20 TAHUN MENCORAK LANDSKAP DIGITAL

CONNECTIVITY

Key To

Digital Transformation

INDUSTRY PERFORMANCE REPORT 2018

Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission

STATUTORY REQUIREMENTS

In accordance with Part V, Chapter 15, Sections 123 – 125 of the Communications and Multimedia Act 1998, and Part II, Section 6 of Postal Services Act 2012, Malaysian Communications and Multimedia Commission hereby publishes and has transmitted to the Minister of Communications and Multimedia a copy of this Industry Performance Report (IPR) for the year ended 31 December 2018.

Published by:
Malaysian Communications and Multimedia Commission
MCMC Tower 1
Jalan Impact
Cyber 6
63000 Cyberjaya, Selangor Darul Ehsan
T: +60 3 86 88 80 00 F: +60 3 86 88 10 00
Toll Free: 1-800-888-030
W: www.mcmc.gov.my
ISSN 1823 – 3724

ACKNOWLEDGEMENT

MCMC would like to thank all licensees who responded to IPR 2018 questionnaire, in which part of their feedback were collated and included in this publication.

TABLE OF CONTENTS

CHAIRMAN'S STATEMENT 7

EXECUTIVE SUMMARY 9

LICENSING FOR CONVERGENCE 13
- Licencing Framework under CMA 14
- Licensing Profile over the Years 16
- Roll Out Status in 2018 21

MODULE 1 : ECONOMIC PERFORMANCE OF C&M INDUSTRY 25
- C&M Industry Market Performance 26
- C&M Industry Financial Performance 30
  - Telecommunications Sector 33
  - Broadcasting Sector 38
- ACE Market Overview and Performance 40

MODULE 2 : SERVICES AND CONNECTIVITY 43
- Connectivity Services 44
- Broadband in Malaysia 45
  - Fixed Broadband 46
  - Mobile Broadband 50
- Fixed and Mobile Cellular Services 56
- MVNO Services 59

MODULE 3 : CONTENT SERVICES 61
- Media Landscape Overview 62
- Broadcasters Growing Business by Varying Content and Platform 65
  - Fast Changing Broadcasting Landscape in Malaysia 65
  - FTA TV 68
  - Pay TV 70
- Competition in the OTT Space 74
- National Broadcasting Digitalisation Project 75
- Radio Listenership in Malaysia 79
  - Radio in Digital Age 82
  - Podcast Listenership and Monetisation 84
- Advertising Expenditure 86
  - Digital Advertising 87

MODULE 4 : DIGITAL SERVICES 91
- Services in Digital – Beyond the Pipe 92
- IoT Awareness and Initiatives 95
  - myMaker Initiatives 95
  - Digital Lifestyle Malaysia Initiative 95
- Smart Community 97
- Smart Community 2.0 98

MODULE 5 : QUALITY ASSURANCE AND CONSUMER PROTECTION **101**
Consumer Protection and Empowerment **102**
Consumer Complaints 102
Ministerial Direction on the Registration of Subscribers of Prepaid Public Cellular Services 108
Mobile Content Services 110
Termination of Mobile Number Due to Illegal Advertisement 112
Industry Self-Regulating Forums 113
MCMC Monitoring Activities **114**
Monitoring of CASP (I) Licensees through Content Monitoring Centre 114
Surveillance on communications equipment and devices 116
Quality of Service **118**
Mandatory Standards for Quality of Service 118
Network Performance Assessment 119
Radio Frequency Interference 122
Digital Terrestrial Television (DTT) Signal Measurement 124
Electromagnetic Fields (EMF) Measurements 126
Mobile e-Waste Programme 129

MODULE 6 : SECURITY AND TRUST **131**
Digital Certificates Development **132**
Innovation in Digital Certification 2018 **133**
Digital Time Stamping Authority 133
Digital Initiative with State Governments of Sabah and Sarawak 134

MODULE 7 : POSTAL AND COURIER **137**
Postal and Courier Services Industry Performance 2018 **138**
Postal Services Act 2012 138
Postal Services 139
Postal Services Access 140
Pos Malaysia Revenue 141
Postal Services Traffic 143
Sustainable Development in Postal and Courier Services **145**
Road Safety Championship 2018 145
World Post and E-Philately Day Celebrations 146
Courier Services **147**
Courier Licences 149
Quality of Service 149
Courier Services Traffic 150
Consumer Complaints **155**

MODULE 8 : OUTLOOK 2019 **157**

LIST OF FIGURES **159**

LIST OF ABBREVIATIONS **163**

CONTACT US **166**

CHAIRMAN'S STATEMENT

Our convergence regulatory framework marks its 20th anniversary in 2018. By market capitalisation, on 31 December 2018, the communications and multimedia (C&M) industry was worth RM135.7 billion on the local stock exchange, almost threefold increase compared to 1999 (31 December 1999: RM50.7 billion market capitalisation).

The last 20 years have seen the stewardship of seven MCMC Chairmen, who have worked hand in glove with service providers and industry stakeholders to develop the C&M industry to become what it is today. In the last three years, YBhg Tan Sri Dr. Halim Shafie has fostered collaboration with service providers to extend connectivity to rural areas and improve the well-being of the local communities.

On that note, I would like to express my deepest appreciation for the relentless efforts and exemplary leaderships of past MCMC Chairmen to lead the industry as it faced various challenges from heretofore. I am indeed honoured to assume the mantle to hopefully steer the C&M industry in its next growth phase together with all relevant stakeholders.

A milestone for the industry in 2018 was the implementation of the Mandatory Standard on Access Pricing (MSAP), regulating wholesale prices for high speed broadband services for the first time. As a result, entry-level high speed broadband packages have recorded more than 30% reduction in December 2018, which surpassed the initial target of 25%. At the same time, service providers have also offered higher speeds with the same or lower prices.

Broadband subscriptions in Malaysia has almost doubled over the last five years to reach 39.4 million in 2018. In terms of broadband penetration per 100 inhabitants, the country recorded a respectable 121% from just 68.3% in 2014, which is equivalent to 15.4% of average annual growth. The upsurge has been mainly triggered by wider access to 3G and 4G/LTE coverage, improved network quality and increased competition in broadband market. As at 31 December 2018, 3G and 4G/LTE network expanded to 94.7% and 79.7% population coverage respectively. Meanwhile in February 2019, Speedtest Global Index by Ookla reported that average fixed broadband download speeds in Malaysia stood at 64.51Mbps as compared to 22.26Mbps a year ago. Malaysia is now ranked 32nd in the world as compared with 56th in 2017.

The fifth-generation mobile technology -5G is fast approaching and as a result, the demand for continuous connectivity invariably grows. 5G is more than just a generational step, it will be the tipping point of the role that mobile technology plays in society. It will enable wireless broadband services to be provided at gigabit speeds, and offer low latency and high reliability to support new types of applications, connecting devices and objects through the Internet of Things. In turn, Malaysia will witness greater industry application, robustness and optimisation delivering the next-generation of digital services to the agriculture, automotive, education, healthcare, manufacturing, media and entertainment sectors. As the regulator of the C&M industry, we are committed to ensure that connectivity not only advance in tandem with technological progress, but also delivers positive experiences to Malaysians and improve the country's economic competitiveness.

In order to propel Malaysia towards the next growth phase, strategic investments are required. In 2018, the C&M service provider capital expenditure (Capex) totalled RM5.21 billion. For 2019 and over the next few years, I am encouraged to note that service provider namely Maxis has expressed commitment to increase Capex of an additional RM1 billion over the next three years

for growth and offer new digital services. This is on top of their core annual Capex at about RM1 billion a year.

Along with ongoing industry efforts, the MCMC will embark on the National Fiberisation and Connectivity Plan (NFCP) to provide robust, pervasive, high-quality and affordable digital connectivity for the well-being of the people and progress of the country. The seven key targets of NFCP include:

1. Entry-level fixed broadband package at 1% of GNI by 2020
2. Gigabits availability in selected industrial areas by 2020 and to all state capitals by 2023
3. 100% availability for premises in State Capitals & selected high impact areas with a minimum speed of 500 Mbps by 2021
4. 20% availability for premises in sub-urban & rural areas with up to 500Mbps by 2022
5. Fibre network to pass 70% of schools, hospitals, libraries, police stations and post offices by 2022
6. Average speeds of 30 Mbps in 98% of populated areas by 2023
7. Improving mobile coverage along Pan Borneo highway upon completion

There is much to be done to enable the next generation connectivity and engender an array of digital services that can address the different needs of Malaysians and the economy. I am cognisant of the fact that many challenges lie ahead of us, as technology is relentless and disruptive across all sectors. Nonetheless, through industry collaboration I am hopeful that any form of change or challenges that await us in the horizon, can be translated into positive impacts to the country.

It is my great pleasure to present the Industry Performance Report 2018.

Al-Ishsal Ishak
Chairman
Malaysian Communications and Multimedia Commission

EXECUTIVE SUMMARY

The C&M industry represents 8% or RM135.7 billion of Bursa Malaysia total market capitalisation of RM1,700.37 billion in 2018 (2017: 9.6% or RM183.99 billion). The C&M industry market capitalisation was affected by Malaysian and global stock market decline due to profit taking and portfolio adjustments on concerns with domestic and international development.

In terms of financial performance, the domestic C&M industry aggregate revenue was at RM51.64 billion for 2018, grew 0.2% from 2017. This was supported by continued demand for data and high speed Internet services. Telecommunications sector maintained major 69% revenue share, broadcasting 12%, postal sector 5% and the remaining 14% consists of ACE market and non-public listed licensees.

Overall telecommunications sector margin remained stable, with Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA) margin and operating profit margin averaged 38% and 21% respectively. This is despite relatively flat revenue and higher operating costs placing pressure on margins. Going forward, service providers are pursuing new growth strategies and creating cost reduction plans to improve performance.

Service providers are focusing to invest in enhancing, maintaining and upgrading existing network infrastructures. In 2018, Capex of the telecommunications sector has reached RM5.21 billion (2017: RM6 billion). This results in a Capex to revenue ratio (capital intensity) of 14.5% (global average: 17.1%). The decline in Capex was due to slowdown in 4G LTE buildouts and fixed network.

In 2018, broadcasting sector revenue was RM6.4 billion (2017: RM6.42 billion). The sector continues to face competition from Over-the-Top (OTT) video similar to other broadcasters around the world. With lower broadband prices and higher Internet speeds, competition from OTT video is expected to continue. This is in addition to local broadcasters facing weak advertising income due to advertisers shifting budgets to digital media.

State of Connectivity in Malaysia

Our broadband subscriptions rose by 4.2% to 39.45 million with 121.1% penetration rate per 100 inhabitants in 2018. The national broadband penetration rate per 100 inhabitants for mobile broadband is at 113% and fixed broadband at 8.2%.

By subscriptions, mobile broadband contributes 93% or 36.79 million, a growth of 4.3% (2017: 35.26 million). Factors driving mobile broadband subscriptions growth include improved network coverage and more attractive pricing plans. Connected devices enable consumers to enjoy lifestyle convenience such as fitness apps, music and video entertainment on the go aside from online shopping, banking and many more.

Meanwhile, fixed broadband subscriptions increased 2.7% to 2.66 million in 2018. Fibre broadband is sought after for fixed broadband Internet access. In line with Government call for affordable broadband in 2018, fibre broadband subscriptions have increased 21.7% to 1.74 million, constituting 65% of the fixed broadband market.

Fixed line substitution by mobile cellular continues. In 2018, Direct Exchange Line (DEL) penetration rate per 100 inhabitants was at 7.8% or 2.55 million subscriptions. The distribution between residential and business is at 57% and 43% respectively.

Mobile cellular penetration rate per 100 inhabitants is at 130.2% or 42.41 million subscriptions. Postpaid subscriptions totalled 11.57 million with prepaid at 30.84 million. Hence, for 1 postpaid, there are about 3 prepaid subscriptions. Notably, postpaid subscriptions grew 13.1%, whilst prepaid declined by 4%. Increased postpaid subscriptions were due to demand for plan upgrades, which include free calls nationwide and unlimited data.

In 2018, mobile cellular subscriptions saw Digi leading with 27% market share, Maxis at 25% and Celcom at 20%. Meanwhile, U Mobile and Mobile Virtual Network Operators (MVNOs) market shares are gaining ground, with 16% and 12% market share respectively. Overall, competition in the mobile cellular market remained intense both in terms of pricing and product offerings.

Content Services

In the past, broadcasters generated revenue mainly from advertising or subscription business models. Today, major broadcasters are distributing their content via dedicated access network as well as offering OTT services. These developments widen audience reach and offer greater operating efficiencies.

Radio remains as one of the primary information media, reaching 20 million listeners in 2018. Selangor recorded the highest number of listeners with 4.9 million followed by Johor and Perak with three million and 2.1 million listeners respectively. Most are listening to radio in the morning and afternoon as listeners commute from home to office and vice versa, with an estimated 14.1 million listeners in the morning.

Malaysia recorded total advertising expenditure (ADEX) of USD1.2 billion or RM4.9 billion in 2018, an increase of 0.3% compared with USD1.19 billion (RM4.83 billion) in 2017. Internet garnered the most ADEX at USD358.6 million (RM1.5 billion) followed by TV at USD262.8 million (RM1.1 billion).

Digital ADEX is gaining popularity among advertisers due to factors such as cost effectiveness, global reach, increased targeted audience and multi-platform, aside from opportunities for content monetisation and branding. Digital ADEX in Malaysia is expected to reach USD315.5 million (RM1.3 billion) in 2018.

Digital Services

The evolution to digital services is impacting everyone. It is a powerful tool for increasing productivity and accelerating economic development. Digitalisation continues to change the way we shop with e-commerce solutions; how we watch TV, video and listen to radio as well as connect smart appliances. This is just the beginning of an endless list of products and services that will form the new landscape of our connected well-being.

More adoption of Internet of Things (IoT), Big Data and AI is defining how our future will progress. With these, innovation accelerates as Malaysia explores opportunities for successful outcomes to grow the industry and economy.

Consumer Protection and Quality of Service

Consumer protection is designed to promote and protect consumer interest. This ensures consumer confidence and satisfaction in the usage of services and promotes widespread access to connected services.

Essentially, consumer feedback enables service providers to improve and innovate on their products and services. In 2018, a total of 49,065 complaints were received by MCMC compared with 33,257 complaints in 2017, representing 47.5% increase. In terms of complaints resolution, 92% of the cases were resolved and closed as at end 2018, whilst 8% was escalated for further investigation. Complaints were mainly related to issues on C&M services, whereby 43% were on cellular services.

In ensuring service providers comply with Commission Determination on the Mandatory Standard for Electromagnetic Field Emission from Radiocommunications Infrastructure, Determination No. 1 of 2010, EMF measurements were conducted at 52 selected sites in Peninsular Malaysia. These measurements show that overall EMF emission in public areas surrounding the radiocommunications infrastructure were very low, and hence, safe for the public.

Trust and Security

The total number of digital certificates issued has increased to 12.3 million as at end of 2018 from 11 million in 2017. The public sector is the major contributor to the usage of digital certificates, which took up 96.6% of total certificates issued. Meanwhile, the remaining are by corporate sectors such as banking, healthcare and other industries including individuals.

Postal and Courier Services

In 2018, Pos Malaysia revenue was at RM2.41 billion (2017: RM2.46 billion), with courier segment contributing RM840 million or 35%. It has surpassed postal services segment (29%) for the first time. E-commerce activities are expected to remain strong contributing to courier segment for the years to come.

In terms of national courier traffic, in 2018, total volume of document delivered for domestic services rose by 60% to 85.19 million from 53.47 million in 2017. In contrast, international services has increased slightly to 2.63 million from 2.61 million. Meanwhile, the number of parcels has increased by 23.5% to 49.59 million (2017: 40.15 million), whereby domestic parcels comprise 88% and international 12%.

Intensifying the competitive courier market, consumers demand speedy delivery within the same day. Businesses are also seeing opportunities in e-hailing and crowd sourcing services. In this regard, 11 new courier licences issued in 2018 included e-hailing and crowd sourcing services.

Outlook

After almost a decade of national broadband implementation, the government is taking the next step in driving broadband for all in various aspects. This is in terms of coverage, quality of service and affordability through advanced network infrastructure and technology.

In this regard, the Government announced in Budget 2019 that the NFCP will be implemented in 2019 to achieve world class infrastructure at affordable prices. The NFCP will focus on deployment of fibre and other suitable technologies to expand broadband coverage to 98% of populated areas by 2023, and promote equal growth amongst all states (including Sabah and Sarawak) as well as bridge the digital divide between urban and rural areas.

In order to achieve this, there has to be strategic investment by service providers to ensure end-to-end services through network transformation and new business models. Collaboration of all stakeholders is critical.

LICENSING FOR CONVERGENCE

The Communications and Multimedia Act 1998 (CMA) came into effect on 1 April 1999, resulting in the repeal of the Telecommunications Act 1950 and the Broadcasting Act 1988. Section 3(2) of the CMA articulates a framework for the development of the C&M industry through 10 National Policy Objectives.

The CMA promulgates provisions enabling holistic and inclusive growth of supply and demand in the C&M industry and includes feedback process from industry and consumers.

CMA: 10 NATIONAL POLICY OBJECTIVES
To establish Malaysia as a major global centre and hub for C&M information and content services
To promote a civil society where information-based services will provide the basis of continuing enhancements to quality of work and life
To grow and nurture local information resources and cultural representation that facilitate the national identity and global diversity
To regulate for the long term benefits of the end user
To promote a high level of consumer confidence in service delivery from the industry
To ensure an equitable provision of affordable services over ubiquitous national infrastructure
To create a robust applications environment for end users
To facilitate the efficient allocation of resources such as skilled labour, capital, knowledge and national assets
To promote the development of capabilities and skills within Malaysia's convergence industries
To ensure information security and network reliability and integrity

Source: MCMC
Figure i CMA: 10 National Policy Objectives

With this framework, Malaysia has journeyed 20 years into convergence based on the following CMA principles:

a) Protection of consumer interests;
b) Transparency of process;
c) Promotion of self-regulation;
d) The creation of a competitive environment for the C&M industry; and
e) Technology-neutral licensing to facilitate convergence.

HOLISTIC AND INCLUSIVE GROWTH UNDER CMA

CONSUMERS AND DIGITAL DIVIDE

The CMA contains provisions to protect consumer interests by creating a robust C&M industry where consumers can enjoy quality service and more choice in a competitive and market-driven environment. The CMA also makes provisions to extend services to underserved areas through it regulations.

