) %
Agriculture / Plantation / Aquaculture	2,947	2,968	3,372	3,683	3,900	4,025	4,268	4,485	4,741	5,008	5.6	6.1
Automotive / Heavy Industry / Machinery	3,220	3,075	3,100	3,563	3,663	3,878	3,994	4,063	4,247	4,434	4.4	3.7
Banking	2,900	3,262	3,400	3,475	3,543	4,160	4,165	4,305	4,537	4,759	4.9	5.8
Call Center / IT-Enabled Services / BPO	2,825	2,925	3,225	3,225	3,400	3,874	3,913	4,027	4,244	4,451	4.9	5.3
Computer / IT (Hardware)	2,720	2,963	3,002	3,100	3,213	3,350	3,421	3,529	3,649	3,762	3.1	3.7
Computer / IT (Software)	2,582	2,750	3,025	3,063	3,275	3,900	3,947	4,074	4,343	4,606	6.1	6.8
Construction / Building / Engineering	2,736	2,675	2,900	2,950	3,152	3,352	3,424	3,494	3,644	3,785	3.9	3.7
Consulting (Business / Technical)	2,550	3,025	3,150	3,283	3,350	4,041	4,067	4,246	4,518	4,786	5.9	7.4
Education	2,133	2,175	2,523	2,575	2,888	3,150	3,288	3,434	3,664	3,891	6.2	7.0
Electrical & Electronics	2,865	2,725	3,113	3,228	3,229	3,513	3,582	3,675	3,831	3,989	4.1	3.9
Financial Services / Securities / Insurance	2,900	3,262	3,400	3,479	3,543	4,160	4,165	4,306	4,538	4,760	4.9	5.8
Hotel / Restaurant / Food Service / Hospitality	2,258	2,525	2,575	3,045	3,258	3,355	3,594	3,810	4,054	4,310	6.3	7.5
Manufacturing / Production	2,825	3,025	3,095	3,157	3,292	3,392	3,464	3,565	3,676	3,778	2.8	3.3
Oil / Gas / Petroleum	3,044	3,500	3,675	3,725	3,775	3,875	3,979	4,182	4,319	4,449	3.0	4.4
Printing / Publishing	2,500	2,699	2,790	2,950	3,215	3,215	3,375	3,521	3,678	3,829	4.1	4.9
Property / Real Estate	2,425	2,538	3,905	3,215	3,225	3,425	3,500	3,810	3,975	4,130	3.9	7.4
Science & Technology Aerospace / BioTechnology	2,575	2,585	2,925	3,069	3,171	3,888	3,907	4,023	4,305	4,588	6.6	6.8
Semiconductor / Wafer Fabrication	3,061	3,160	3,700	3,753	3,753	3,963	4,094	4,297	4,481	4,668	4.2	4.9
Telecommunication	2,975	3,025	3,250	3,388	3,538	3,913	3,984	4,094	4,300	4,501	4.7	4.7
Transport / Storage / Freight / Shipping	2,960	2,964	3,098	3,100	3,638	3,763	3,884	3,965	4,166	4,344	4.3	4.5
Utilities	2,664	2,734	3,092	3,226	3,360	3,440	3,603	3,775	4,324	4,495	3.9	6.1
Wholesale / Retail / Trading	2,375	2,483	3,300	3,425	3,425	3,513	3,764	4,086	3,949	4,207	6.5	7.0

Source: Jobstreet.com and PIKOM estimates

Nevertheless, the year-on-year growth rate of the Junior Executive salary falls below the AAGR of 5.3% in the period 2009 – 2018.

The Science & Technology / Aerospace / Biotechnology (6.6%) industry segment offered the highest quantum of increase in salaries for Junior Executives in 2018, followed by Hotel / Restaurant / Food Service / Hospitality (6.3%) and Education (6.2%). (See Table 3)

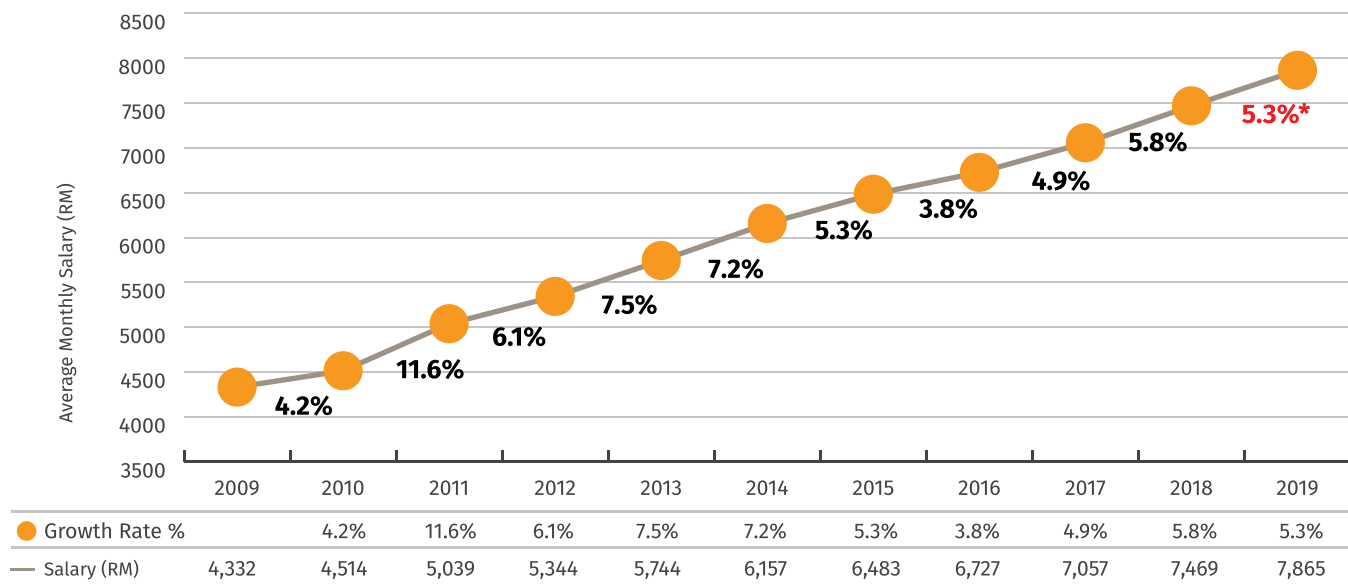
Meanwhile, Hotel / Restaurant / Food Service / Hospitality (7.5%) had the highest AAGR for the period 2009 – 2018 with Consulting (Business / Technical) and Property / Real Estate rounding off the top three with equivalent AAGRs of 7.4%.

• Outlook in 2019

The same issues over fresh graduates continue to plague the Junior Executives with employers expressing frustration over their tendency



Chart 6: Average Monthly Salary of Senior Executive ICT Professionals (2009 – 2019)



*PIKOM forecast

Source: Jobstreet.com and PIKOM estimates

to job-hop and overall inability to cope with the challenges of a real world business and industry environment.

Given this perception, the average monthly salary of Junior Executive ICT professionals is forecast to grow at a slower rate of 4.6% to RM4,663 in 2008 against an increase of 4.7% the year before.

PIKOM encourages employers to put in place a business continuity plan with a retention strategy for Junior Executives. Employers should invest in good candidates at this level by extending them ample opportunities for training and upskilling.

Senior Executive

The average monthly salary of ICT professionals at Senior Executive level with three to seven years' experience was RM7,469 in 2018, increasing by a faster rate of 5.8% as compared with the year-on-year increase of 4.9% in 2017. This is the highest growth rate for this position level since 2014. (See Chart 6)

However, the quantum of increase in 2018 is still a way off from the AAGR of 6.3% for this job category for the period 2009 – 2018.

The salaries of Senior Executives ICT professionals increased the most in the Agriculture / Plantation

/ Aquaculture (9.5%) industry cluster followed by Science & Technology / Aerospace / Biotechnology (8.0%) and Electrical & Electronics (6.7%). (See Table 4)

These three segments were also the highest in terms of AAGR for the period 2009 – 2018; salaries in Agriculture / Plantation / Aquaculture grew by 11.5%, Science & Technology / Aerospace / Biotechnology by 8.6% and Electrical & Electronics by 7.8%.

• Outlook in 2019

ICT professionals at this level are mostly in their early to mid-30s and have accumulated the necessary knowledge and skills to navigate the shifting challenges of the digital world. Employers should consider higher remuneration packages for these employees with the emphasis on grooming them for the future.

The average monthly salary of a Senior Executive ICT professionals is predicted to increase by 5.3% to almost RM7,900 in 2019. While this is considered healthy growth, nevertheless, it is still lower than the corresponding rate in 2018.

PIKOM is confident the growth rate for Senior Executive ICT professionals can be sustained in the years to come as the country's ICT industry and digital economy move up the value chain.

Table 4: Average Monthly Salary of Senior Executive ICT Professionals by Industry (2009 – 2019)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Y-o-Y Growth (2017-2018) %	AAGR (2009-2018) %
Agriculture / Plantation / Aquaculture	3,683	3,967	4,600	5,033	5,943	7,154	7,803	8,173	8,909	9,754	9.5	11.5
Automotive / Heavy Industry / Machinery	4,690	4,814	4,989	5,050	5,189	5,400	5,550	5,644	5,786	5,933	2.5	2.6
Banking	4,763	4,749	5,395	5,575	5,825	6,319	6,840	7,009	7,344	7,740	5.4	5.6
Call Center / IT-Enabled Services / BPO	3,832	4,428	4,556	4,750	5,054	6,125	6,160	6,423	6,850	7,280	6.3	7.6
Computer / Information Technology (Hardware)	4,315	4,577	4,769	4,835	5,110	5,410	6,038	6,056	6,269	6,544	4.4	4.8
Computer / Information Technology (Software)	4,475	4,505	4,769	5,160	5,400	5,999	6,612	6,672	7,004	7,416	5.9	5.8
Construction / Building / Engineering	3,922	4,250	4,500	4,575	4,700	5,322	5,364	5,553	5,813	6,071	4.4	5.0
Consulting (Business / Technical)	5,175	5,150	5,525	5,879	6,000	6,375	6,543	6,751	7,020	7,303	4.0	3.9
Education	3,225	3,225	4,100	4,100	4,165	4,475	4,913	5,127	5,383	5,696	5.8	6.8
Electrical & Electronics	3,800	3,915	4,750	5,119	5,233	5,800	6,095	6,490	6,910	7,375	6.7	7.8
Financial Services / Securities / Insurance	4,763	4,749	5,261	5,450	5,825	6,319	6,938	7,046	7,387	7,798	5.6	5.7
Hotel/Restaurant / Food Service / Hospitality	4,433	4,801	4,801	5,475	5,925	6,050	6,399	6,723	7,079	7,454	5.3	6.0
Manufacturing / Production	4,650	4,525	5,175	5,298	5,822	6,207	6,446	6,702	7,063	7,432	5.2	5.4
Oil / Gas / Petroleum	6,100	6,209	7,500	7,500	7,575	8,000	8,291	8,744	9,128	9,532	4.4	5.2
Printing / Publishing	4,150	4,000	4,150	4,154	4,550	4,800	4,851	4,896	5,060	5,212	3.0	2.6
Property / Real Estate	4,339	4,339	5,300	5,825	6,050	6,250	6,483	7,017	7,452	7,906	6.1	7.1
Science & Technology / Aerospace / Bio Technology	4,575	4,515	5,031	6,500	6,500	7,063	7,600	8,110	8,696	9,388	8.0	8.6
Semiconductor / Wafer Fabrication	5,377	5,563	5,685	5,810	5,875	6,225	6,303	6,414	6,576	6,738	2.5	2.5
Telecommunication	5,225	5,225	6,193	6,675	6,675	7,000	7,361	7,794	8,183	8,616	5.3	5.8
Transport / Storage / Freight / Shipping	5,009	5,229	5,400	5,610	6,320	6,730	6,943	7,183	7,559	7,927	4.9	5.3
Utilities	4,550	4,550	4,710	5,201	5,201	5,350	5,525	5,699	5,888	6,093	3.5	3.3
Wholesale / Retail / Trading	4,050	4,100	4,800	4,800	4,800	5,025	5,170	5,409	5,605	5,809	3.6	4.2

Source: Jobstreet.com and PIKOM estimates

Manager

As with many of the previous years, salaries of ICT professionals with working experience extending to 6 – 10 years grew at a much faster rate as compared to the previous three position levels. **(See Chart 7)**

In 2018, the average monthly salary of a Manager in the ICT industry reached RM11,888, representing a growth rate of 6.4% against 4.9% the previous

year. Even so, the pace of increase was still short of the AAGR of 7.6% over the period 2009 – 2018.

Education (8.4%) topped the list of industries with the highest salary growth rates for an ICT professional at the Manager level with Construction / Building / Engineering second at 6.5%. Computer / Information Technology (Hardware) and Consulting (Business / Technical) were next with equivalent growth rates of 5.4%. **(See Table 5)**

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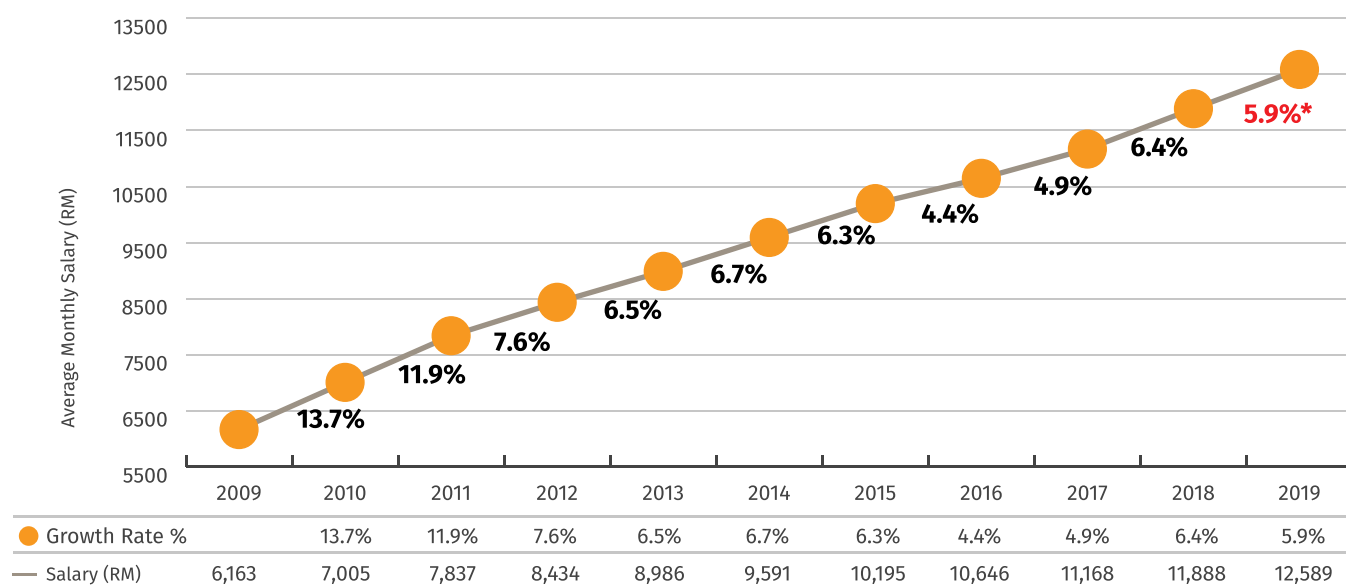
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Chart 7: Average Monthly Salary of Manager Level ICT Professionals (2009 – 2019)