INDUSTRY FEEDBACK

The CMA built-in public consultation processes to ensure transparent process. Members of the public and the industry are given opportunity to participate in policy review and development. All feedback are considered by MCMC.

It also introduced self-regulation mechanism through the designated forums namely Consumer Forum, Access Forum, Technical Forum and Content Forum. These forums are required to develop voluntary codes to self-regulate the industry.

COMPETITIVE FORCES AND LEVELLING THE PLAYING FIELD

The CMA further provides competition provisions to regulate anti-competitive conduct in the C&M market, which may lead to substantially lessening competition.

Licencing Framework under CMA

Under the CMA, there are four categories of licences namely Network Facilities, Network Service, and Content Applications Service licences[1], which are divided into two types namely Individual and Class Licences. As for Applications Service, it has been deregulated to Class licence since 1 April 2005.

The Individual licence requires a high degree of regulatory control. It is for a specified person to conduct a specified activity and may include special conditions. In contrast, the Class licence is a 'light-handed' approach, which is designed to promote industry growth and reduce barrier to entry.

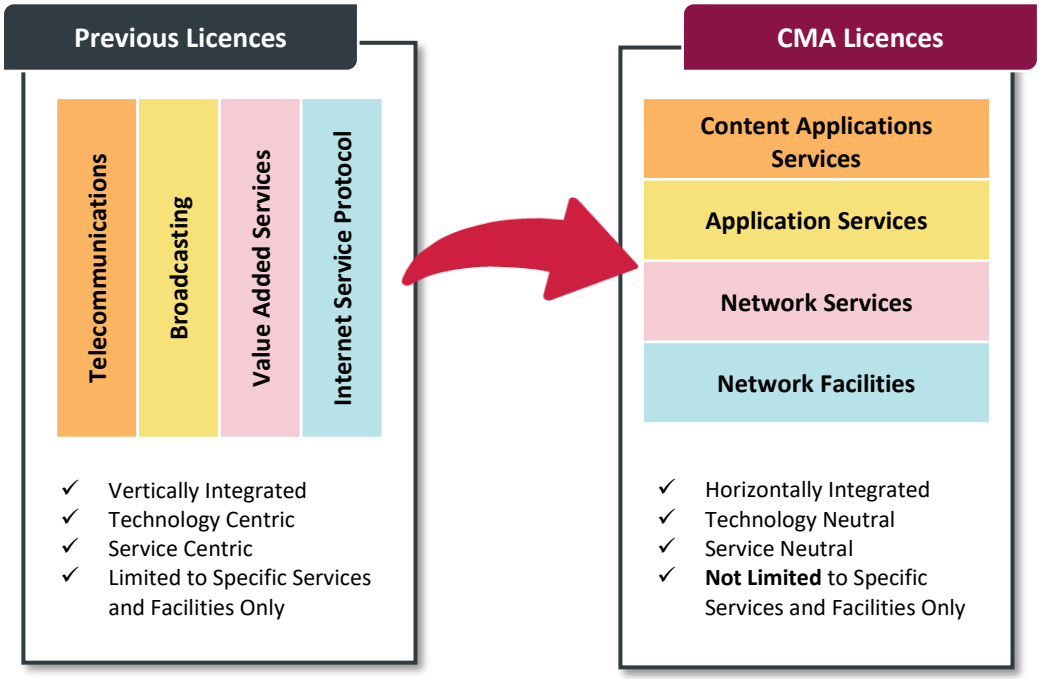
Standard licence conditions applied to both Individual and Class licence, and these conditions are set out in the Schedule of the CMA.

CMA licences are both technology and service neutral, allowing licensees to undertake activities that are market specific. Under the CMA convergence framework, infrastructure and services can be provided by separate entities giving rise to a horizontally segmented environment.

Under CMA, licences are no longer specific for technologies and services such as telecommunication, broadcasting, Internet Service Providers (ISP) and Value-Added Services (VAS) licence.

[1] NFP – Network Facilities Provider; NSP – Network Service Provider; CASP – Content Applications Service Provider; ASP – Applications Service Provider; I – Individual; C – Class.

CHARACTERISTICS OF PRE-CMA AND CMA LICENCES



Source: MCMC

Figure ii Characteristics of Pre-CMA and CMA Licences

Traditional voice, online and video service boundaries have blurred to triple and quad play offerings. The forward looking framework of the CMA supports multi-play platforms and ecosystems for new business models in the future.

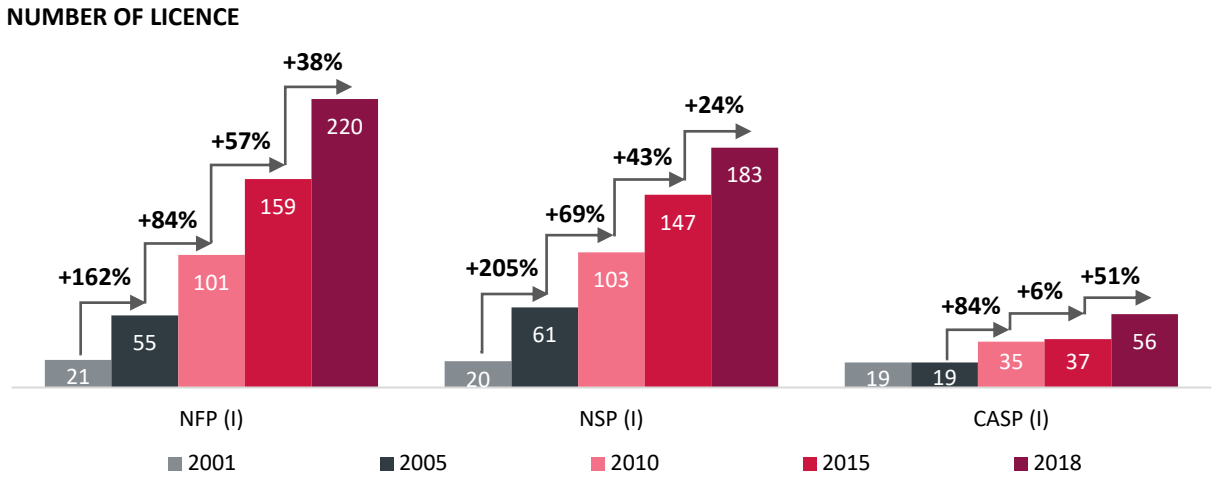
Licensing Profile over the Years

The CMA has enabled new entrants into the market. The regulatory and developmental objectives of the Government for the C&M industry have nurtured service providers in a competitive market environment.

Effectively, by 2018, there are 220 NFP (I), 183 NSP (I) and 56 CASP (I) licences offering services aligned with international communication services available. In contrast, as at end 2001 there were a total of 21 NFP (I), 20 NSP (I) and 19 CASP (I) licences registered.

Figure iii shows the growth in number of CMA licences.

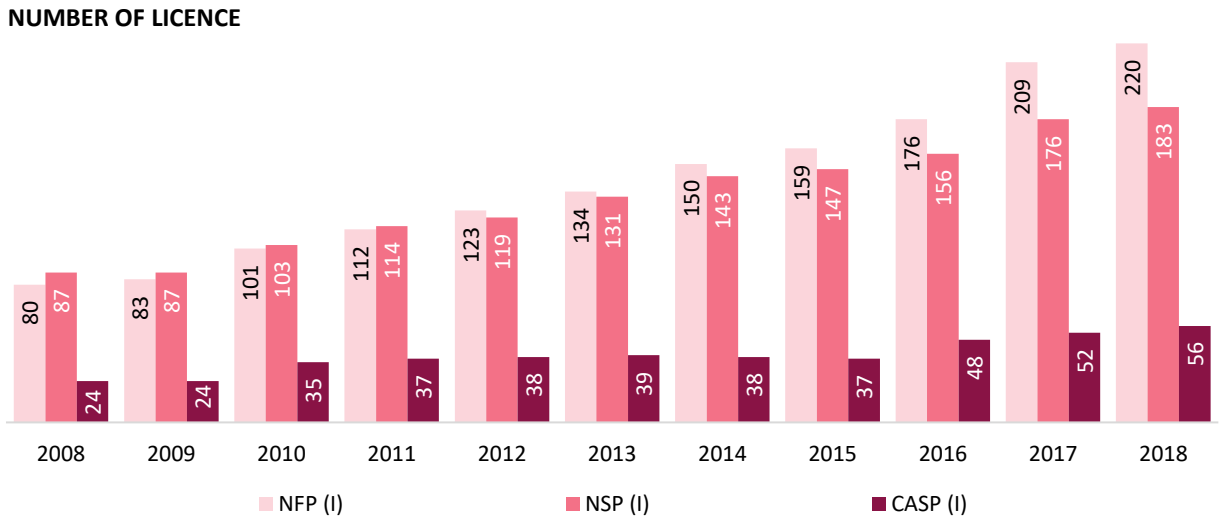
GROWTH IN NUMBER OF CMA LICENCES (INDIVIDUAL) 2001 – 2018



Source: MCMC

Figure iii Growth in Number of CMA Licences (Individual) 2001 – 2018

CMA LICENCES (INDIVIDUAL) 2008 – 2018



Source: MCMC

Figure iv CMA Licences (Individual) 2008 – 2018

Overall, a total of 64 individual licences were approved and renewed in 2018. New licences approved consists of 17 NFP (I), 13 NSP (I) and five CASP (I) licences issued. In addition, 14 NFP (I), 14 NSP (I) and one CASP (I) licences were renewed.

Details of the infrastructure and services offered by new and renewed licensed service providers in 2018 are shown in Figure v and Figure vi.

NEW INDIVIDUAL LICENCES ISSUED

Infrastructure and Services	Company	NFP (I)	NSP (I)	CASP (I)
To deploy communications infrastructure to support broadband services and to provide bandwidth services	Euro Masjaya Resources Sdn Bhd	✓	✓	
	Jenexus Holdings Sdn Bhd	✓	✓	
	Kibaran Pelangi Sdn Bhd	✓	✓	
To deploy communications infrastructure to support broadband services. To provide bandwidth services and subscription and non-subscription content applications services via satellite	High End Net Sdn Bhd	✓	✓	✓
To deploy communications infrastructure to support broadband services	Sabah Net Sdn Bhd	✓		
To deploy communications infrastructure to support cellular and broadband services	Globalcomm Solutions Sdn Bhd	✓		
	Meba Holdings Sdn Bhd	✓		
	Network Facilities Sdn Bhd	✓		
	NST Data Consultant Sdn Bhd	✓		
	Selangor Industrial Corporation Sdn Bhd	✓		
	Upright Construction Sdn Bhd	✓		
To deploy communications infrastructure to support cellular and broadband services and to provide bandwidth services	ABT Networks Sdn Bhd	✓	✓	
	Mutiara Smart Sdn Bhd	✓	✓	
	Orient Telecoms Sdn Bhd	✓	✓	
	Shorefield Communications Sdn Bhd	✓	✓	
	TP Works Engineering Sdn Bhd	✓	✓	
	Valser (Sarawak) Sdn Bhd	✓	✓	
To provide bandwidth services	ITMax System Sdn Bhd		✓	
To provide bandwidth and switching services as well as access application service	Redpyne Sdn Bhd		✓	
To provide bandwidth, switching and gateway services	Krypton Global Networks (Malaysia) Sdn Bhd		✓	
To provide subscription and non-subscription content applications services via Internet Protocol TV (IPTV) platform	Longvision Broadcasting Sdn Bhd			✓

NEW INDIVIDUAL LICENCES ISSUED

Infrastructure and Services	Company	NFP (I)	NSP (I)	CASP (I)
To provide terrestrial radio broadcasting services	Ephrata Services Sdn Bhd			✓
To provide subscription and non-subscription content application services via digital terrestrial platform	Kiple Media Sdn Bhd			✓
	Online Dynamics (M) Sdn Bhd			✓
TOTAL		**17**	**13**	**5**

Source: MCMC
Figure v New Individual Licences Issued

RENEWED INDIVIDUAL LICENCES

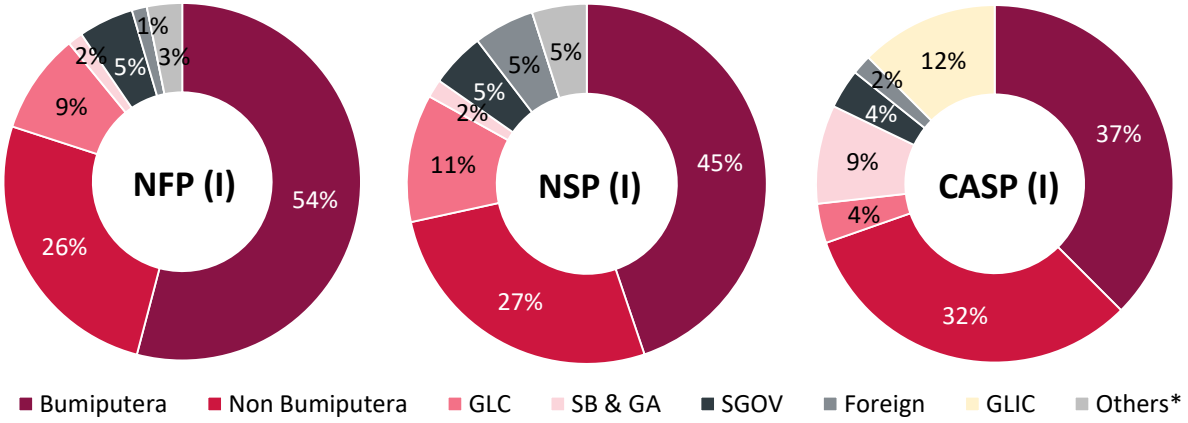
Infrastructure and Services	Company	NFP (I)	NSP (I)	CASP (I)
Deployment of communications infrastructure to support broadband services and provisioning of bandwidth services	Aries Telecoms (M) Bhd	✓	✓	
	Net2one Sdn Bhd	✓	✓	
Deployment of communications infrastructure to support cellular and broadband services	Omnix (M) Sdn Bhd	✓		
	Stealth Solutions Sdn Bhd	✓		
Deployment of communications infrastructure to support cellular and broadband services and provisioning of bandwidth services	Asiaspace Sdn Bhd	✓	✓	
	Felda Prodata Systems Sdn Bhd	✓	✓	
	Fiber At Home City Networks Sdn Bhd	✓	✓	
	Global Transit Communications Sdn Bhd	✓	✓	
	Majubina Resources Sdn Bhd	✓	✓	
	Oscatel Sdn Bhd	✓	✓	
	Sinar Suri Komunikasi Sdn Bhd	✓	✓	
	Speedlink Communications Sdn Bhd	✓	✓	
	Wellcom Communications (M) Sdn Bhd	✓	✓	
	YTL Communications Sdn Bhd	✓	✓	
Provisioning of bandwidth services	Wilayah Persekutuan Infrastructure Sdn Bhd		✓	
Provisioning of bandwidth, switching, gateway as well as cellular mobile services	Telekomunikasi Indonesia International (Malaysia) Sdn Bhd		✓	
Provisioning of terrestrial radio broadcasting services	Radio Kita Sdn Bhd			✓
TOTAL		**14**	**14**	**1**

Source: MCMC
Figure vi Renewed Individual Licences

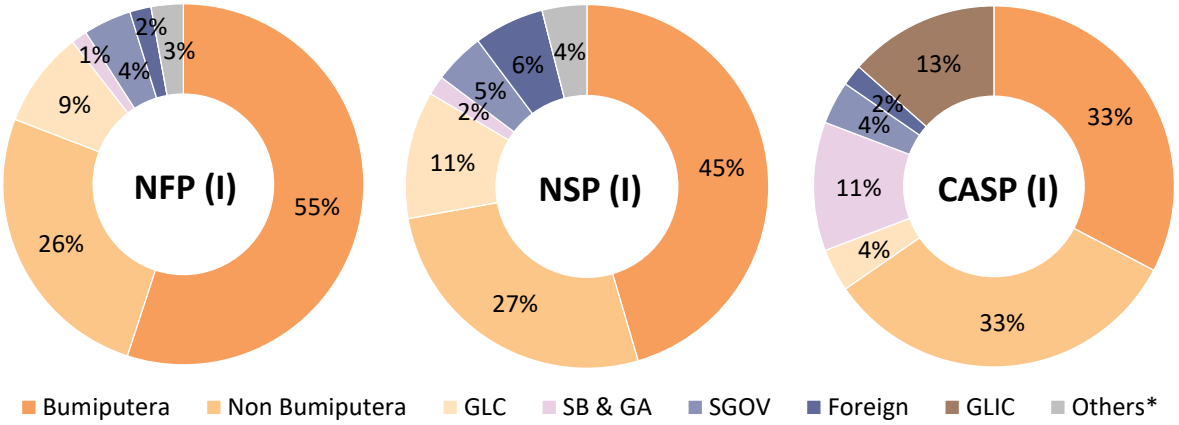
An analysis of Individual licensees' shareholding shows that 48.4% of total Individual licences in 2018 are Bumiputera-owned companies (2017: 48.5%). The shareholding composition by types of licences are shown as below:

INDIVIDUAL LICENCE – SHAREHOLDING COMPOSITION BY TYPES OF LICENCES 2017 AND 2018

Shareholding Composition 2018



Shareholding Composition 2017



Note:

Bumiputera-owned – Company that has 51% or more Bumiputera shares

Non-Bumiputera-owned – Company that has 51% or more non-Bumiputera shares

GLC – Government-linked company, that has a primary commercial objective and in which the Malaysian Government has a direct controlling stake. Controlling stake refers to the Government's ability (not just percentage ownership) to appoint Board of Director members, senior management, make major decisions (e.g. contract awards, strategy, restructuring and financing, acquisitions and divestments etc.) for GLCs either directly or through GLICs (Source: www.khazanah.com.my)

GLIC – Government-linked Investment Company, is a Federal Government-linked investment company that allocates some or all of their funds to GLC investments. Defined by the influence of the Federal Government in: appointing/approving Board members and senior management, and having these individuals report directly to the Government, as well as, in providing funds for operations and/or guaranteeing capital (and some income) placed by unit holders. The definition currently includes seven GLICs: Employees Provident Fund, Khazanah, Kumpulan Wang Persaraan (Diperbadankan), Lembaga Tabung Angkatan Tentera, Lembaga Tabung Haji, Menteri Kewangan Diperbadankan and Permodalan Nasional Bhd (Source: www.khazanah.com.my)

SB & GA – Ownership held directly or indirectly (51% or biggest equity stake) by a Statutory Body or Government Agency

SGOV – Ownership held directly or indirectly (51% or biggest equity stake) by a State Government

Foreign-owned – Company that has 51% or more shares held by foreign entities or individuals

Others – Mixed shareholding, with no particular type of shareholder having a controlling interest in the company

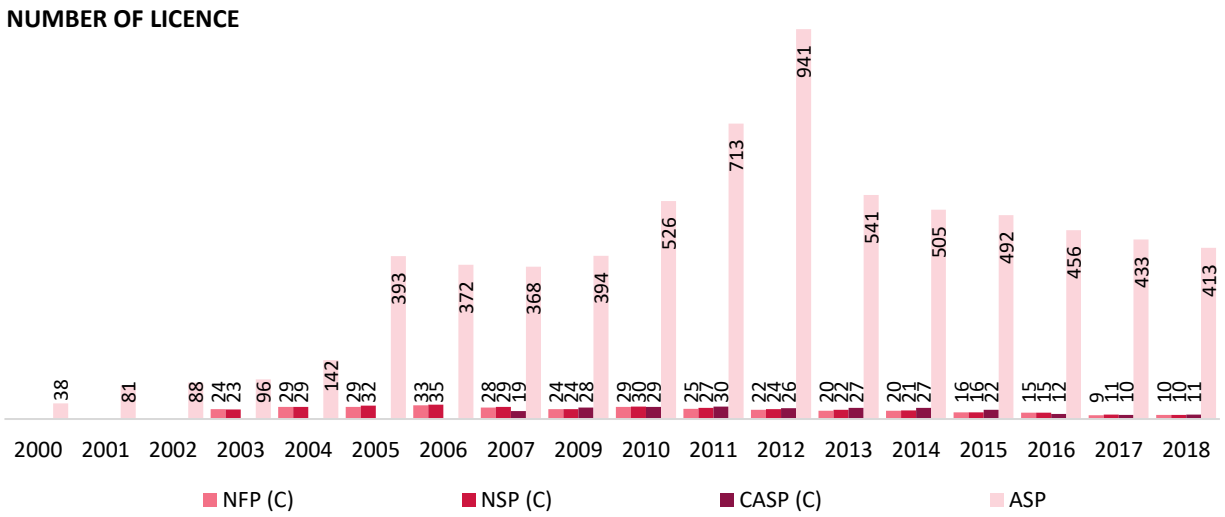
Source: MCMC

Figure vii Individual Licence – Shareholding Composition by Types of Licences 2017 and 2018

A total of 444 Class licences were registered by MCMC in 2018

Class licence is a relatively light-handed form of regulation, which is designed to promote industry growth and development with relatively easier market access. There were 444 Class licences in 2018, consisting of 10 NFP (C), 10 NSP (C), 11 CASP (C) and 413 ASP licences registered (2017: 463 Class licences).