*PIKOM forecast

Source: Jobstreet.com and PIKOM estimates

Table 5: Average Monthly Salary of Manager Level ICT Professionals by Industry (2009 – 2019)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Y-o-Y Growth (2017-2018) %	AAGR (2009-2018) %
Automotive / Heavy Industry / Machinery	8,494	8,903	8,995	9,166	9,578	10,133	10,267	10,510	10,832	11,140	2.8	3.1
Banking	7,631	7,673	7,967	8,468	8,759	9,213	9,450	9,741	10,096	10,465	3.7	3.6
Call Center / IT-Enabled Services / BPO	7,688	7,280	8,394	8,993	9,023	9,744	10,078	10,506	10,988	11,524	4.9	4.7
Computer / Information Technology (Hardware)	5,963	6,544	6,621	6,791	8,201	8,556	8,962	9,401	9,954	10,495	5.4	6.6
Computer / Information Technology (Software)	6,600	6,644	7,232	7,558	7,669	8,651	9,230	9,407	9,853	10,360	5.1	5.2
Construction / Building / Engineering	5,355	6,372	6,565	6,574	8,475	8,807	9,376	9,994	10,696	11,393	6.5	9.1
Consulting (Business / Technical)	7,265	7,655	7,995	8,594	8,908	10,064	10,444	10,820	11,398	12,016	5.4	5.8
Education	4,200	4,913	5,162	5,999	6,712	7,579	8,335	8,858	9,560	10,366	8.4	10.6
Electrical & Electronics	10,860	11,856	12,488	12,933	13,275	13,554	13,790	14,495	14,977	15,455	3.2	4.0
Financial Services / Securities / Insurance	6,983	6,999	7,546	8,248	8,464	8,814	9,272	9,658	10,075	10,540	4.6	4.7
Manufacturing / Production	6,675	7,264	8,286	8,342	8,701	9,009	9,384	9,944	10,380	10,836	4.4	5.6
Telecommunication	7,794	7,931	8,507	8,684	9,082	9,410	9,667	10,001	10,344	10,692	3.4	3.6

Source: Jobstreet.com and PIKOM estimates

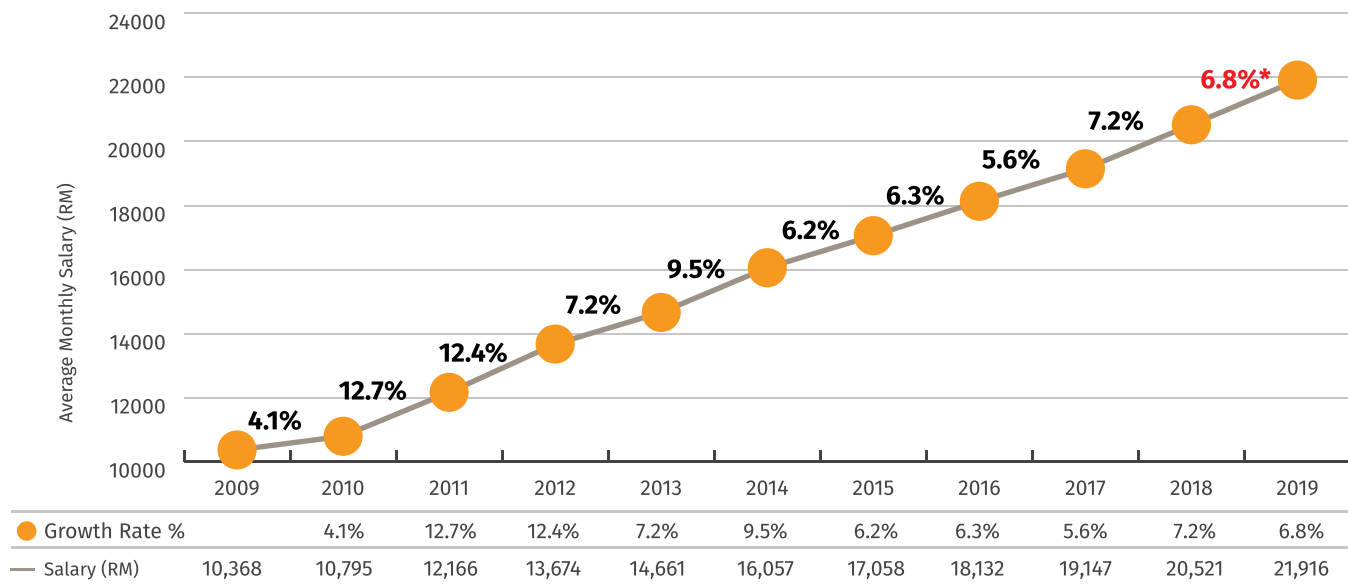
In terms of their AAGR for the period 2009 – 2018, Education (10.6%), Construction / Building / Engineering (9.1%) and Computer / Information Technology (Hardware) (6.6%) had the highest increases.

Outlook in 2019

In common with the other job categories, the average monthly salary of an ICT professional at the Manager level can be expected to grow at a healthy but slower rate of 5.9% in 2019 to reach almost RM12,600.



Chart 8: Average Monthly Salary of Senior Manager Level ICT Professionals (2009 – 2019)



*PIKOM forecast

Source: Jobstreet.com and PIKOM estimates

PIKOM expects the growth rate for this position level to stay above the 5-percentile range in the years to come despite a potential slowdown in the industry at least over the next two years.

In addition, PIKOM recommends that employers establish full-fledged career advancement paths for employees at this level to ensure business continuity.

Senior Manager

Senior ICT Managers enjoyed the highest growth rate in salaries, with the average monthly wage growing by 7.2% to breach the RM20,000 milestone and reach RM20,521. In 2017, salaries in this position level grew by 5.6%. **(See Chart 8)**

Despite the huge leap in average monthly salary, it fell short of the AAGR of 7.9% over the period 2009 – 2018.

Financial Services / Securities / Insurance was the industry segment with the highest growth rate in 2018 at 7.7%, followed by Banking at 7.0% and Computer / Information Technology (Hardware) at 6.8%. **(See Table 6)**

The order was somewhat reversed when it came to the AAGR for 2009 – 2018. Computer / Information Technology (Hardware) grew at 10.5% over that period with Financial Services / Securities / Insurance next at 8.9% and Banking at 8.2%.

Outlook in 2019

Senior Managers in the ICT industry will continue to command ever-increasing salaries as employers look for the brightest talents to get and keep an edge in the highly-competitive business environment.

In 2019, a Senior Manager in ICT could fetch almost RM22,000 with a predicted year-on-year growth rate of 6.8%. At this level, ICT professionals would nominally be spearheading next gen initiatives to drive the company forward and set the stage for sustainable growth.