CMA LICENCES (CLASS) 2000 – 2018

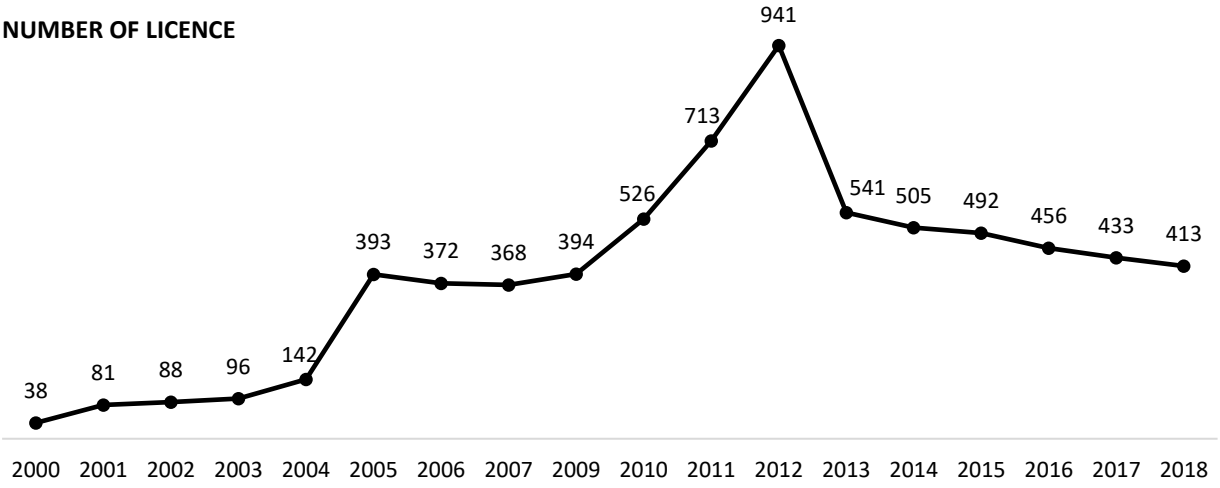


Note: CASP (C) licence started in 2007

Source: MCMC

Figure viii CMA Licences (Class) 2000 – 2018

ASP LICENCES 2000 – 2018



Note: 2012 spike due to National Broadband Initiative including netbook distribution and Internet access.

Source: MCMC

Figure ix ASP Licences 2000 – 2018

Roll Out Status in 2018

Licences granted are monitored for compliance with roll out conditions, that is, special licence condition Part B 1.2. Under this special licence condition, the compliance requirements include:

a) The licensee to commence the provision of facilities or services within 12 months from the date of licence issued;

b) However, the Minister may grant an extension of time to the licensee upon appeal and evidence of genuine progress being made towards the provision of facilities or services.

Individual licences issued in 2017 consisting of 44 new licensees were monitored for roll out compliance (2016: 43 licensees).

NEW LICENSEES MONITORED FOR ROLL OUT COMPLIANCE

No.	Company	NFP (I)	NSP (I)	CASP (I)
1	Array Technology Sdn Bhd	✓	✓	
2	TNB-IT Sdn Bhd	✓	✓	
3	Xecamed Sdn Bhd		✓	
4	Hamshi Xair Sdn Bhd	✓	✓	
5	Summernet Sdn Bhd	✓	✓	
6	KCSB Tower Sdn Bhd	✓		
7	Zeta IOS Sdn Bhd	✓	✓	
8	Valser Engineering & Services Sdn Bhd	✓		
9	Redpyne Sdn Bhd	✓		
10	iFiber Sdn Bhd (fka CME Asia Sdn Bhd)	✓	✓	
11	Borneo Restu Sdn Bhd	✓		
12	Syakim Technologies Sdn Bhd	✓		
13	Geliga Media Sdn Bhd			✓
14	Matrix Power Network Sdn Bhd	✓	✓	
15	G-Tex Communication & Engineering Sdn Bhd	✓		
16	Myhankuktv Sdn Bhd (*formerly known as Daeyun Broadcasting Sdn Bhd*)			✓
17	Dynassynergy Sdn Bhd	✓		
18	Lautan Variasi Sdn Bhd	✓	✓	
19	DTP Solutions Sdn Bhd	✓		
20	Axiata Business Services Sdn Bhd		✓	
21	Direct-Field Resources Sdn Bhd	✓		
22	ASN Network Corporation Sdn Bhd	✓	✓	
23	PDC Telecommunication Services Sdn Bhd	✓	✓	
24	Innet Technologies Sdn Bhd	✓	✓	
25	Asas Stabil Sdn Bhd	✓	✓	
26	YTL Broadband Sdn Bhd	✓		
27	R & R Engineering Supply Sdn Bhd	✓	✓	
28	Jaringan Mega Sdn Bhd	✓	✓	✓
29	Front Connect Sdn Bhd	✓		
30	Arus Restu Sdn Bhd	✓	✓	
31	Exarex Sdn Bhd	✓		
32	Birchcom Construction Sdn Bhd	✓		

NEW LICENSEES MONITORED FOR ROLL OUT COMPLIANCE

No.	Company	NFP (I)	NSP (I)	CASP (I)
33	Promajadi Sdn Bhd	✓		
34	Acoda Towers Sdn Bhd	✓		
35	MBJ Network Venture Sdn Bhd		✓	
36	Pancar Bakti Sdn Bhd	✓		
37	JRA Riyyalcomm Sdn Bhd	✓		
38	Eden Networks Sdn Bhd	✓	✓	
39	MN Permai Development Sdn Bhd	✓		
40	M Telecom World Sdn Bhd	✓	✓	
41	Nalfin Realitied Sdn Bhd	✓	✓	
42	Xperanti IOT (M) Sdn Bhd	✓	✓	
43	Smart Digital International Sdn Bhd	✓	✓	✓
44	Daulat Networks Sdn Bhd	✓	✓	
TOTAL		**39**	**24**	**4**

Source: MCMC

Figure x New Licensees Monitored for Roll Out Compliance

Out of the 44 licensees, 15 have complied with special licence condition to roll out their facilities and services within 12 months from date of licence issued. The licensees are as follows:

LICENSEES COMPLIED WITH 12 MONTHS ROLL OUT CONDITION

No.	Company	Type of Licence	Facilities/Services Deployed
1	TNB-IT Sdn Bhd	NFP(I) & NSP(I)	Fibre
2	Xecamed Sdn Bhd	NSP(I)	Bandwidth services
3	Summernet Sdn Bhd	NFP(I) & NSP(I)	Broadband Services (WiFi)
4	Valser Engineering & Services Sdn Bhd	NFP(I)	Towers/Poles
5	Redpyne Sdn Bhd	NFP(I)	Towers/Poles
6	iFiber Sdn Bhd *(formerly known as CME Asia Sdn Bhd)*	NFP(I) & NSP(I)	Dark Fibre (Last Mile) & Broadband Services
7	Matrix Power Network Sdn Bhd	NFP(I) & NSP(I)	Towers/Poles
8	Lautan Variasi Sdn Bhd	NFP(I) & NSP(I)	VSAT Services
9	DTP Solutions Sdn Bhd	NFP(I)	Towers/Poles
10	Arus Restu Sdn Bhd	NFP(I) & NSP(I)	Towers/Poles
11	Exarex Sdn Bhd	NFP(I)	Towers/Poles
12	Acoda Towers Sdn Bhd	NFP(I)	Towers/Poles
13	Daulat Networks Sdn Bhd	NFP(I) & NSP(I)	Towers/Poles
14	MBJ Network Venture Sdn Bhd	NSP(I)	WiFi Services
15	Innet Technologies Sdn Bhd	NFP(I) & NSP(I)	Broadband and Bandwidth Services, Towers/Poles

Source: MCMC

Figure xi Licensees Complied with 12 Months Roll Out Condition

Some licensees indicated that in light of challenging economic environment, they have revised their commercial arrangements and business plans accordingly and thus delayed roll out in 2018. As a result, four licensees have applied for extension of time.

LICENSEES APPLIED FOR EXTENSION OF TIME

No.	Company	Type of Licence
1	TNB-IT Sdn Bhd	NFP(I) & NSP(I)
2	Borneo Restu Sdn Bhd	NFP(I)
3	Myhankuktv Sdn Bhd *(formerly known as Daeyun Broadcasting Sdn Bhd)*	CASP(I)
4	Axiata Business Services Sdn Bhd	NSP(I)

Source: MCMC

Figure xii Licensees applied for extension of time

UNPRECEDENTED DROP IN FIXED HIGH SPEED BROADBAND PRICES

The year 2018 has been an eventful year for fixed high speed broadband subscribers in Malaysia. There was a plethora of new packages with attractive prices and speed that were offered. This is unprecedented in Malaysia as the fixed broadband prices have hardly seen any movements over the past few years.

The Commission Determination on the Mandatory Standard on Access Pricing, Determination No. 1 of 2017 (MSAP) sets the wholesale prices for some facilities and services to ensure effective competition. A review on MSAP was undertaken in 2017 and the Commission Determination was issued on 20 December 2017, which came into effect on 1 January 2018.

For the first time, the MSAP regulates wholesale prices for high speed broadband services, which are much lower than prices that were offered on commercial basis. The lower wholesale prices stimulated competition in the fixed high speed broadband services, which translated to lower retail prices, higher speed or both. In June 2018, the Minister announced that high speed broadband services prices are expected to be reduced by at least 25% by 31 December 2018.

By October 2018, four major service providers namely Telekom Malaysia Bhd (TM), Maxis Bhd (Maxis), TIME dotCom Bhd (TIME) and Celcom Axiata Bhd (Celcom) announced lower prices and/or higher speeds. Prior to the price reduction, prices of entry level packages ranged from RM119 to RM129 for 10Mbps. However, after the price reduction, prices of entry level packages ranged from RM79 to RM89 for 30Mbps. On average, retail prices for fixed high speed broadband services declined by about 49%. In terms of offering higher speed, TIME led the way by introducing the first Gigabit package, that is, 1Gbps at RM199.

Taking the lead from major service providers, several other smaller service providers have also reduced broadband prices and/or increase speeds at the same price.

With these price reductions, Malaysia's position in the ASEAN region in terms of broadband pricing has improved. The prices of 30Mbps packages in Malaysia are the cheapest in the region, while Malaysia ranked second after Thailand for the 100Mbps package.

Such developments augur well for Malaysia's move towards digital economy. Affordable broadband price is a critical enabler. Broadband services take up enhances productivity, attracts investment such as data centres into the country and facilitates implementation of Internet of Things (IoT).

MODULE 1: ECONOMIC PERFORMANCE OF C&M INDUSTRY

C&M Industry Market Performance

In 2018, the Malaysian stock market along with global ones posted declines, affected by profit taking and portfolio adjustments as concerns persisted domestically and on international front such as US-China trade tension, fluctuation in crude oil prices aside from caution over a slower global economy.

LOCAL AND GLOBAL MARKETS INDICES 2016 – 2018

Index	Closing (points)			Change (%)	
	2018	**2017**	**2016**	**2018 – 2017**	**2017 – 2016**
Malaysia FBM KLCI	1,690.58	1,796.81	1,641.73	*-5.9*	*9.4*
US Dow Jones Industrial Average (DJIA)	23,327.46	24,719.22	19,762.60	*-5.6*	*25.1*
Singapore Straits Times Index (STI)	3,068.76	3,402.92	2,880.76	*-9.8*	*18.1*
Hong Kong Hang Seng Index (HSI)	25,845.70	29,919.15	22,000.56	*-13.6*	*36.0*
Japan Nikkei Stock Average (Nikkei 225)	20,014.77	22,764.94	19,114.37	*-12.1*	*19.1*
Shanghai Composite Index	2,493.90	3,307.17	3,103.64	*-24.6*	*6.6*

Note: Closing price stated is as at the last trading day of the year

Source: Bloomberg, MCMC

Figure 1.1 Local and Global Markets Indices 2016 – 2018

Among the six indices, the benchmark FTSE Bursa Malaysia Kuala Lumpur Composite Index (FBM KLCI) fared relatively well and outperformed most regional markets. As at end 2018, the FBM KLCI was down by 5.9% to 1,690.58 points.

In tandem with market performance, C&M companies market capitalisation also declined. For telecommunications sector, TM and Axiata lost 57.8% and 28.2% market capitalisation respectively. Meanwhile, the postal and broadcasting sector declined 67.2% and 51.2% respectively.

The C&M industry market performance was affected by various factors. With board changes and financial results below expectations including local regulatory pressures, there were investment portfolio adjustments.

C&M COMPANIES MARKET CAPITALISATION 2016 – 2018

Company	Market Capitalisation (RM billion)			Change (%)	
	2018	2017	2016	2018 – 2017	2017 – 2016
Axiata	35.65	49.67	42.35	*-28.2*	*17.3*
Maxis	41.82	46.94	44.91	*-10.9*	*4.5*
Digi	34.99	39.65	37.55	*-11.8*	*5.6*
TM	10.00	23.67	22.36	*-57.8*	*5.9*
TIME	4.73	5.29	4.51	*-10.6*	*17.3*
Telecommunications	**127.19**	**165.22**	**151.68**	***-23.0***	***8.9***
ASTRO	6.78	13.82	13.54	*-50.9*	*2.1*
Media Prima	0.38	0.84	1.28	*-54.8*	*-34.4*
Broadcasting	**7.16**	**14.66**	**14.82**	***-51.2***	***-1.1***
Pos Malaysia	1.35	4.11	3.06	*-67.2*	*34.3*
TOTAL C&M	**135.70**	**183.99**	**169.56**	***-26.2***	***8.5***
Bursa Malaysia	**1,700.37**	**1,906.84**	**1,667.37**	***-10.8***	***14.4***

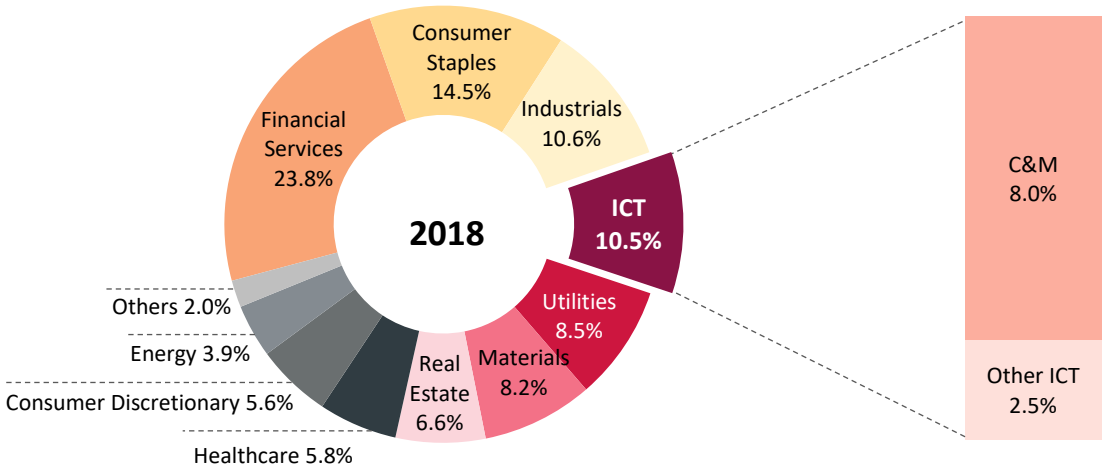
Note: Axiata Group Bhd (Axiata), Maxis Bhd (Maxis), Digi.Com Bhd (Digi), Telekom Malaysia Bhd (TM), TIME dotCom Bhd (TIME), Astro Malaysia Holdings Bhd (ASTRO), Media Prima Bhd (Media Prima) and Pos Malaysia Bhd (Pos Malaysia)

Source: Bloomberg, MCMC

Figure 1.2 C&M Companies Market Capitalisation 2016 – 2018

In 2018, the C&M industry represents 8% of Bursa Malaysia total market capitalisation of RM1,700.37 billion (Figure 1.4 and Figure 1.6). Also, the C&M industry market capitalisation represents 76% of the total ICT companies' market capitalisation of RM178 billion or 10.5% of Bursa Malaysia (Figure 1.4).

BURSA MALAYSIA MARKET CAPITALISATION BY SECTOR

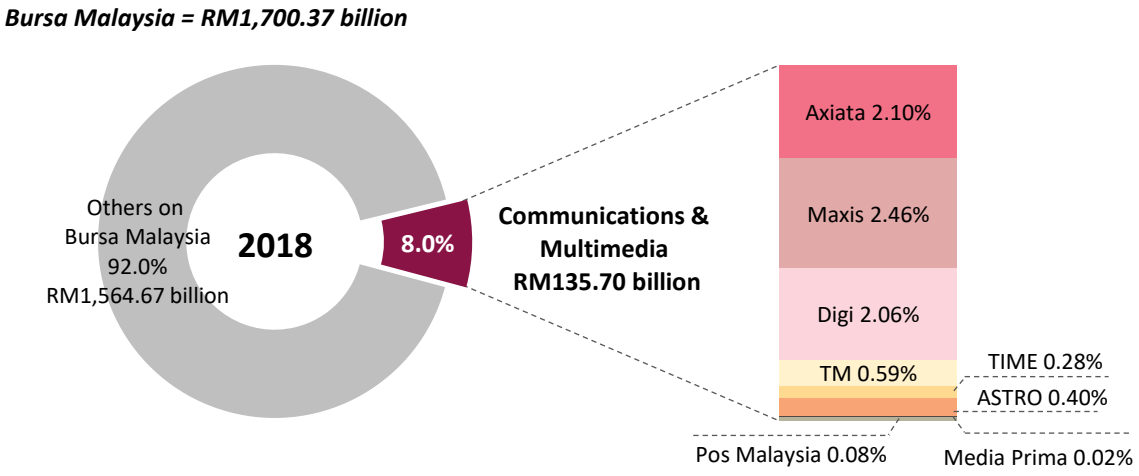


Note: Consumer discretionary sector consists of manufacturing (automotive, household durable goods, textiles and apparel) and services (hotels, restaurants, leisure facilities and consumer retailing). Consumer staples sector consists of manufacturers and distributors of food, beverages and tobacco, producers of non-durable household goods and personal products.

Source: Bloomberg, MCMC

Figure 1.3 Bursa Malaysia Market Capitalisation by Sector

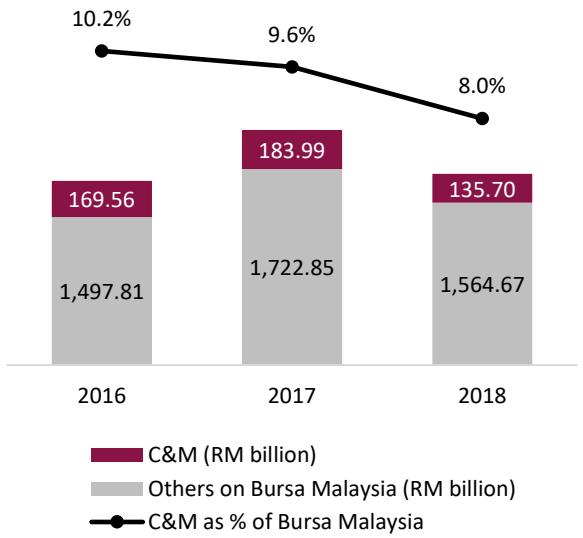
C&M COMPANIES CONTRIBUTION TO BURSA MALAYSIA 2018



Source: Bloomberg, MCMC

Figure 1.4 C&M Companies Contribution to Bursa Malaysia 2018

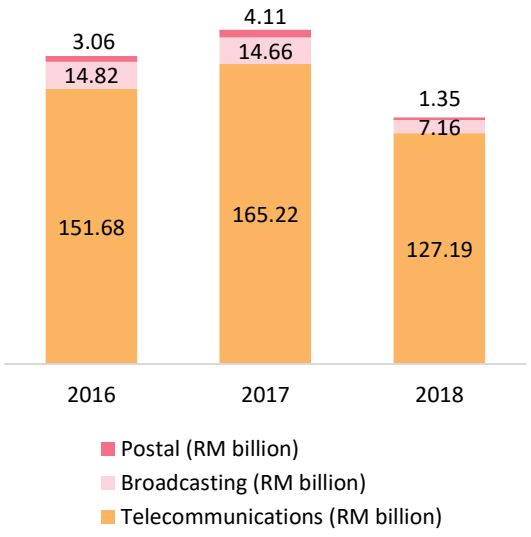
CONTRIBUTION OF C&M INDUSTRY TO BURSA MALAYSIA MARKET CAPITALISATION 2016 – 2018



Source: Bloomberg, MCMC

Figure 1.5 Contribution of C&M Industry to Bursa Malaysia Market Capitalisation 2016 – 2018

C&M INDUSTRY MARKET CAPITALISATION BY SECTOR 2016 – 2018



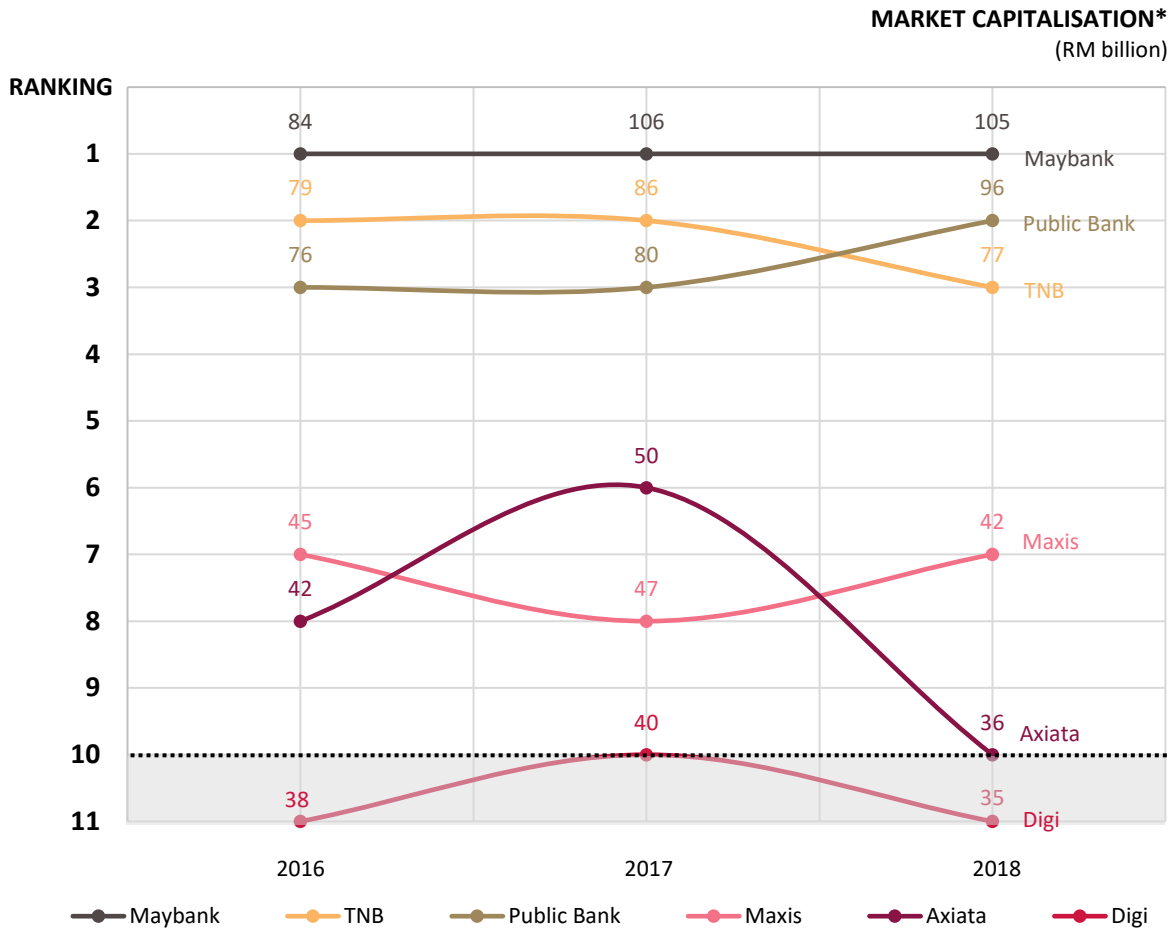
Source: Bloomberg, MCMC

Figure 1.6 C&M Industry Market Capitalisation by Sector 2016 – 2018

Maxis and Axiata remains in top 10 market capitalisation ranking

As shown in Figure 1.7 while the financial and utilities sectors continue to lead the market capitalisation ranking, the telecommunications sector has Maxis and Axiata represented. Maxis moved one notch up to 7th place despite its market capitalisation declined by 11% to RM42 billion. Axiata slipped four places to 10th place. Notably, Digi is at 11th place.

TREND OF TOP 10 MARKET CAPITALISATION 2016 – 2018



**As at 31 December*

Note: 1. Top 10 largest stocks based on market capitalisation among the 30 stocks that comprise the FTSE Bursa Malaysia KLCI Index

2. Malayan Banking Bhd (Maybank), Tenaga Nasional Bhd (TNB), Public Bank Bhd (Public Bank)

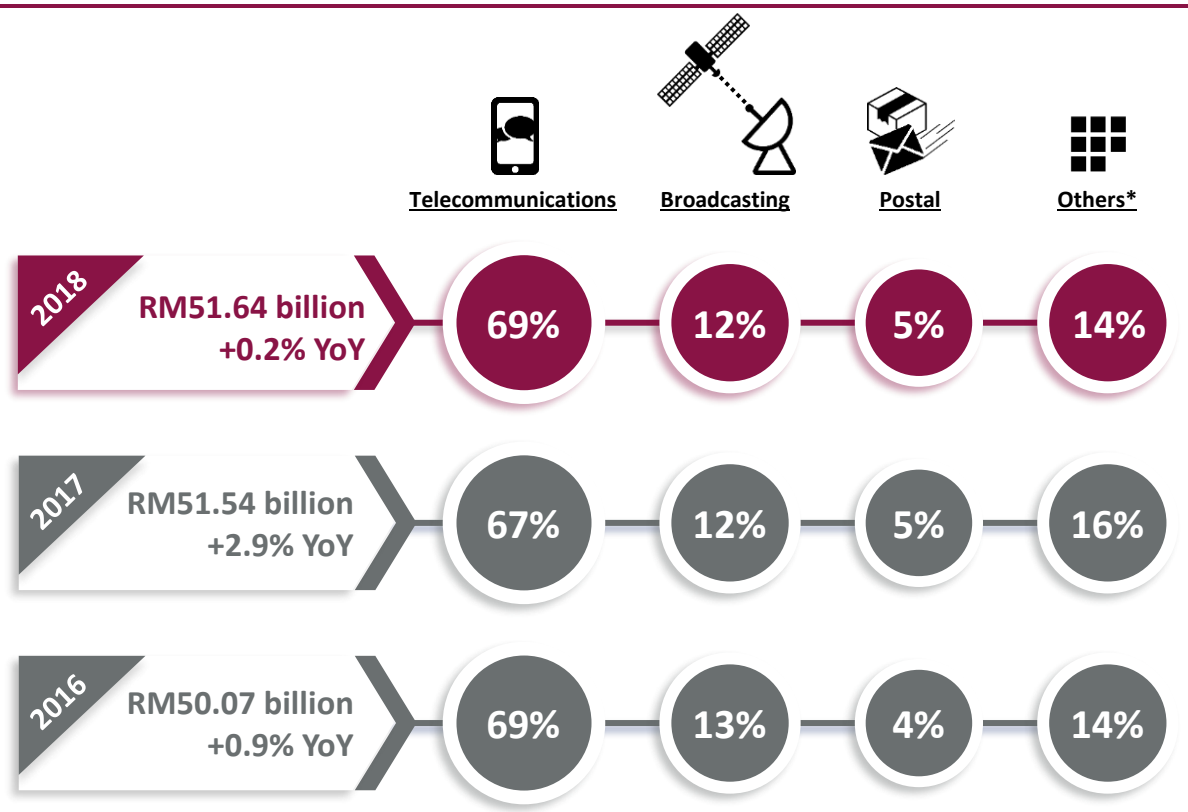
Source: Bloomberg, MCMC

Figure 1.7 Trend of Top 10 Market Capitalisation 2016 – 2018

C&M Industry Financial Performance

The domestic C&M industry aggregate revenue was at RM51.64 billion for 2018. This is an increase of 0.2% from RM51.54 billion in 2017. The breakdown of industry revenue by sector is as follows:

DOMESTIC C&M INDUSTRY REVENUE 2016 – 2018*



**Estimated*

Note 1. Excludes Axiata foreign operations revenue

2. Media Prima excludes print revenue

3. ASTRO and Pos Malaysia revenue adjusted by calendar year

4. Others include non-public listed CMA licensees such as U Mobile Sdn Bhd, MVNOs and ACE Market listed licensees

5. Revenue for 2018 adjusted for the accounting changes driven by adoption of new Malaysian Financial Reporting Standard (MFRS 9 Financial Instruments and MFRS 15 Revenue from Contract with Customers), effective beginning 1 January 2018

Source: Industry, MCMC

Figure 1.8 Domestic C&M Industry Revenue 2016 – 2018

By sector, telecommunications contributed RM35.86 billion or 70% to total domestic C&M industry revenue in 2018, an increase of 3.7% (2017: RM34.58 billion). This is due to rising consumer demand for data and Internet services.

On the broadcasting front, the sector revenue was slightly lower by 0.3% to RM6.4 billion in 2018 (2017: RM6.42 billion). The decline was due to lower contribution from advertising revenue and Pay TV subscription.

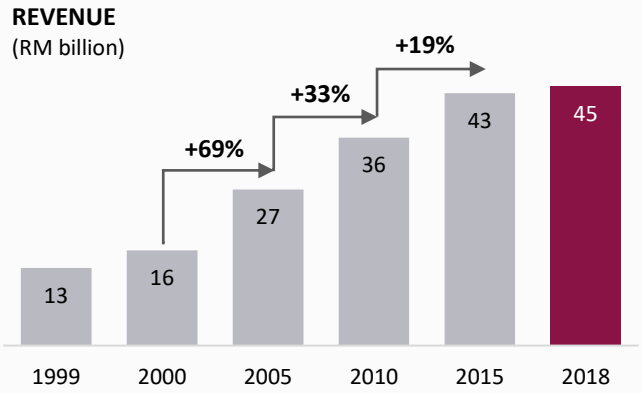
In 2018, Pos Malaysia revenue was at RM2.41 billion, declined by 2% compared with RM2.46 billion in 2017. E-commerce continues to be a key driver.

20 YEARS OF DOMESTIC C&M INDUSTRY

Over the past 20 years, revenue grew nearly 3.5 times from RM13 billion in 1999 to RM45 billion in 2018. The leaps of growth during this period were mainly due to regulatory intervention, which strategically enabled new entrants to provide more C&M services for the benefit of consumers and thereby increasing revenue base.

The first wave started with introduction of the CMA. The CMA, with its regulatory instruments implemented, has liberalised the market and increased competition. New entrants introduced mobile services on top of the fixed line monopoly market then.

DOMESTIC C&M INDUSTRY REVENUE 1999 – 2018



Note: Revenue consists of telecommunications (excluding Axiata foreign operations), broadcasting and postal

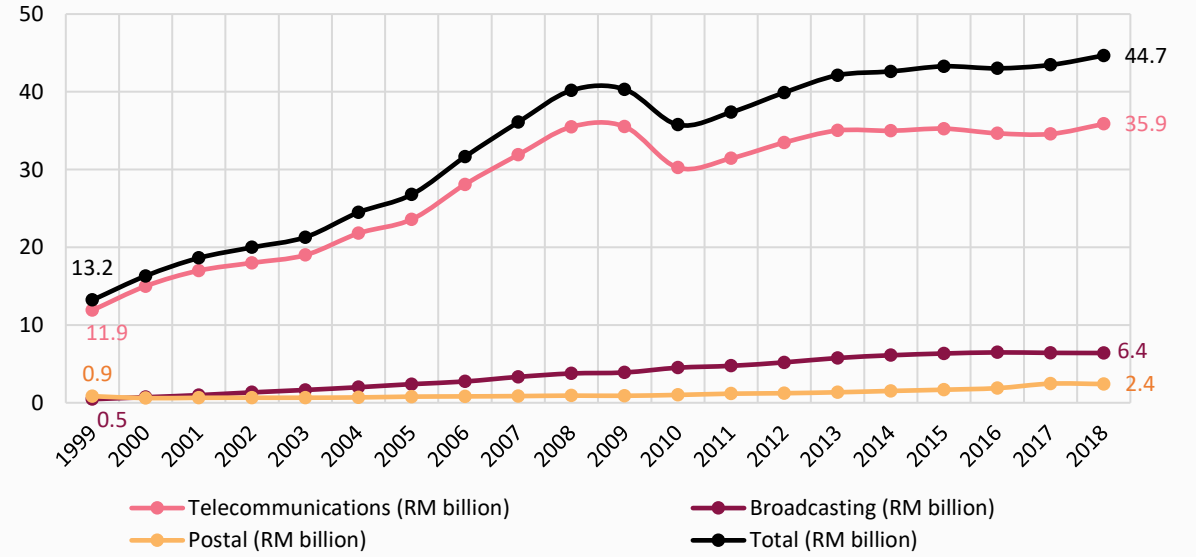
Source: Industry, MCMC

Figure 1.9 Domestic C&M Industry Revenue 1999 – 2018

The second wave reaped the benefits of widespread coverage of mobile nationwide. MCMC and service providers worked hand-in-hand, propelling new services as mobile phone adoption increased to meet pent-up demand.

The third wave saw service providers both fixed and mobile thrive on broadband take up. All stakeholders brought Malaysia to be at par internationally, offering broadband Internet services supported by latest advanced communications network and infrastructure.

DOMESTIC C&M INDUSTRY REVENUE BY SECTOR 1999 – 2018



Note: Broadcasting excludes Media Prima print revenue

Source: Industry, MCMC

Figure 1.10 Domestic C&M Industry Revenue by Sector 1999 – 2018

In 2018, the broadband penetration rate per 100 inhabitants nationwide is at 121.1% (mobile broadband at 113% and fixed broadband at 8.2%). Broad base consumer demand attracted investments by global players in technology, e-commerce, postal and courier and others. Together with Malaysian players, they are tapping the growing consumer appetite for digitalisation in everyday life and work.