Top Paying Industries in 2018

To recap, Financial Services / Securities / Insurance was displaced as the top paying industry in 2018 due to its low number of job openings (473) with the second to fifth highest paying industries from 2017 moving up one rung each. The Manufacturing / Production segment made it into the top five list for the year in question, most likely due to the new focus on Industry4WRD. **(See Chart 2)**

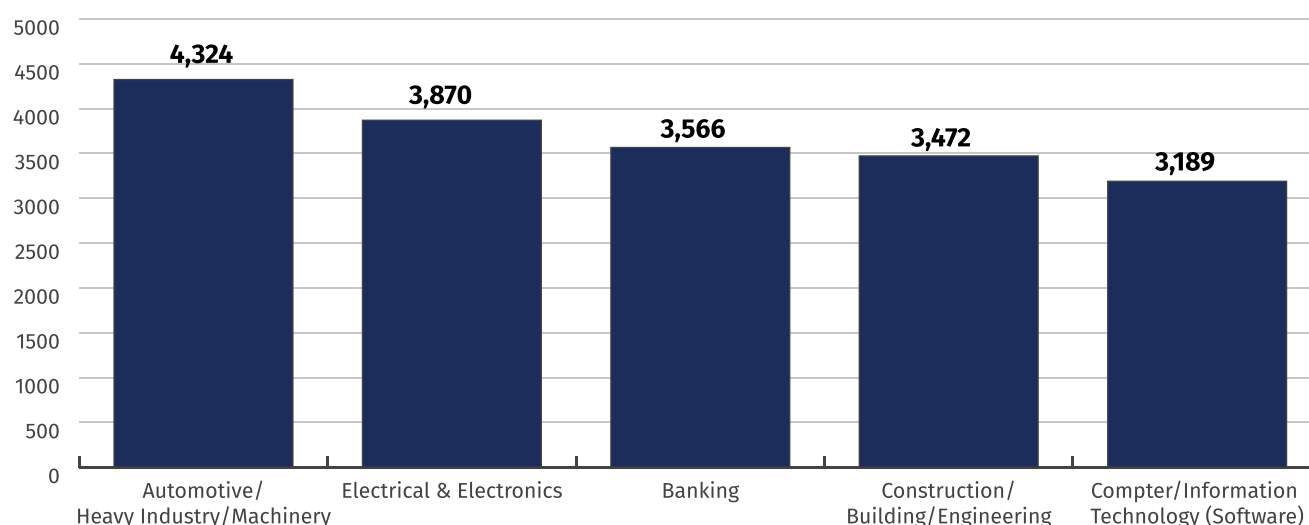
ICT professionals in the Call Center / IT-Enabled Services / BPO cluster commanded an average monthly salary of RM9,699 in 2018 against RM9,250 the year before while those in Computer / IT (Hardware) earned RM9,376 (2017: RM8,870), Banking took in RM9,193 (2017: RM8,698) and Manufacturing / Production reaped RM8,759.

Table 6: Average Monthly Salary of Senior Manager Level ICT Professionals by Industry (2009 – 2019)

Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Y-o-Y Growth (2017-2018) %	AAGR (2009-2018) %
Banking	9,622	10,203	11,887	13,961	13,961	14,700	15,820	17,095	18,169	19,436	7.0	8.2
Call Center / IT-Enabled Services / BPO	14,438	15,136	15,722	17,013	18,014	18,832	19,523	20,416	21,335	22,312	4.6	5.0
Computer / Information Technology (Hardware)	9,713	12,751	14,528	15,789	16,767	17,566	18,242	20,369	21,813	23,294	6.8	10.5
Computer / Information Technology (Software)	8,703	9,250	10,000	10,375	11,094	12,439	12,979	13,493	14,226	15,031	5.7	6.3
Consulting (Business / Technical)	11,138	11,196	11,516	12,098	12,942	14,047	15,415	15,429	16,061	16,855	4.9	4.8
Financial Services / Securities / Insurance	9,490	10,203	10,250	13,961	13,961	14,700	15,950	17,167	18,323	19,732	7.7	8.9
Manufacturing & Production	10,275	10,750	13,550	14,150	14,195	14,838	15,737	16,966	17,887	18,919	5.8	7.2
Telecommunication	11,375	11,250	12,800	13,925	14,288	15,119	15,824	16,658	17,483	17,896	2.4	5.2

Source: Jobstreet.com and PIKOM estimates

Chart 9: Top Paying Industries for Entry Level ICT Professionals in 2018 (Average Monthly Salary in RM)



Source: Jobstreet.com

Entry Level

At the Entry level, the same industries as in 2017 were the top five payers: Automotive / Heavy Industry / Machinery at RM4,324 (2017: RM3,955), Electrical & Electronics at RM3,870 (2017: 3,552), Banking at RM3,566 (2017: 3,335), Construction / Building / Engineering at RM3,472 (2017: 3,200) and Computer / Information Technology (Software) at RM3,189 (2017: RM3,059). **(See Chart 9)**

Junior Executive

The same industries paid the highest average monthly salary to Junior Executives, with Agriculture / Plantation / Aquaculture the highest at RM5,008 (2017: 4,741), followed by Consulting (Business / Technical) at RM4,786 (2017: RM4,518), Financial Services / Securities / Insurance at RM4,760 (2017: RM4,538), Banking at RM4,759 (2017: RM4,537) and Semiconductor / Water Fabrication at RM4,668 (2017: 4,481). **(See Chart 10)**



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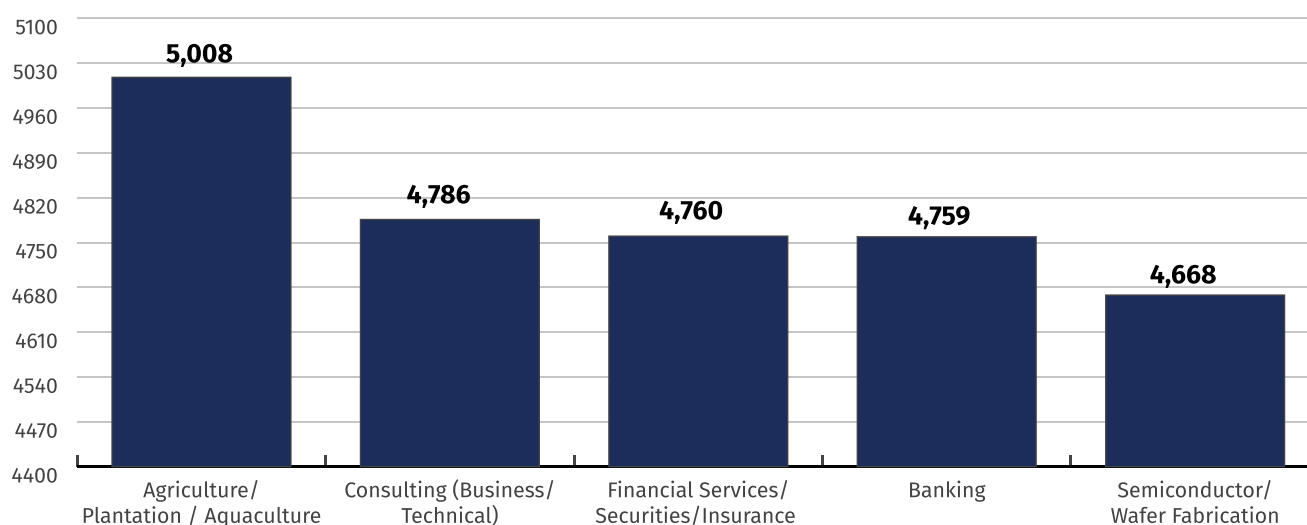
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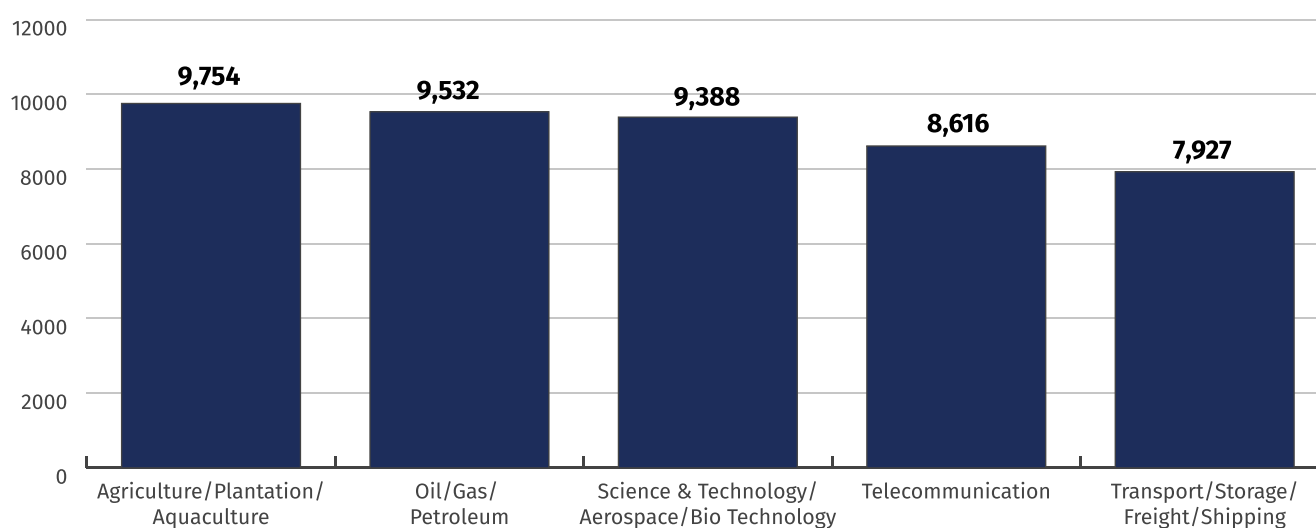
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Chart 10: Top Paying Industries for Junior Executive ICT Professionals in 2018 (Average Monthly Salary in RM)