Many investors and local expertise are looking to propel the nation into its next leap of growth, tapping higher broadband speeds to enhance existing services and create new ones. This readiness would directly support other economic sectors to accelerate their digital transformation journeys in manufacturing, supply chain and logistics, healthcare, transportation and many more.

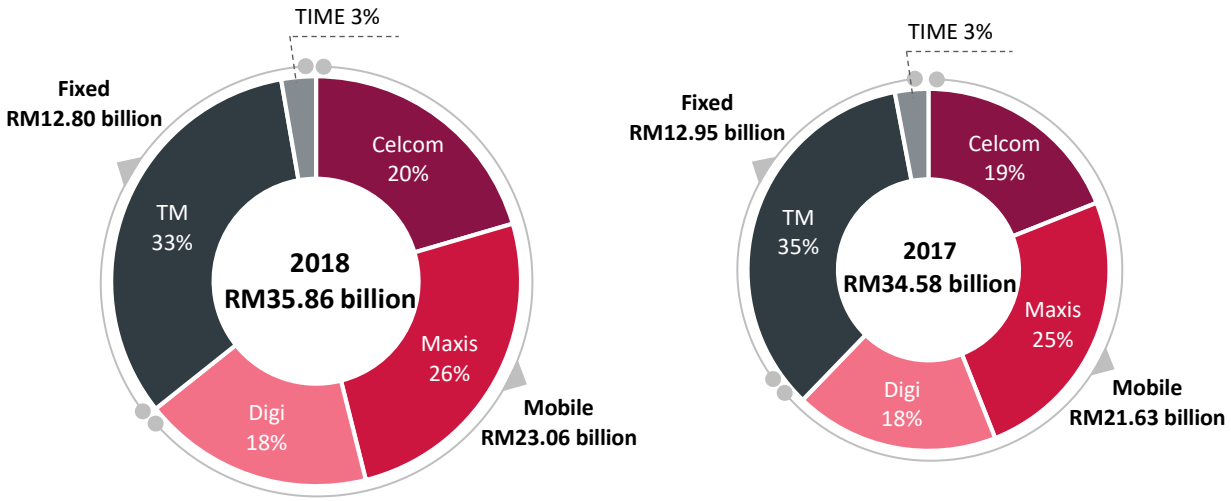
Telecommunications Sector

In 2018, telecommunications sector revenue grew 3.7% to RM35.86 billion (2017: RM34.58 billion). Mobile service providers contributed 64% to total telecommunications revenue, while the remaining 36% was from fixed service providers.

Mobile service providers (Celcom, Maxis and Digi) collectively recorded a growth of 6.6% in revenue to RM23.06 billion in 2018 compared with RM21.63 billion in 2017. Mobile data remains as the key driver of growth, cushioning the effects of lower voice and SMS revenue.

Meanwhile, fixed service providers (TM and TIME) revenue saw a decline of 1.2% to RM12.8 billion in 2018 from RM12.95 billion in 2017. TM posted decline in revenue due to provisions made for wholesale segment and lower voice revenue contribution.

TELECOMMUNICATIONS SECTOR REVENUE 2018 VIS-À-VIS 2017



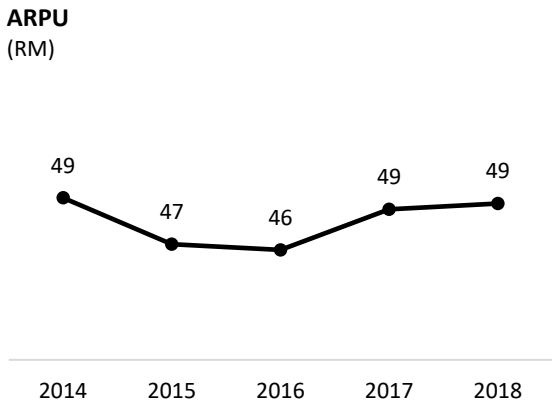
Source: Industry, MCMC

Figure 1.11 Telecommunications Sector Revenue 2018 vis-à-vis 2017

Average blended mobile ARPU remains stable at RM49 per month in 2018

Blended Average Revenue Per User (ARPU) for mobile service providers averaged RM49 per month in 2018, which is the same as in 2017. For reference, ARPU in 2017 rose due to improvements in subscriber mix and adoption of premium mobile data services with a gradual increase in postpaid subscriptions.

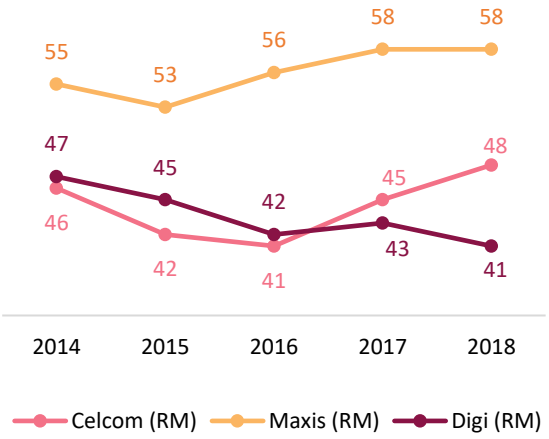
BLENDED MOBILE ARPU 2014 – 2018



Source: Industry, MCMC

Figure 1.12 Blended Mobile ARPU 2014 – 2018

BLENDED MOBILE ARPU BY SERVICE PROVIDERS



Source: Industry, MCMC

Figure 1.13 Blended Mobile ARPU by Service Providers

Maxis blended ARPU remains the highest among its peers with more than RM50 per month across the five-year period as a result of focusing on high value customers.

Celcom blended ARPU is RM48 per month in 2018 (2016: RM41 per month) due to its customer focus strategy and simplified product offerings. Like the other service providers, Celcom intends to focus on offering more value-added and bundled services.

Meanwhile, Digi blended ARPU saw a decline to RM41 per month in 2018 (2017: RM43), due to more entry level package take up. This strategy has increased Digi subscriber base.

Mobile service providers continue to manage their ARPU by various means such as higher value added services and strategies to retain customers. Service providers adopting "Know Your Customer (KYC)" approach are able to retain and attract more subscribers through customer management and innovatively bundled packages tailored to customer needs.

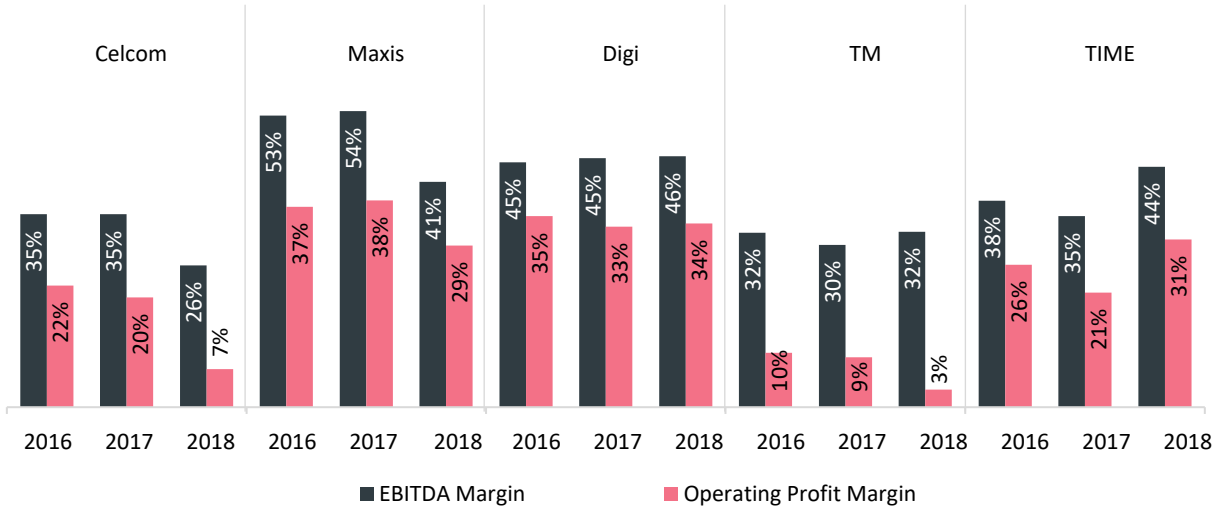
Margin remains stable

In 2018, the telecommunications sector EBITDA[2] margin averaged 38% (2017: 40%) and operating profit margin averaged 21% (2017: 24%). Higher operating costs continue to put pressure on margins.

Digi recorded EBITDA margin as high as 46% whilst Maxis and Celcom was at 41% and 26% respectively. Meanwhile, the fixed service providers EBITDA margin averaged 38% (2017: 33%). Specifically, TM posted EBITDA margin of 32% whilst TIME was at 44%.

In terms of operating profit, TM posted 3% in 2018, mainly due to an impairment on network assets of almost RM1 billion.

TELECOMMUNICATIONS COMPANIES EBITDA MARGIN VIS-À-VIS OPERATING PROFIT MARGIN 2016 – 2018



Source: Industry, MCMC

Figure 1.14 Telecommunications Companies EBITDA Margin vis-à-vis Operating Profit Margin 2016 – 2018

Pressure on margins is a situation faced by most telecommunications companies around the world. Many companies have responded to the pressure on margins by reducing costs incrementally.

For instance, TM over the next three years (2019 – 2021), is set to focus on three strategic pillars:

1. Converged services – strengthens its convergence position, vertical focus to serve industries going digital;
2. Simplification and digitalisation – simplify process and digitisation, product rationalisation; and
3. Lean and lower cost – focus on core business, cost optimisation and management.

[2] EBITDA refers to Earnings Before Interest, Tax, Depreciation and Amortisation.

Similarly, Celcom focused on cost optimisation efforts with an aim to achieve savings of RM900 million, subsequently improving EBITDA margin in the next three years (2019 – 2021). Its key areas of focus includes product to systems simplification, digitalisation, advanced analytics to target key market segments and network infrastructure optimisation.

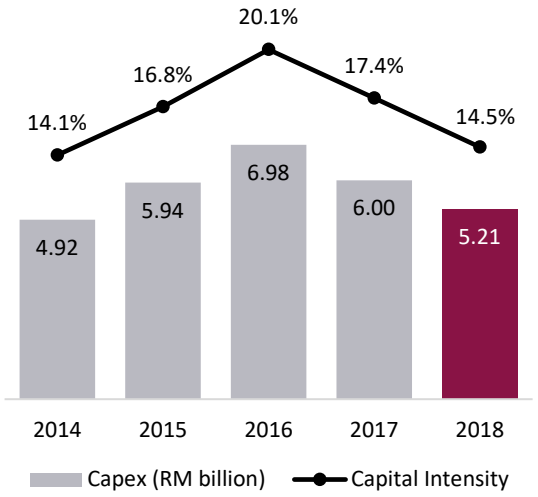
TIME is in the midst of implementing digital transformation initiatives to optimise their processes and workflows. For example, creating an app to facilitate on-ground dealer sign-ups to improve customer experience and reduce costs.

Telecommunications sector Capex at RM5.21 billion or 14.5% of revenue

The telecommunications sector witnessed a 13.2% reduction in Capex to RM5.21 billion in 2018 (2017: RM6 billion), translating into capital intensity of 14.5% (2017: 17.4%). Capex was mainly to extend network coverage and upgrade existing network infrastructures.

From the total, 54% (RM2.79 billion) was from mobile service providers, while the remaining 46% (RM2.42 billion) was from fixed service providers.

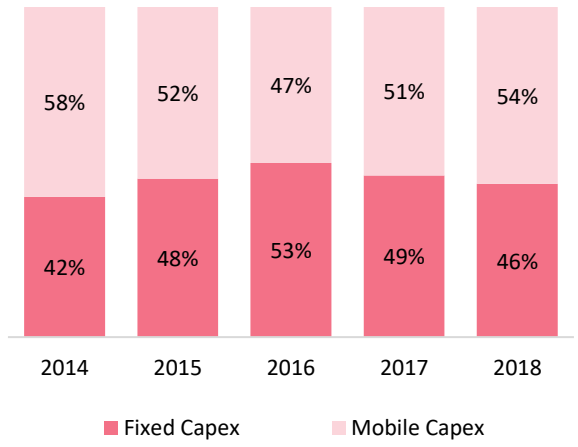
CAPEX TREND 2014 – 2018



Source: Industry, MCMC

Figure 1.15 Capex Trend 2014 – 2018

MOBILE VIS-À-VIS FIXED CAPEX 2014 – 2018



Source: Industry, MCMC

Figure 1.16 Mobile vis-à-vis Fixed Capex 2014 – 2018

Over the last five years, service providers have invested more than RM29 billion in Capex as they deployed mobile and fixed broadband networks to increase coverage and capacity. Capex has increased to its highest in 2016, at RM6.98 billion with capital intensity of 20.1%.

Investment by mobile services providers was driven by a range of factors as follows:

- Improving network coverage;
- Increasing network capacity to accommodate both ongoing growth in subscriber base and data usage; and
- Funding higher speed mobile broadband networks deployments (both 3G and 4G LTE).

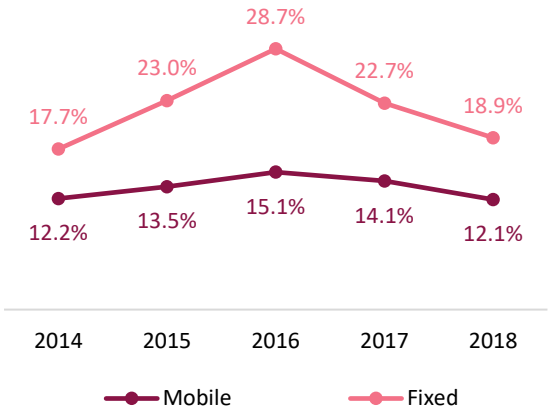
Since 2.6GHz spectrum was allocated to provide 4G LTE in December 2012, mobile service providers have focused their investments on 4G LTE networks. As such, 4G LTE population coverage has reached 53.6% in 2015, achieving its spectrum allocation condition of 2017 target

at 50% two years earlier. By 2017 and 2018, the coverage was at 77.2% and 79.7%[3] respectively.

In 2018, 4G LTE buildouts are slowing down and service providers are focusing to invest in enhancing, maintaining and upgrading existing network infrastructures.

Meanwhile, fixed service providers have invested more than RM13 billion over the last five years. In 2016, fixed service providers Capex at RM3.68 billion was highest due to funding submarine cable systems and broadband infrastructure[4].

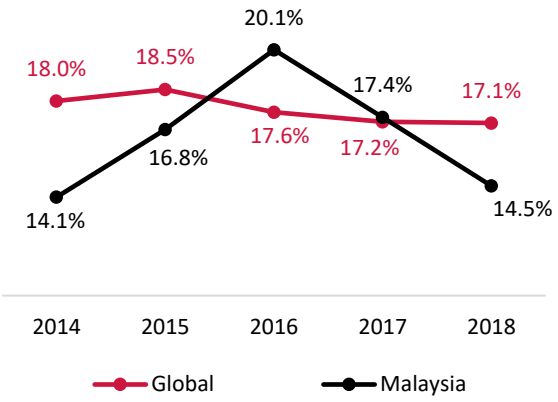
MOBILE VIS-À-VIS FIXED CAPITAL INTENSITY 2014 – 2018



Source: Industry, MCMC

Figure 1.17 Mobile vis-à-vis Fixed Capital Intensity 2014 – 2018

MALAYSIA VIS-À-VIS GLOBAL CAPITAL INTENSITY 2014 – 2018



Source: Industry, MCMC, OVUM

Figure 1.18 Malaysia vis-à-vis Global Capital Intensity 2014 – 2018

In 2018, the capital intensity for Malaysia is 14.5%, which is below the global average of 17.1%. According to OVUM, the downward pressure on service providers capital intensity is expected to continue until 2019, as network upgrades are increasingly software-based. Service providers are investing in Software-Defined Networking (SDN) or Network Functions Virtualisation (NFV), cloud migration, as well as network and infrastructure sharing. The impact of these initiatives on total Capex spending is yet to be fully seen on their financial reports[5].

[3] Population coverage includes deployment of 850MHz, 900MHz, 1.8GHz, 2.3GHz and 2.6GHz spectrum bands.

[4] TM was awarded the High Speed Broadband Phase 2 (HSBB 2) and Suburban Broadband (SUBB) project in 2015. The total cost of the HSBB 2 and SUBB investment is RM1.8 billion and RM1.6 billion respectively.

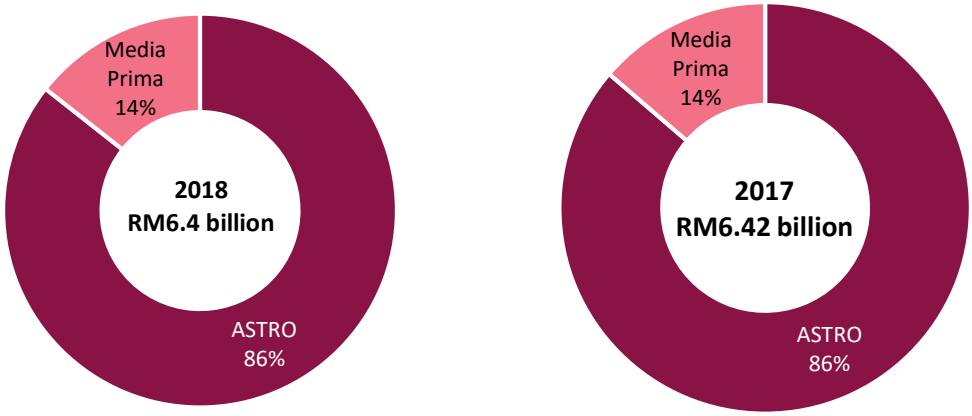
[5] OVUM, Communications Provider Revenues and Capex Forecast: 2017 – 2022, June 2018.

Broadcasting Sector

Broadcasters experience weak advertising market and OTT competition

At RM6.4 billion in 2018, total broadcasting sector revenue constituting Pay TV (ASTRO) and Free-To-Air (FTA) TV (Media Prima Group) declined by 0.3% compared with RM6.42 in 2017, driven by lower advertising revenue and Pay TV subscription.