Source: Jobstreet.com

Chart 11: Top Paying Industries for Senior Executive ICT Professionals in 2018 (Average Monthly Salary in RM)



Source: Jobstreet.com

Senior Executive

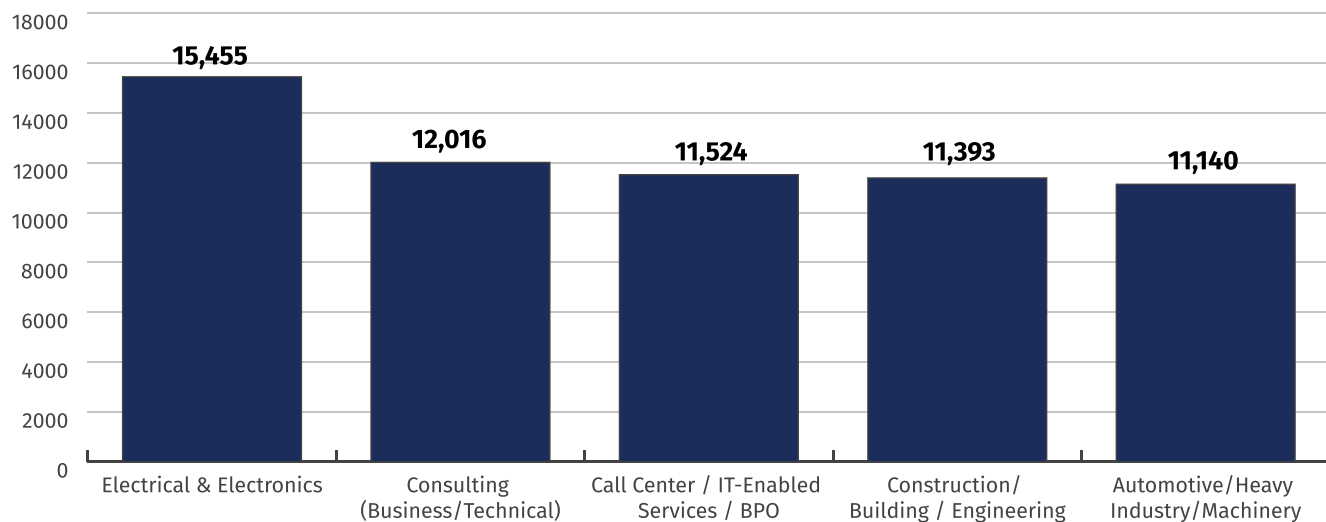
Similarly, for this job category, the top five paying industries were the same as the previous year with Agriculture / Plantation / Aquaculture paying an average monthly salary of RM9,754 against RM8,909 in 2017, Oil / Gas / Petroleum at RM9,532 as compared with RM9,128 the year before, Science & Technology / Aerospace / Biotechnology at 9,388 (2017: RM8,696), Telecommunication at RM8,616 (2017: RM8,183) and Transport / Storage / Freight / Shipping at RM7,927 against RM7,559 the previous year. **(See Chart 11)**

Manager

Construction / Building / Engineering (RM11,393) made the top five paying industry for Managers in ICT in 2018, replacing Wholesale / Retail / Trading from the previous year. Electrical & Electronics stayed at the top, paying its managers an average monthly salary of RM15,455 from RM15,029 in 2017, Consulting (Business / Technical) RM12,016 (2017: RM11,400), Call Center / IT-Enabled Services / BPO RM11,524 (2017: RM11,001) and Automotive / Heavy Industry / Machinery RM11,140 (2017: RM10,838). **(See Chart 12)**

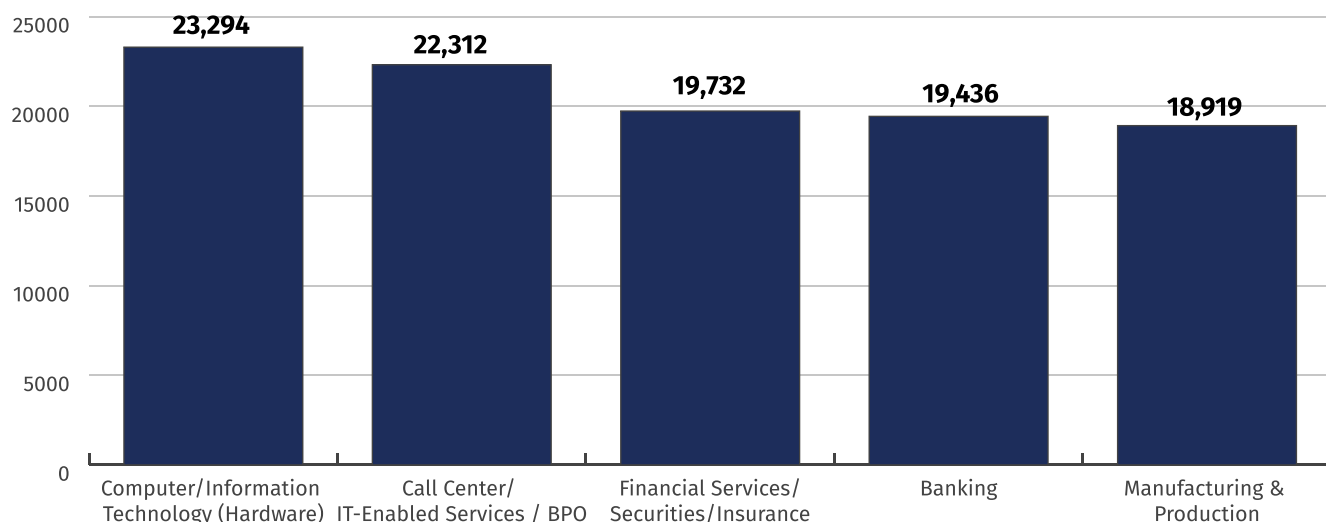


Chart 12: Top Paying Industries for Manager Level ICT Professionals in 2018 (Average Monthly Salary in RM)