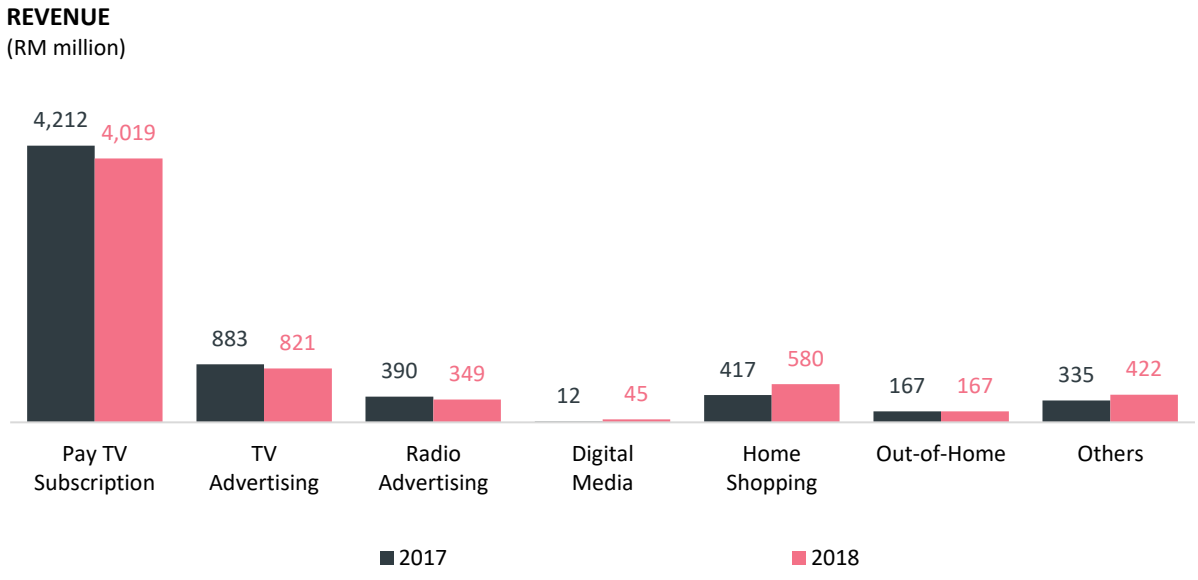
BROADCASTING SECTOR REVENUE 2018 VIS-À-VIS 2017



Note 1. Media Prima excludes print revenue
2. ASTRO revenue adjusted by calendar year

Source: Industry, MCMC
Figure 1.19 Broadcasting Sector Revenue 2018 vis-à-vis 2017

BROADCASTING SECTOR REVENUE BY SEGMENT 2018 VIS-À-VIS 2017



Note 1. Media Prima excludes print revenue
2. ASTRO revenue adjusted by calendar year

Source: Industry, MCMC
Figure 1.20 Broadcasting Sector Revenue by Segment 2018 vis-à-vis 2017

Broadcasters continue to experience lower traditional advertising revenue due to macroeconomic factors, shift in viewing consumption and switching to digital media advertising. As such, broadcasters have promptly ramped up digital offerings (home and online shopping, mobile games, digital content) as well as growing digital advertising revenue.

Broadcasters continue to face competition from OTT players. The lower broadband prices with higher Internet speeds is expected to drive OTT consumption, which has lower subscription fees than those of Pay TV packages.

Analysts foresee challenging environment in the media industry to persist in 2019 amid soft advertising outlook and structural shifts towards digital platforms. Meanwhile, broadcasters continue to monetise their prime assets including content as well as digital marketing and advertising, e-commerce and others.

ACE Market Overview and Performance

The ACE Market of Bursa Malaysia was revamped from Malaysian Exchange of Securities Dealing and Automated Quotation (MESDAQ) Market, effective 3 August 2009. The ACE Market stands for Access, Certainty and Efficiency is an alternative market that acts as a fund raising platform for corporations from all business and economic sectors[6]. This provides an avenue for the relatively smaller but potential growth companies to source funds for future expansion.

Over the past few years, the ACE Market has witnessed some C&M licensees progressed through a transfer of their listing to the Main Market. The companies are namely M-Mode Bhd, OCK Group Bhd, GD Express Carrier Bhd and Asia Media Group Bhd. Such development marks a milestone for our licensees, and signifies their success in terms of the scale of business and financial performance. Additionally, such transfer further enhance licensee credibility and reputation through its profile as a company listed on the Main Market.

As at end 2018, there were nine ACE listed licensees under the CMA. This represents 7.5% of the total 120 companies listed on Bursa Malaysia ACE Market. These licensees mostly hold ASP licence.

LICENSEES ON ACE MARKET 2018

Company (ACE Listed)	Listing Date	Licensee (The company or subsidiary of ACE listed company)	Type of Licences*
Binasat Communications Bhd	2018	Satellite NOC Sdn Bhd	NFP (I) & NSP (I)
ManagePay Systems Bhd	2011	MPay Mobile Sdn Bhd	ASP
XOX Bhd	2011	XOX Com Sdn Bhd XOX Media Sdn Bhd	NSP (I) & ASP
Privasia Technology Bhd	2006	Privanet Sdn Bhd Privasat Sdn Bhd	NFP (I) & NSP (I)
Mexter Technology Bhd	2005	Mexcomm Sdn Bhd Ezymobile International Sdn Bhd	ASP
MNC Wireless Bhd	2005	MNC Wireless Bhd Moblife.TV Sdn Bhd	ASP
mTouche Technology Bhd	2005	mTouche International Sdn Bhd	ASP
N2N Connect Bhd	2005	N2N Global Solutions Sdn Bhd NGN Connection Sdn Bhd	ASP
REDtone International Bhd	2004	Redtone Engineering and Network Services Sdn Bhd Redtone Telecommunications Sdn Bhd Redtone Data Centre Sdn Bhd Redtone Mytel Sdn Bhd Sea Telco Engineering Services Sdn Bhd	NFP (I) & NSP (I) & ASP

**ASP – Applications Service Provider; NSP – Network Service Provider; NFP – Network Facilities Provider; I – Individual*
Note: As at end 2018, M3 Technologies (Asia) Bhd and Nexgram Holdings Bhd are no longer registered licensees under the CMA.

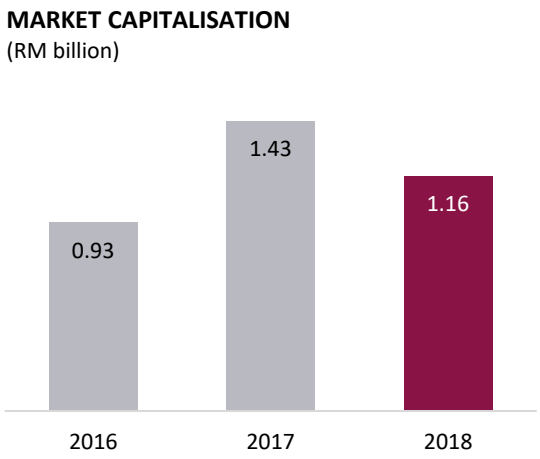
Source: Bursa Malaysia ACE Market, Industry, MCMC
Figure 1.21 Licensees on ACE Market 2018

[6] Bursa Malaysia, Annual Report 2009.

In 2018, market capitalisation for the nine CMA licensees listed on ACE Market was RM1.16 billion with revenue of RM628.48 million. This includes Binasat Communications Bhd, which was listed in January 2018 on ACE Market. Binasat, a provider of telecommunications support-services for satellite, mobile and fibre optic networks, recorded revenue of RM57.19 million for financial year ended June 2018.

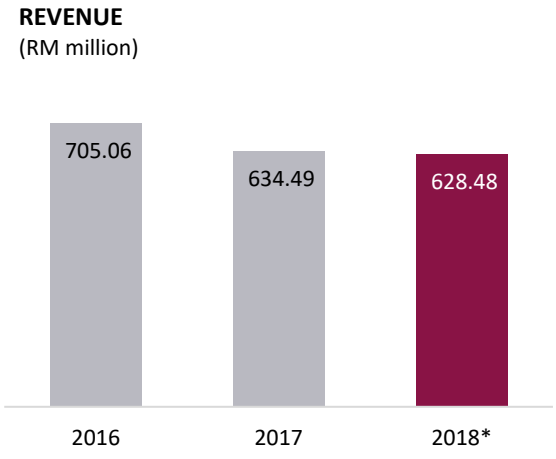
Courier licensee Landbridge Haulage (M) Sdn Bhd's parent company Tri-Mode System (M) Bhd was listed on ACE Market in May 2018. Note that M3 Technologies (Asia) Bhd and Nexgram Holdings Bhd are no longer registered licensees under the CMA.

LICENSEES ON ACE MARKET
MARKET CAPITALISATION 2016 – 2018



Source: Bloomberg, MCMC
Figure 1.22 Licensees on ACE Market: Market Capitalisation 2016 – 2018

LICENSEES ON ACE MARKET
REVENUE 2016 – 2018



**Estimated*

Source: Bloomberg, MCMC
Figure 1.23 Licensees on ACE Market: Revenue 2016 – 2018

This Page Intentionally Left Blank

MODULE 2: SERVICES AND CONNECTIVITY

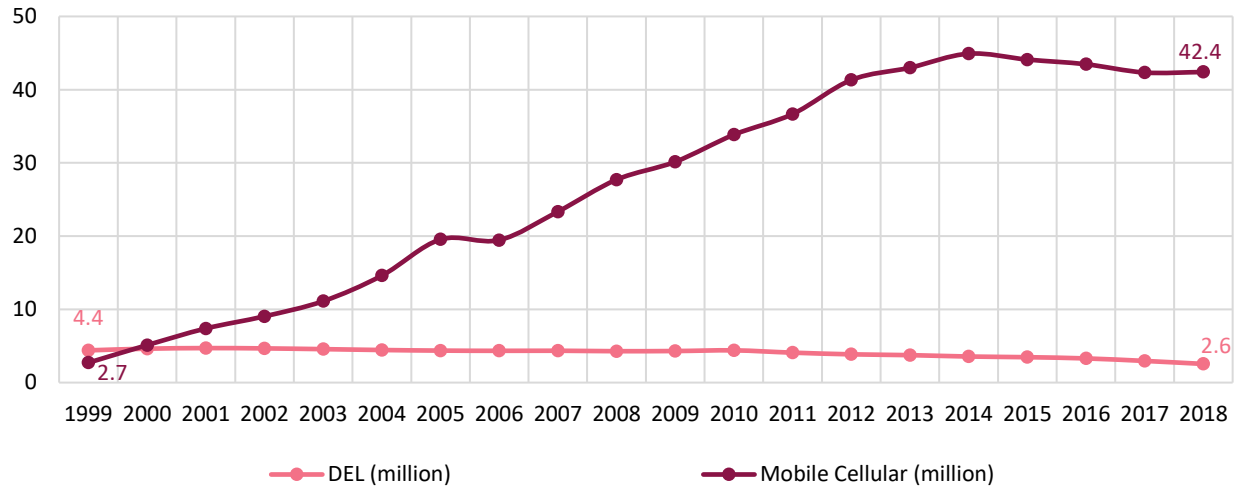
Connectivity Services

Connectivity services can be said to be the driver for the Malaysia service provider revenue growth over the last 20 years. Milestones include substitution of fixed voice to mobile and recently, mobile broadband.

For instance, as early as the year 2000, mobile cellular subscriptions surpassed Direct Exchange Line (DEL) subscriptions. In 2018, mobile cellular subscriptions was 42.4 million, while DEL dropped to 2.6 million subscriptions from 4.6 million in 2000. Mobile broadband subscriptions surpassed fixed broadband in 2010. In 2018, there are 2.7 million fixed broadband subscriptions and 36.8 million mobile broadband subscriptions or a ratio of 1:14.

These developments are captured in the profile of communications services subscription from 1999 to 2018 in Figure 2.1 and Figure 2.2.

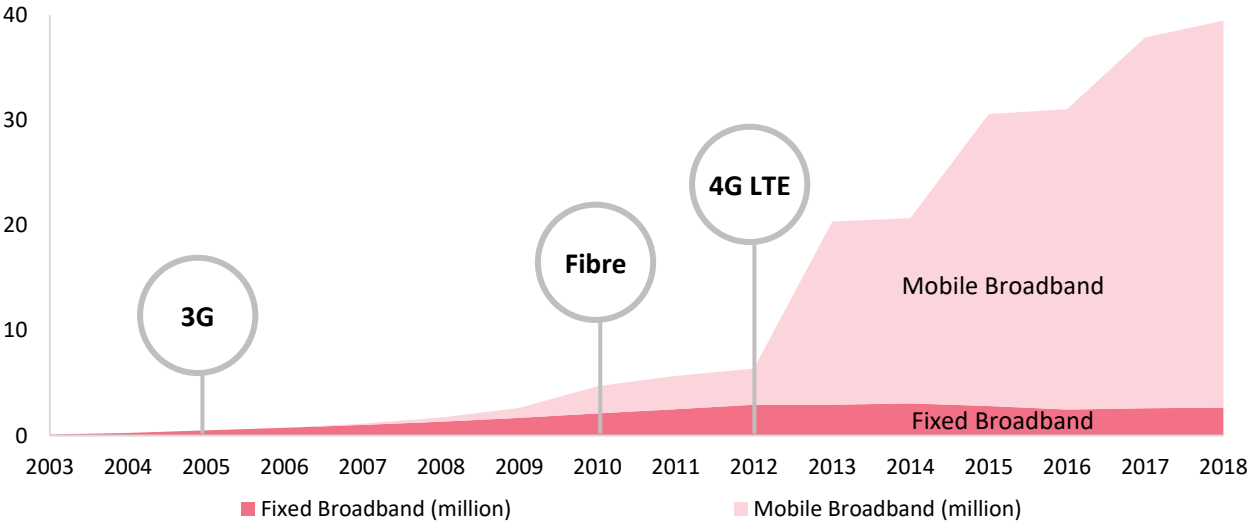
COMMUNICATIONS SERVICES DEVELOPMENTS 1999 – 2018



Source: MCMC

Figure 2.1 Communications Services Developments 1999 – 2018

BROADBAND DEVELOPMENTS 2003 – 2018



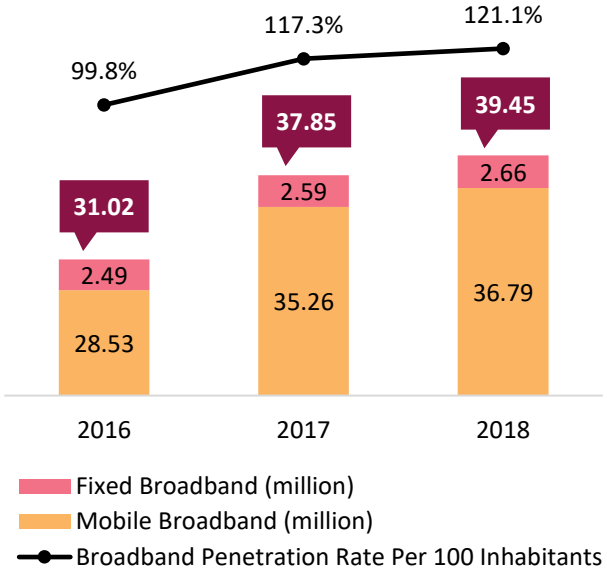
Source: MCMC

Figure 2.2 Broadband Developments 2003 – 2018

Broadband in Malaysia

In 2018, broadband subscriptions grew 4.2% to total 39.45 million in 2018 (2017: 37.85 million). This contributes to the national broadband penetration rate per 100 inhabitants of 121.1% in 2018 (2017: 117.3%). Mobile broadband constitutes 113% to national broadband penetration rate per 100 inhabitants while fixed broadband is at 8.2%.

BROADBAND SUBSCRIPTIONS AND PENETRATION RATE 2016 – 2018



Source: MCMC

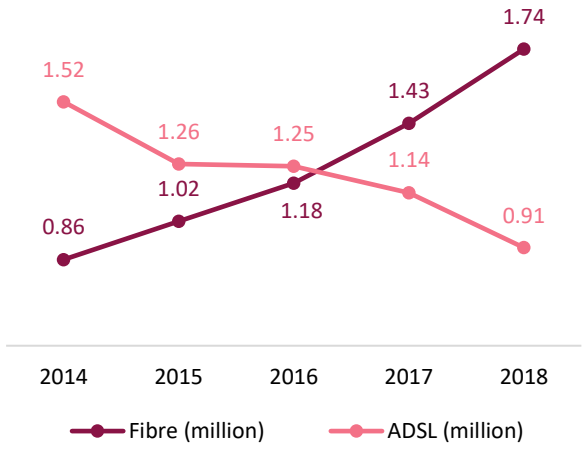
Figure 2.3 Broadband Subscriptions and Penetration Rate 2016 – 2018

Fixed broadband subscriptions increased 2.7% to 2.66 million in 2018 (2017: 2.59 million). This includes a three-month period of Government call for price reduction. In places where fixed broadband is not available, mobile broadband is an alternative for Internet access.

Mobile broadband subscriptions increased 1.53 million or 4.3% to 36.79 million (2017: 35.26 million). Factors driving mobile broadband subscriptions include improved network coverage, more attractive pricing plans, and consumer uptake of more connected devices meeting lifestyle conveniences.

Fixed Broadband

ADSL AND FIBRE SUBSCRIPTIONS 2014 – 2018



Source: MCMC

Figure 2.4 ADSL and Fibre Subscriptions 2014 – 2018

Fibre broadband has overtaken traditional Asymmetric Digital Subscriber Line (ADSL) in offering fixed broadband in 2017. Fibre broadband subscriptions has increased 21.7% to 1.74 million in 2018, constituting 65% of the fixed broadband market (2017: 1.43 million).

Take up of fibre broadband has accelerated by the reduction of broadband prices in conjunction with efforts taken by service providers and Government to facilitate take up.

In 2018, ADSL (Streamyx) take up declined by 20.2% to 0.91 million. Notably, TM is upgrading its network, implemented in different stages.

From 2008 to 2018, there were several initiatives at national level to improve the broadband infrastructure to enhance Malaysia digital connectivity readiness.

Note that High Speed Broadband Phase 2 (HSBB 2) completed in 2017 improves quality of broadband access, and enables the users in the major cities and high-impact economies areas throughout the country enjoying better broadband experience with speeds up to 100Mbps.

The Suburban Broadband (SUBB) initiative involves upgrading of the core network that connects 429 exchanges to the cabinet and extended to the residences or premises. It is targeted to be fully completed by end of 2019. In 2018, there were 762,330 premises passed for SUBB.

Rural Broadband (RBB) involves 177,460 premises passed and upgrading of 317 exchanges nationwide.

Suburban and underserved rural areas are also enabled with fixed broadband services that provides speeds up to 20Mbps.

Figure 2.5 shows the premises passed for broadband initiatives undertaken.