Source: Jobstreet.com

Chart 13: Top Paying Industries for Senior Manager Level ICT Professionals in 2018 (Average Monthly Salary in RM)



Source: Jobstreet.com

Senior Manager

The highest payers of Senior Managers in the ICT industry were the same last year as in 2017 and also in the same order. Computer / Information Technology (Hardware) paid an average monthly salary of RM23,294 in 2018 from RM21,000 the year before, Call Center / IT-Enabled Services / BPO RM22,312 (2017: RM21,813), Financial Services / Securities / Insurance RM19,732 (2017: RM18,323), Banking RM19,436 (2017: RM18,169) and Manufacturing / Production RM18,919 (2017: RM17,887). (See Chart 13)

Hiring Trends in 2018

The ICT industry's employment market eased in 2018 in tandem with the moderate growth of the national economy and digital economy. The number of job openings based on jobs advertised in Jobstreet.com in 2018 increased by a relatively moderate 12.9% in comparison with the 35.0% year-on-year growth the previous year. Nevertheless, last year's growth rate is considered healthy and the 2017 increase of 35.0% may well be an anomaly. (See Table 7 and Chart 14)



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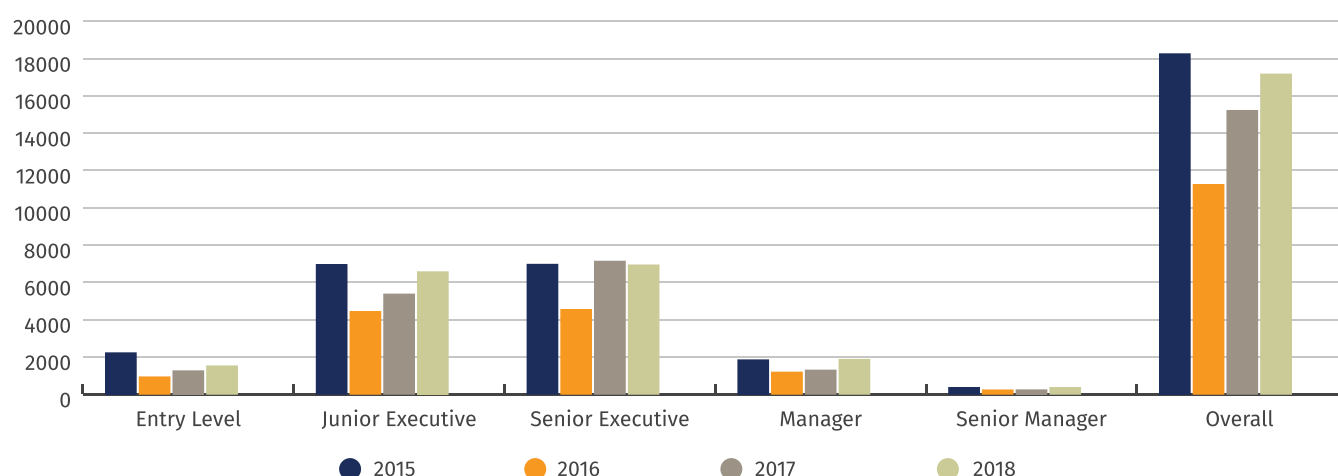
A focussed agenda that drives down the occurrence of downtime events and increases the speed of response and resolution

Table 7: Job Openings for ICT Professionals (2015 – 2018)

Position Level	2015	2016	2017	2018	Change (2017-2018)
Entry Level	2,203	910	1,236	1,500	21.4%
Junior Executive	6,932	4,411	5,354	6,551	22.4%
Senior Executive	6,953	4,528	7,118	6,917	-2.8%
Manager	1,825	1,167	1,274	1,851	45.3%
Senior Manager	336	211	215	340	58.1%
Overall	18,249	11,227	15,197	17,159	12.9%

Source: Jobstreet.com

Chart 14: Comparison of Job Openings for ICT Professionals (2015 – 2018)



Source: Jobstreet.com

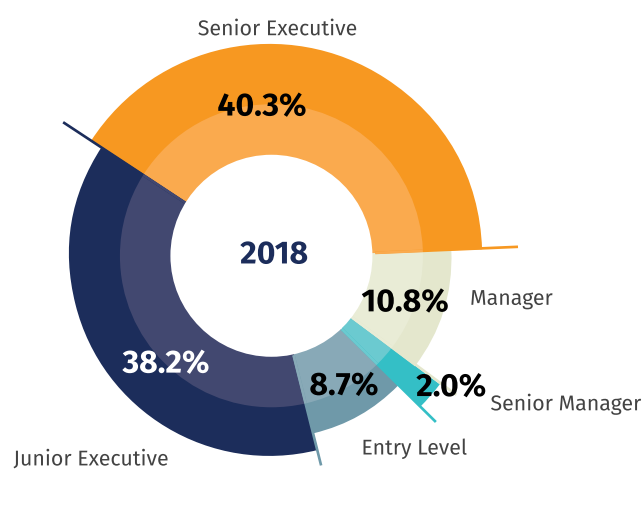
In total, there were 17,159 job openings for the year with the Senior Manager and Manager position levels registering the highest growth rates at 58.1% and 45.3%. However, the number of jobs offered for the Senior Executive position level was fewer in 2018 at 6,917 than in 2017 (7,118). Nominally, this job category has the most number of vacancies.

Collectively, the two Executive position levels account for almost one fifth of the number of job openings for the year. Openings at the Entry level amounted to 1,500 and is an area which should be addressed in order to ensure a strong and steady supply of ICT talents for the industry.

Hiring Trends by Industries

As was the case in 2017, the top five hiring industries for the year in question were Computer / Information Technology (Software), Consulting (Business/Technical), Manufacturing, Banking and Telecommunications. **Table 8** and **Chart 16** show the share of job openings among these

Chart 15: Hiring Trends by Position Level in 2018



Source: Jobstreet.com



Table 8: Job Openings by Industries in 2018

Industry	Number of Job Openings	%
Computer/ Information Technology / (Software)	5,894	34.3
Consulting (Business & Technical)	2,334	13.6
Banking	1,133	6.6
Manufacturing / Production	1,121	6.5
Telecommunication	963	5.6
Electrical & Electronics	806	4.7
Wholesale / Retail / Trading	681	4.0
Computer / Information Technology (Hardware)	660	3.8
Call Centre / IT Enabled Services / BPO	534	3.1
Financial Services /Securities / Insurance	473	2.8
Hotel / Restaurant / Food Services / Hospitality	359	2.1
Automotive / Heavy Industry / Machinery	346	2.0
Semiconductor / Wafer Fabrication	319	1.9
Education	265	1.5
Transport / Storage / Freight / Shipping	254	1.5
Construction / Building / Engineering	230	1.3
Agriculture	187	1.1
Property Real Estate	186	1.1
Science & Technology / Aerospace / Bio technology	165	1.0
Oil / Gas / Petroleum	152	0.9
Printing / Publishing	59	0.3
Utilities	38	0.2
	17,159	

Source: Jobstreet.com

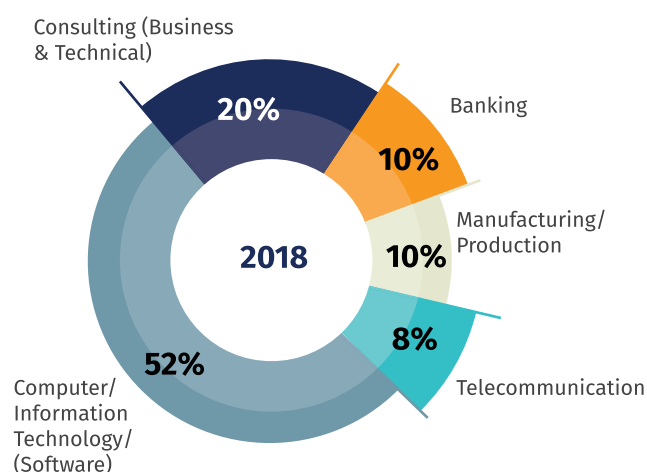
industries. Computer / Information Technology (Software) accounted for 52.0% of the number of jobs while Consulting (Business/Technical) made up 20.0%.

Regional Benchmarking

In previous editions, this publication has carried a relatively detailed benchmarking of the salary of an IT project manager in Malaysia against selected economies.

The comparison with salary data sourced from Payscale.com had previously been carried out using two benchmarking scales: Atlas Criterion (a direct comparison) and Purchasing Power Parity (PPP – a more realistic approach as it takes into consideration several variables such as cost of living).

Chart 16: Top Five Hiring Industries for ICT Professionals in 2018



Source: Jobstreet.com

Chart 17: Comparison of Salary of IT Project Manager in Selected Economies

COUNTRY	PROJECT MANAGER, INFORMATION TECHNOLOGY			
	ATLAS CRITERION			
	ENTRY LEVEL	MID CAREER	EXPERIENCED	LATE CAREER
1. Switzerland	5.59	4.32	3.47	3.06
2. United States	3.95	3.32	2.87	2.76
3. Australia	3.55	2.87	2.38	2.37
4. United Arab Emirates	3.17	2.62	2.21	2.40
5. Germany	3.15	2.66	2.23	2.10
6. New Zealand	2.92	2.30	1.90	1.77
7. Canada	2.90	2.38	1.96	1.85
8. Hong Kong	2.62	2.85	2.18	2.49
9. United Kingdom	2.56	2.24	1.92	1.70
10. France	2.47	1.98	1.72	1.86
11. Singapore	2.45	2.26	2.03	2.07
12. Saudi Arabia	2.44	2.00	1.85	2.22
13. South Africa	1.32	1.32	1.29	1.41
14. Russia	1.25	0.88	0.85	-
15. Brazil	1.21	1.36	1.28	-
16. Malaysia	1.00	1.00	1.00	1.00
17. The Philippines	0.61	0.74	0.69	0.60
18. India	0.47	0.63	0.63	0.75

Source: Payscale

This year, however, we are only featuring the Atlas Criterion method as our analysis is focused on the disparity of salaries in terms of experience level as opposed to a one-on-one comparison between Malaysian wages and other markets. As such, the PPP scale becomes superfluous to our analysis.

Chart 17 displays the ratios between salaries of an IT project manager in Malaysia compared against economies according to four experience levels (entry, mid-career, experienced and late career).

For instance, the average salary of an entry-level ICT professional in Switzerland is 5.59 times higher than a counterpart in Malaysia whereas the remuneration of a late-career employee is only

3.06 times greater than the corresponding wage of a similar talent here.

With only a few exceptions, this narrowing of salary disparity according to experience levels would appear to be the norm when comparing Malaysia against regional and global IT markets. In other words, Malaysians entering the IT workforce are paid much less than their overseas confederates, but this difference becomes less pronounced as the ICT professional gains more experience.

Overall, ICT salaries in Malaysia are below par those of developed economies but are on the whole comparable against developing markets such as Russia, Brazil and South Africa.



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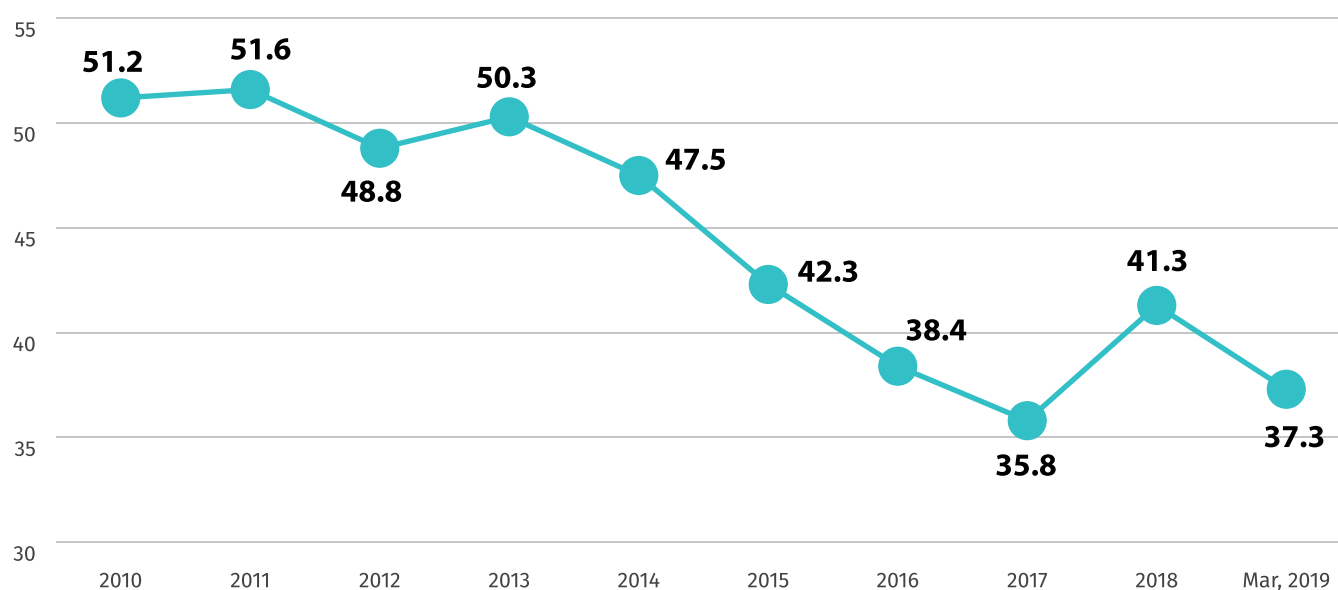




SECTION D

Job Employment Outlook Perception

Chart 1: Job Employment Confidence Index (2010 – March 2019)



Source: Jobstreet.com

The Job Employment Confidence Index (JECI) produced by Jobstreet.com rebounded in 2018 after four consecutive years of decline, improving to an average score of 41.3 from 35.8 out of 100 the year before. **(See Chart 1)**

However, the JECI has since reversed its upward trend to slump once again to an average of 37.3 for the first three months of 2019, reflecting a considerable drop in confidence among job seekers following an upsurge in sentiment last year.

The JECI has not been above the 50-point mark since 2013 and is an indication that a majority of

job seekers have felt they are unable to land a job in the tech industry despite the relatively high growth rates of the digital economy in the past five years.

In all likelihood, their lack of confidence points to the long-standing issue in which employers often decry the mismatch of knowledge and skills among fresh graduates against industry requirements.

Under the JECI survey carried out by Jobstreet.com, job seekers are asked a single question: "What are the chances of securing a reasonable job in the Malaysian job market today?"