FIXED BROADBAND INITIATIVES

	HSBB 1	HSBB 2	SUBB	RBB
Project Timeline	2008 – 2012	2015 – 2017	2015 – 2019	2015 – Present
Speed	10Mbps and above	Up to 100Mbps	Up to 20Mbps	Up to 20Mbps
Premises Passed	3.6 million	943,190	762,330	177,460

Source: MCMC

Figure 2.5 Fixed Broadband Initiatives

DEVELOPMENT OF INTERNATIONAL AND DOMESTIC SUBMARINE CABLE NETWORKS

Malaysia continues to expand its international and domestic reach through investment in submarine cable systems. The year 2018 marked the completion of Domestic Submarine Cable Network initiative. This initiative, which began in 2017, involves installation of submarine fibre optic cable with a designed capacity of up to 12.8Tbps between mainland Peninsular Malaysia to Tioman Island, Pangkor Island and Perhentian Island with a total distance of 99km.

The objective of Domestic Submarine Cable Network initiative was to upgrade existing communication infrastructure network with fibre optic cables to provide high speed broadband access to the communities including tourists in these three islands as well as improving the socio-economic status of the locals. The breakdown of cable length of these islands are shown in Figure 2.6.

DOMESTIC SUBMARINE CABLE NETWORK

	Pangkor Island	Perhentian Island	Tioman Island
Project Timeline		2017 – 2018	
Design Capacity		Up to 12.8Tbps	
Total Cable Length (km)	4	21	74

Source: MCMC

Figure 2.6 Domestic Submarine Cable Network

To improve quality of service and support increasing demand, the last few years has seen completion of a series of new submarine cable systems construction as follows:

- **Sistem Kabel Rakyat Malaysia** submarine cable system connecting Peninsular Malaysia with Sabah and Sarawak was completed on 30 May 2017, ahead of targeted timeline of 30 June 2017. This is a total length of 3,820km cable spanning six Submarine Cable Landing Centres located in Kuantan, Mersing, Kota Kinabalu, Kuching, Bintulu and Miri. Started in 2014, it provides lit capacity[7] of 4Tbps and can be upgraded to maximum design capacity[8] of 12.8Tbps for future demand.

- **Malaysia-Cambodia-Thailand (MCT)** submarine cable system was completed. Its total length is 1,300km and span the cable landing stations in Cherating in Malaysia, Sihannoukville in Cambodia and Rayong in Thailand. The system delivers initial lit capacity of 1.5Tbps and can be upgraded to maximum design capacity of 30Tbps.

- **Labuan-Brunei Cable (LBC)**, with a total length of 52km, connecting Brunei and Labuan Island. The system deliver a total capacity of 9.6Tbps.

[7] Lit capacity refers to the actual capacity that is available for use on a submarine cable.

[8] Design capacity refers to the maximum capacity of the submarine cable if it were fully equipped.

- **Bay of Bengal (BBG)** submarine cable system connecting South East Asia, Sri Lanka, India and the Middle East; contributing additional 900Gbps design capacity to Malaysia specifically for South East Asia – Middle East route.

- **Asia-Africa-Europe-1 (AAE-1)** submarine cable systems, with a total length of 25,000km, connecting Asia and Europe via the Middle East. The system deliver a total capacity of 50Tbps.

- **Asia Pacific Gateway (APG)** submarine cable systems, with a total length of 10,400km, connecting Malaysia to Japan and South Korea. The system delivers a total capacity of more than 54Tbps.

- **Southeast Asia – Middle East – Western Europe 5 (SEA-ME-WE 5)** submarine cable system, with a total length of 20,000km, linking 16 countries including Malaysia in Southeast Asia, the Middle East and Europe. The system delivers a total capacity of 24Tbps.

These investments will continue to boost the development of multi-services hub ecosystem, involving submarine cable systems, data centres, and Points-of-Presence (PoPs) in Malaysia to international.

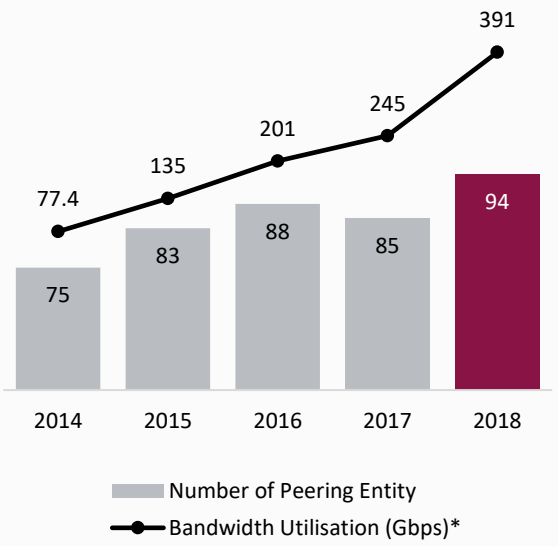
With extensive domestic connectivity, network infrastructure and collective expertise, Malaysia continues to strengthen collaborations with both domestic and international players.

Source: TeleGeography, Industry, MCMC

MALAYSIA INTERNET EXCHANGE (MyIX)

Malaysia Internet Exchange or MyIX aims to keep domestic Internet traffic and to promote the exchange of global Internet traffic in the country. It is a non-profit neutral Internet Exchange platform started in 2006, where Internet Service Providers (ISPs) and content providers connect and peer.

MyIX BANDWIDTH UTILISATION AND PEERING TREND 2014 – 2018



**As at December*

Source: MyIX, MCMC

Figure 2.7 MyIX Bandwidth Utilisation and Peering Trend 2014 – 2018

Over the years, the MyIX bandwidth utilisation and peering entities have increased as shown in Figure 2.7. As at December 2018, the number of peering entities is 94, compared with 85 entities as at December 2017.

Throughout 2018, MyIX has several new providers including Telekomunikasi Indonesia International (M) Sdn Bhd, PCCW-HKT Network Services Limited and Imperva Inc.

As at December 2018, in terms of domestic Internet traffic exchange, the highest maximum bandwidth utilisation was at 391Gbps. This is an increase of 59.6% from 245Gbps as at December 2017.

According to MyIX[9], the 14th General Election (GE14) and 2018 FIFA World Cup has contributed to the increase in Internet consumption among Malaysians in 2018.

Internet bandwidth consumption is expected to grow due to:

- Increase in peering partners
- Increasing digital content and applications
- Predominant bandwidth-intensive types of traffic such as video streaming
- Widespread adoption of cloud-based solutions

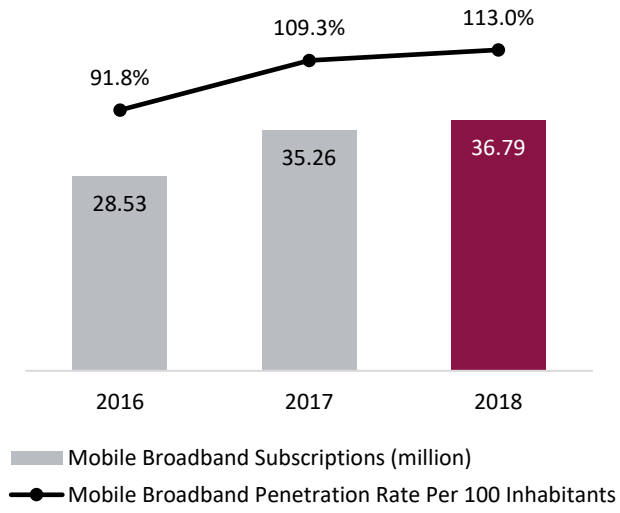
The combination of trends above has resulted in an exponential growth of Internet traffic. It also fuels the need for Internet exchange in order to deliver content and bring connectivity closer to end users. This will reduce latency while saving cost on international transit.

[9] New Straits Times, Highest half-year Internet traffic peak touches 288Gbps: MyIX, 3 September 2018.

Mobile Broadband

The Malaysian broadband market is predominantly mobile with subscriptions totalling 36.79 million in 2018, supported by 3G and 4G LTE population coverage of 94.7% and 79.7% respectively. It is worth noting that by subscriptions, U Mobile market share of 18.2% has overtaken Celcom at 17.3%, whilst Digi and Maxis continue to lead at 30.1% and 24.3% respectively.

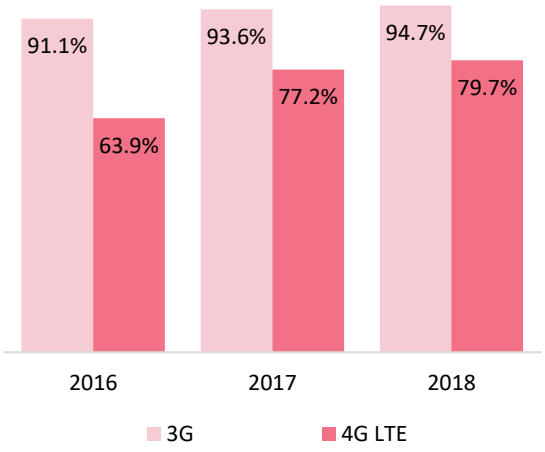
MOBILE BROADBAND SUBSCRIPTIONS AND PENETRATION RATE 2016 – 2018



Source: MCMC

Figure 2.8 Mobile Broadband Subscriptions and Penetration Rate 2016 – 2018

3G AND 4G LTE POPULATION COVERAGE 2016 – 2018



Source: MCMC

Figure 2.9 3G and 4G LTE Population Coverage 2016 – 2018

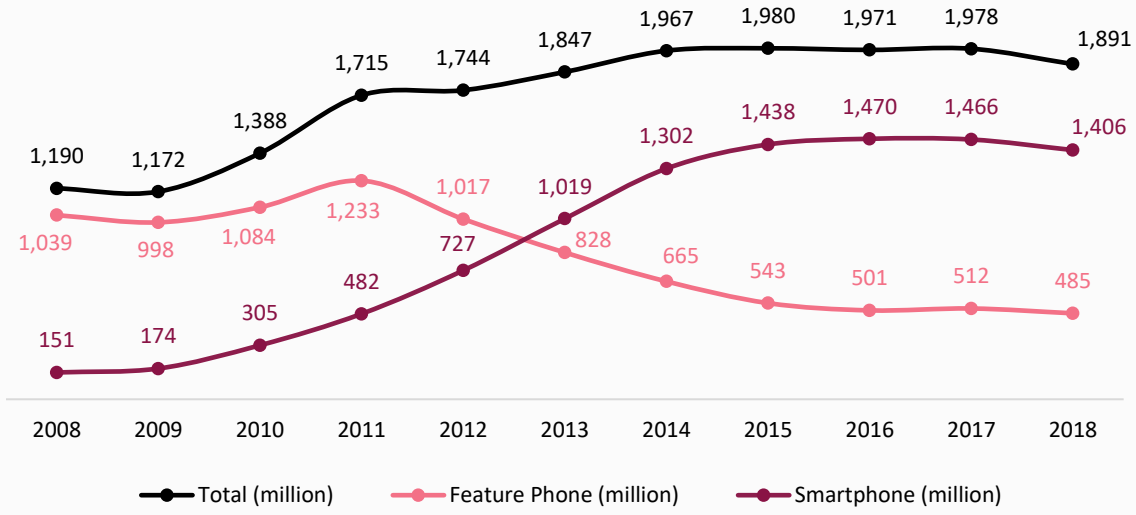
Wider coverage along with more affordable mobile data packages have increased usage of data-intensive content to suit digital lifestyle of Malaysians. Average mobile data prices per Gigabyte (GB) have declined for both prepaid and postpaid plan from as high as RM15 per GB in 2016 to as low as RM2 per GB in 2018. Going forward, we expect more data consumption in view of the more affordable prices.

SMARTPHONE JOURNEY

In 2018, global mobile phone market is tapering. In 2013, smartphones shipments has surpassed feature phone for the first time with 55% market share. By 2018, smartphone market share is more than 70%.

Strong demand from end users, aggressive marketing by vendors and a wide selection of devices available at various prices have fueled the growth of smartphones around the world.

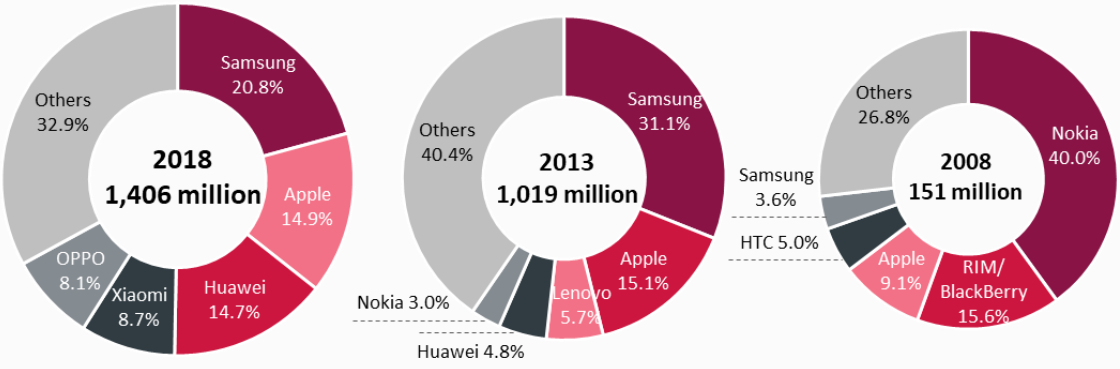
GLOBAL MOBILE PHONE SHIPMENTS 2008 – 2018



Source: Bloomberg, Various Sources

Figure 2.10 Global Mobile Phone Shipments 2008 – 2018

GLOBAL SMARTPHONE SHIPMENTS MARKET SHARE: TOP FIVE COMPANIES



Note: Others include Vivo, Transsion, LG, ZTE etc

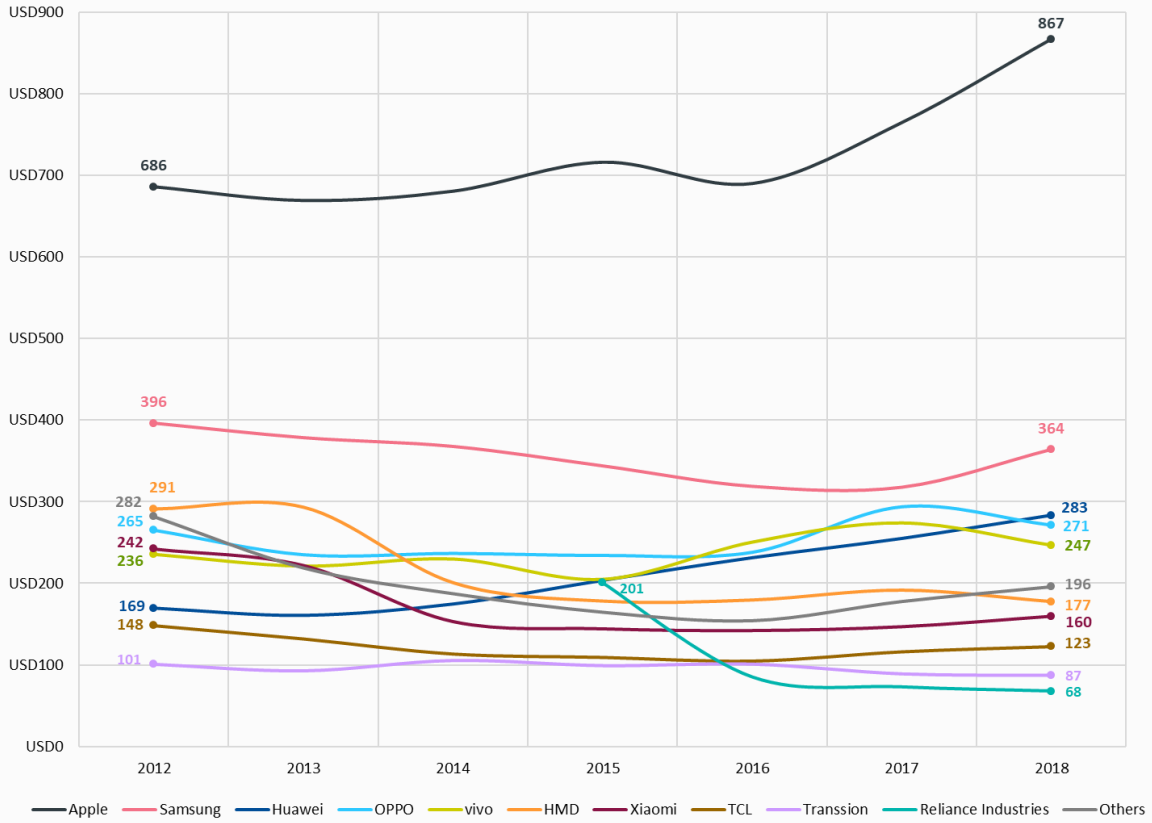
Source: Bloomberg, Various Sources

Figure 2.11 Global Smartphone Shipments Market Share: Top Five Companies

SMARTPHONE AVERAGE SELLING PRICE

Global average selling price for smartphones has risen 5.3% to USD258 in 2018 compared with USD245 in 2017. Smartphones now have larger screen displays, more features and increasing computing power including AI.

GLOBAL SMARTPHONE AVERAGE SELLING PRICE BY VENDOR 2012 – 2018



Source: Bloomberg

Figure 2.12 Global Smartphone Average Selling Price by Vendor 2012 – 2018

A GROWING CONNECTIVITY MARKET

As the global smartphone shipments slow down, attention of mobile phone manufacturers is shifting to new and more advanced devices.

Overall, 5G smartphone is expected to hit the market in 2019. These are seen to be in developed countries including China[10]. Aside from 5G smartphones, a number of new consumer technology is expected on the way with the arrival of 5G networks. Research firms expect the wearables market, which includes smartwatches, wristbands, eye wear, hearables, smart clothing and accessories, to expand[11] [12].

[10] Bloomberg Intelligence, 5G Smartphones Come to Market in 2019, December 2018.
[11] Gartner, Worldwide Wearable Device Sales to Grow 26 Percent in 2019, November 2018.
[12] CCS Insight, Global Wearables Forecast, 2017-2021, March 2017.

INTERNET USERS SURVEY 2018

The Internet Users Survey 2018 (IUS 2018)[13] is an MCMC annual survey, which provides information on characteristics and behaviours of Internet users in Malaysia. It also covers changes in user behaviour and trends.