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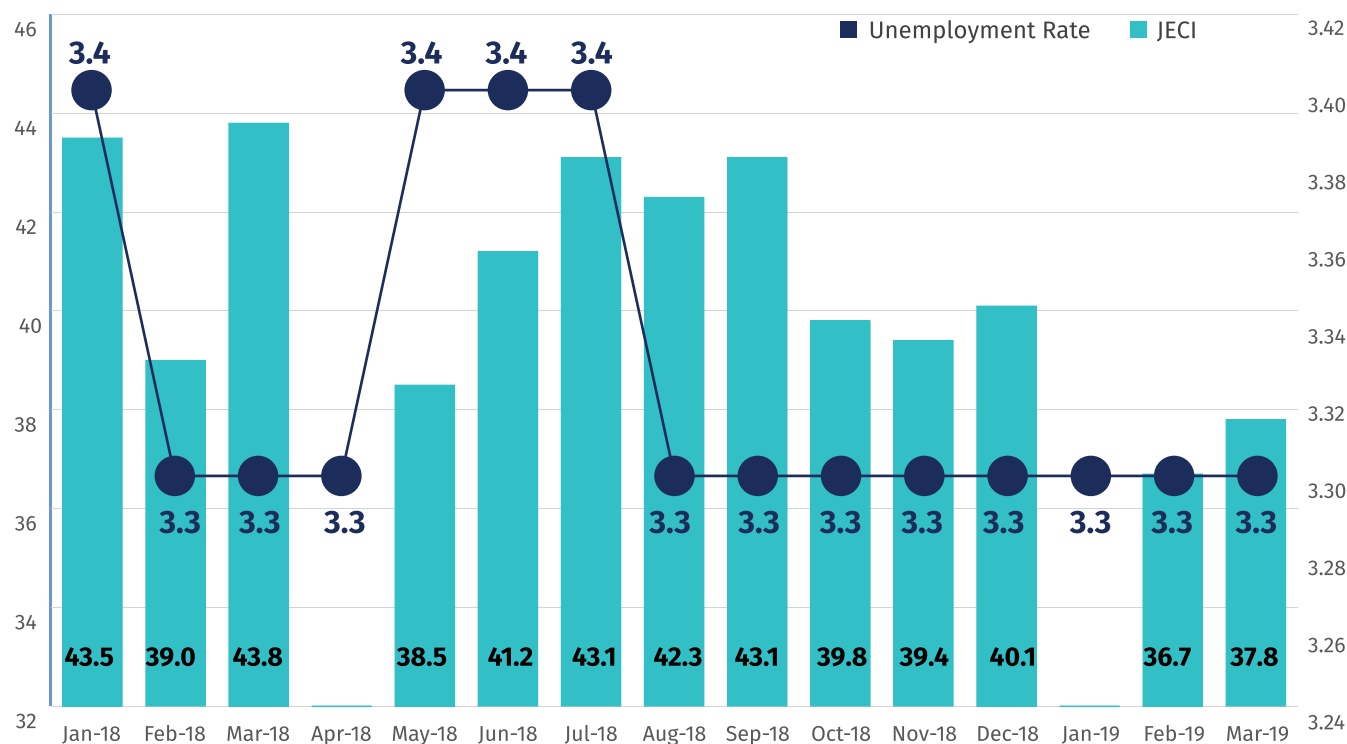
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Chart 2: JECI versus Unemployment Rate (Jan 2018 – Mar 2019)



Source: Jobstreet.com.

No JECI data available for April 2018 and January 2019

It is also pertinent to point out that JECI tends to follow the path of the unemployment rate. In the past 13 month from January 2018 to March 2019 (No JECI data was available for April 2018 and January 2019), a higher unemployment rate of 3.4% was often mirrored by higher JECI scores

when conventional thinking would be the reverse. **(See Chart 2)**

Going forward, PIKOM will track this correlation between these two parameters to discern the veracity of this perception.



SECTION E



Personalising Employee Experience, Improving Employee Engagement

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HR practices have usually focused on the “one-size-fits-all” approach in managing their employees. This approach may not be suitable in most cases because of the psychological conditions and privacies of employees. Instead, organisations should look to personalise their employees’ experiences in the workplace, to not only improve employee engagement but also benefit their business as well.

With changing workforce demographics comes employees’ shifting expectations at the workplace. The impact of employee engagement on the health and profitability of an organisation has never been greater.

While this has led to some organisations choosing to focus on digitalising employee engagement – a growing trend which still serves one ultimate purpose to increase employee productivity and business profitability – there are many other ways to personalise the employee experience and improve employee engagement. Here are just 7 ways to do so:

1 OFFER CLEAR CAREER PATHWAYS AND CONTINUOUS LEARNING

Offering career advancement to employees can increase retention rate within the organisation. Customising talent quality programs to suit

different employees’ personal interests and unique skill sets is something that leaders of an organisation need to take into consideration as part of their retention strategy.

2 HARNESS THE POWER OF ANALYTICS

Treat your worker as you would your new client. With such a notion in mind, you must apply selling strategy even for your new hires. Before understanding what your worker wants, it is important to grasp the position where your company stands. Harness the potential of knowledge and analytics to help you gain deeper insights on this matter. Measurable knowledge obtained from surveys, forms and interviews could be a nice facilitation method to faucet into bottom-up development. By analysing the patterns emerging from the data collected, you’ll be able to identify specific trends among staff and use them for personal development.

3 FOSTER STRONG TEAMWORK

Encourage collaboration and healthy competition among co-workers by fostering sturdy cooperation. One way to do this is through face-to-face meetings or discussions. You’ll be able to concentrate on building solid relationships by hosting regular get-togethers, even outside the workplace. Through such informal approaches



to networking, you'll be able to connect with staff and build healthier relationships. This way, employees will feel valued and more enthusiastic about their work.

4 RECOGNISE AND REWARD EMPLOYEES

As a frontrunner, you must be equipped with a robust system of recognition and rewards. The system ought to be honest and fair for every individual. Leaders can choose to display and celebrate achievements publicly. This could be a positive and constructive way of building your workplace culture.

5 UPDATE YOUR TOOLS AND TECHNOLOGY

Digital technology has remodelled the means we have to interact with one another. Update your HR

tools and leverage advancements in technology. Using digital technology and automation not only provides seamless business operation, but also maximise staff performance and increase productivity. For example, you'll be able to generate collaboration tools to foster a culture of cooperation, or supply communication platforms to bridge communication gaps. Workers will feel personally recognised.

6 IMPLEMENT GAMIFICATION STRATEGIES

With 90% of employees more productive with gamification¹, this strategy rides on the recent trend of employees' need for instant rewards and feedback, as well as making work more enjoyable, thus boosting engagement, retention and revenues.



7 REGULAR COMMUNICATION

Communication is key in employee engagement. As a leader, it is important to interact with your team to understand their interests. Try to get their opinions on issues like recognition and awards, office design or even on which software to use. Have a fruitful conversation on areas pertaining to personal development, such as performance-related feedback, career counselling/advisory, work-related improvements or challenges.

The reality is that some organisations may not be able to afford to personalise each employees' experience, especially those with a larger workforce. Yet there are still ways to improve employee engagement, simply by optimising existing resources and adopting some of these ideas:

a) Targeted personalisation

Leaders can choose to target employees with higher potential or team members who possess valuable skill sets that could help fuel organisational growth.

b) Win “low-hanging fruit”

Middle managers are also important in this equation. Coaching and mentoring by managers

can instantly address employees' pain points or challenges through instant feedback or recognition.

c) Start small

Utilising existing HR data, HR departments could evaluate the effectiveness of ongoing HR initiatives and team productivity to help understand employees better. By re-evaluating relevant initiatives, HR departments could turn these information into relevant analytics and help develop a more personalised employee development experience.

While organisations might incur some costs to personalise the employee experience, it is worth doing so to improve employee engagement in your workplace and to keep up with today's changing workforce. This will, more importantly, help your organisation stay ahead in the race to attract and retain increasingly-scarce talent.

Reference:

1 Medium (2018). *How Gamification in the Workplace Impacts Employee Productivity*.