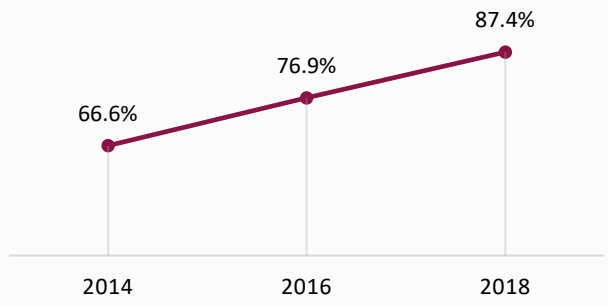
IUS 2018 focus on topics such as:

- Place and device of Internet access
- Time spent online
- Purpose of using Internet
- Social networking and messaging
- Online banking
- Online content sharing
- Demographics of Internet users

Respondents were selected at random and all interviews were conducted through MCMC Computer Assisted Telephone Interview (CATI) system.

The findings of the survey are as follows:

PERCENTAGE OF INTERNET USERS 2014 – 2018

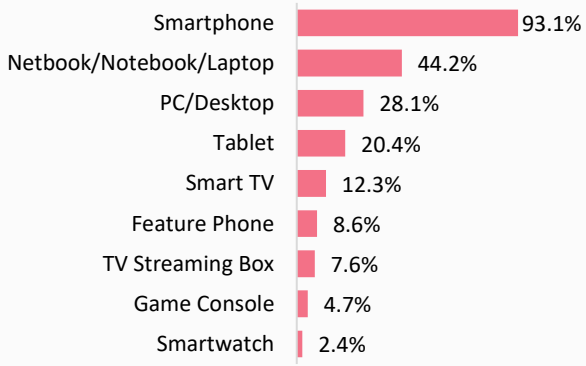


Source: MCMC

Figure 2.13 Percentage of Internet Users 2014 – 2018

- Percentage of Internet users continue to rise at national level, increased to 87.4% in 2018 from 76.9% in 2016.
- Older users are joining the online community. The mean age of Internet users in 2018 increased to 36.2 years, compared with 33.0 years in 2016. Internet users were mainly adults in their 20's and 30's, whereby they accounted for 30% and 25.9% respectively.

DEVICE TO ACCESS INTERNET



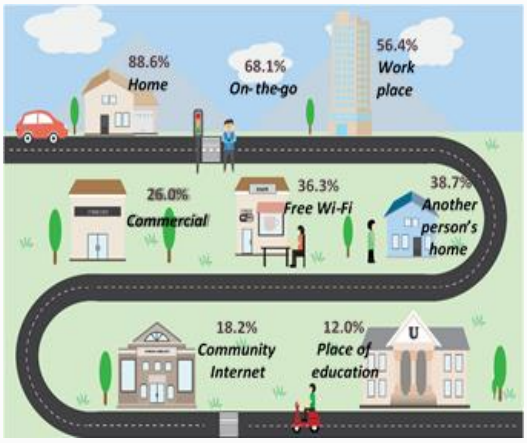
Source: MCMC

Figure 2.14 Device to access Internet

- Smartphone remains the most common device to access Internet. Nine out of 10 Internet users used smartphone (93.1%) to go online. Meanwhile, the use of fixed and home-based devices such as smart TV, TV streaming box and game console saw a steady increase over the years.

[13] https://www.skmm.gov.my/resources/statistics

PLACE TO ACCESS INTERNET

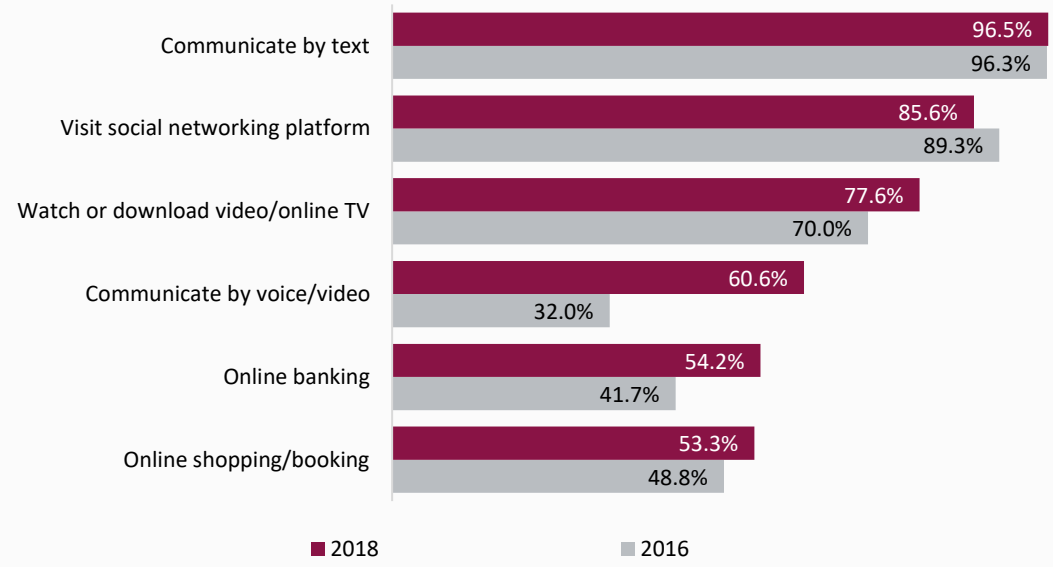


Source: MCMC

Figure 2.15 Place to access Internet

- Most users prefer to access the Internet from home. The IUS 2018 revealed that for both urban and rural users, 88.6% access the Internet at "home" largely because of being able to work from home; the home being a conducive learning environment for students and the Internet being a primary source of home entertainment. "On-the-go" ranked second (68.1%) followed by the "work place" (56.4%).

ONLINE ACTIVITIES BY INTERNET USERS (%)



Source: MCMC

Figure 2.16 Online Activities by Internet Users (%)

- Internet is a pivotal medium in social engagement. Text communication and visiting social networking platform are the most common activities for Internet users at 96.5% and 85.6% respectively. WhatsApp and Facebook are widely used communication and social networking platforms.

- Participation in online banking and financial activities is increasing. More than half of Internet users do online banking (54.2%) in 2018, compared with 41.7% in 2016. The main barriers for online banking adoption are consumer preference to physical ATM and bank branch as well as lack of confidence or skills. Checking account and transferring funds are most common online banking activities. Also, online shoppers have increased to 53.3% in 2018 from 48.8% in 2016.

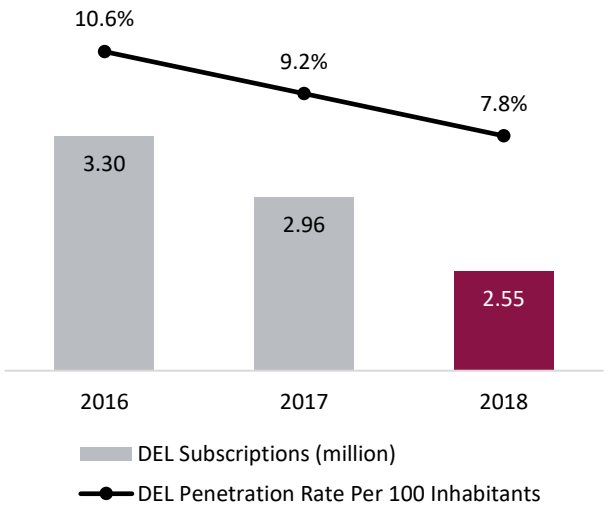
- Majority of Internet users share content online, that is, 61.8%. Educational and entertainment or humorous content were most shared. The content shared online are via social media (73.8%) and group messaging (70.6%). Users claimed to have taken precaution prior to sharing content online such as understanding the content and ensuring it is not obscene, menacing or offensive.

- Activities requiring high bandwidth capacity is on the rise. Faster speeds, cheaper mobile plans and devices as well as bigger data allowances contributed to increase in streaming, communication by voice or video, downloading online music and playing online games. For instance, 77.6% of users spent time streaming or downloading online videos as compared with 70% in 2016, while 60.6% use voice or video to communicate (2016: 32%).

- Take up for parental control tool is still low. In managing online risks to children, most parents (75.5%) prefer to set their own rules and limits of Internet usage for their children, including being present when their children are online, rather than use available parental control tools (12.2%).

Fixed and Mobile Cellular Services

DEL SUBSCRIPTIONS AND PENETRATION RATE 2016 – 2018



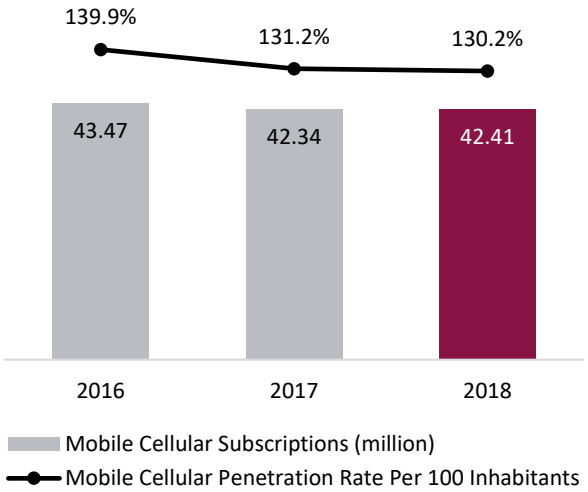
Source: MCMC

Figure 2.17 DEL Subscriptions and Penetration Rate 2016 – 2018

DEL subscriptions have been in decline for a long time. In 2018, DEL subscriptions declined 13.9% to 2.55 million, with penetration rate per 100 inhabitants at 7.8%. The distribution between residential and business were at 57% and 43% respectively.

Mobile cellular market in 2018 has a penetration rate per 100 inhabitants of 130.2%. Many users have more than one subscription, taking advantage of competitive voice or data plans offered by different service providers, or to make best use of network coverage and call quality in different locations. Additionally, subscribers use multiple phones or dual-SIM phones to differentiate between professional and personal uses.

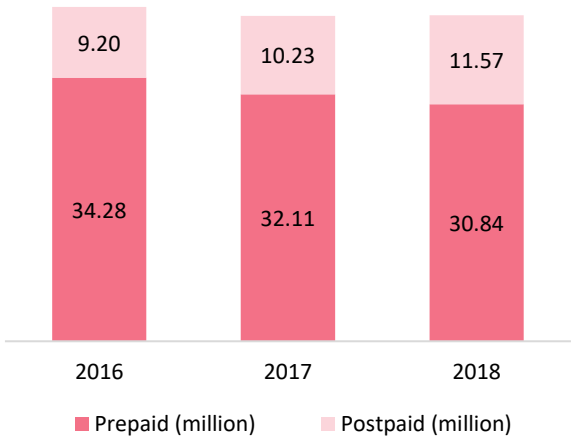
MOBILE CELLULAR SUBSCRIPTIONS AND PENETRATION RATE 2016 – 2018



Source: MCMC

Figure 2.18 Mobile Cellular Subscriptions and Penetration Rate 2016 – 2018

PREPAID AND POSTPAID SUBSCRIPTIONS 2016 – 2018



Source: MCMC

Figure 2.19 Prepaid and Postpaid Subscriptions 2016 – 2018

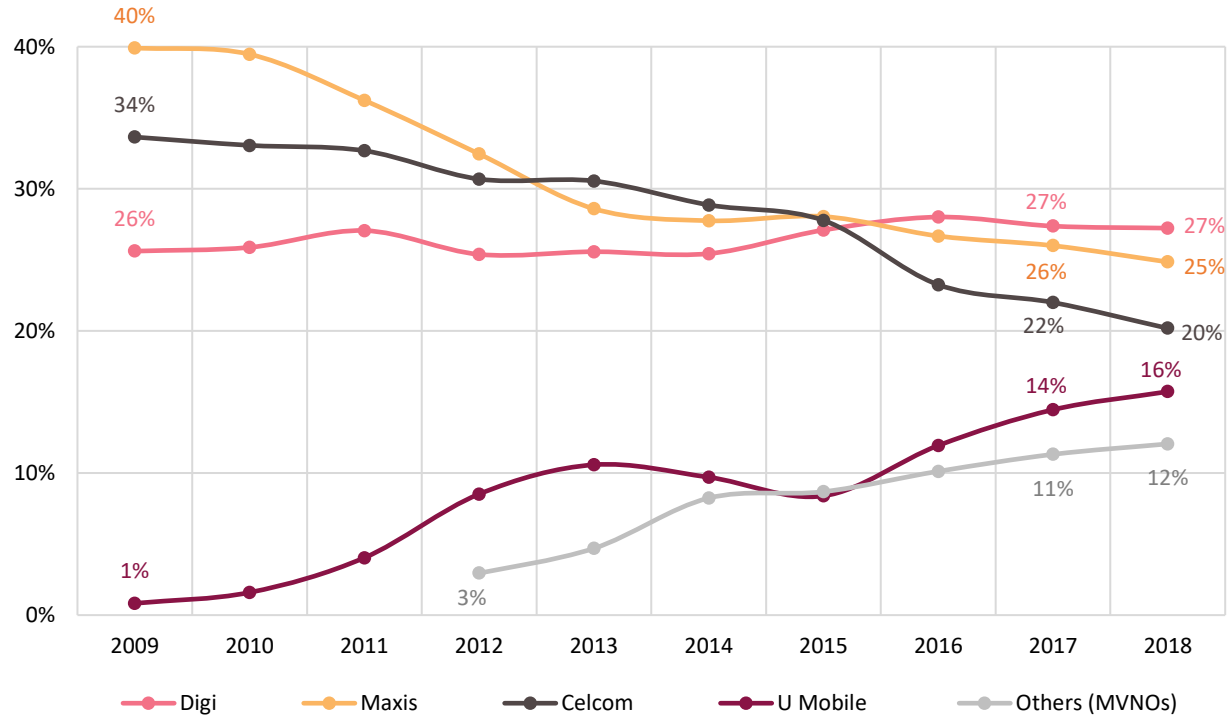
Overall, the mobile market has more prepaid than postpaid subscriptions. In 2018, the prepaid market comprises 73% or 30.84 million subscriptions, while postpaid was at 27% (11.57 million subscriptions).

Postpaid subscriptions grew by 13.2%, while prepaid has declined 4% in 2018. The positive take up in postpaid was driven by increased demand for plan upgrades including conversion from prepaid to postpaid. Service providers continue to increase ARPU by migrating subscribers onto postpaid plans, which have more attractive data packages bundled with smartphones, free or discounted access to mobile apps and roaming.

Digi has highest market share by subscriptions; U Mobile and Mobile Virtual Network Operators (MVNOs) market share is gaining ground

In respect of subscriptions market share, Digi has the highest share of 27%, followed by Maxis (25%) and Celcom (20%). The remainder is from U Mobile and MVNOs, with 16% and 12% share respectively.

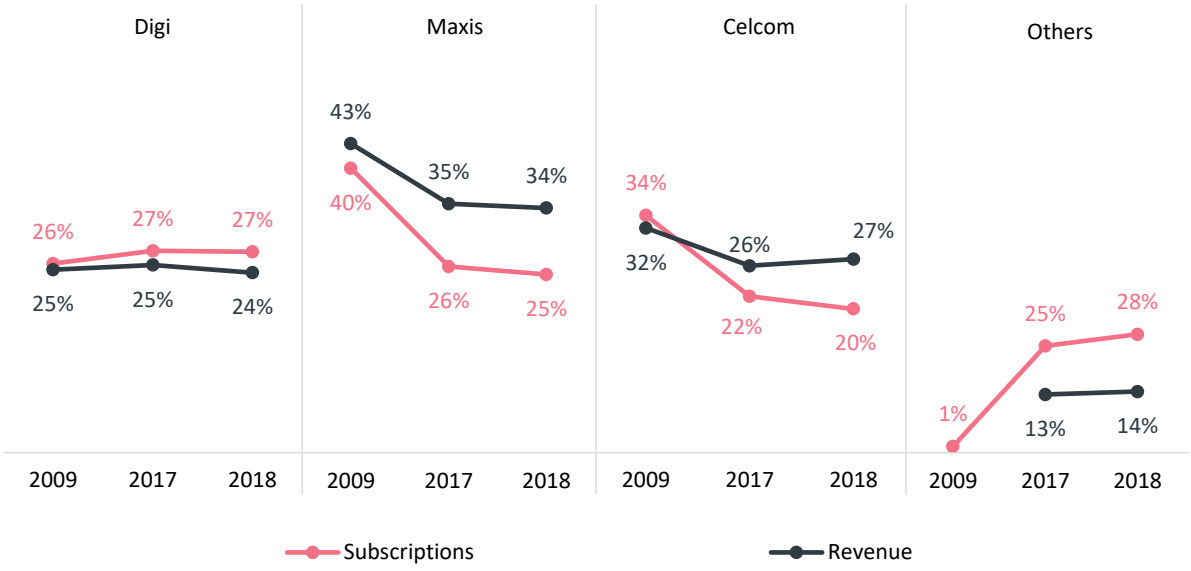
MOBILE CELLULAR SUBSCRIPTIONS MARKET SHARE BY SERVICE PROVIDERS 2009 – 2018



Source: MCMC

Figure 2.20 Mobile Cellular Subscriptions Market Share by Service Providers 2009 – 2018

MOBILE MARKET SHARE BY SUBSCRIPTIONS AND REVENUE



Note: Others include U Mobile and MVNOs

Source: Industry, MCMC

Figure 2.21 Mobile Market Share by Subscriptions and Revenue

Since 2016, Digi has the highest mobile cellular subscriptions (Figure 2.20), maintaining its share around 26% – 28%. However, Maxis revenue is highest among its peers, contributed by high-spending subscribers (Figure 2.21). It is observed that U Mobile and MVNOs market share is gaining ground. This is due to aggressive marketing, continuously upgrading and revising product offerings and pricing.

For instance, in 2018, U Mobile introduced new *Giler Unlimited* plans for postpaid and prepaid with unlimited data for all apps on smartphones including music, video, social media, games and others. Their strategies have created competitive advantage to attract subscribers with their new GX50 postpaid plan priced at RM50 and GX30 prepaid plan at RM30. U Mobile[14] indicated that both GX50 and GX30 plans are their best-selling packages in 2018.

MVNOs also continued making improvements in their products and services, striving to attract more subscribers. For example, XOX has introduced the option to allow subscribers to carry forward unused data, call minutes and SMS under its packages namely *ONEXOX BLACK*.

Red One[15] has revamped its postpaid plan with an upgrade of high speed data quota. The new *Amazing48+* postpaid plan allows subscribers to enjoy 15GB of 4G LTE data and 5GB basic Internet (previously 10GB 4G LTE data and 10GB basic Internet) without changing the price point. Red One indicated their postpaid subscriptions reached one million for the first time in 2018. The company achievements are due to simple and practical packages with monthly commitment rate of RM8.

Telecommunications services continued as main source of revenue, while new digital businesses provide new revenue streams

Taking a share of the consumer wallet is increasingly challenging for telecommunications companies. To that end, service providers are concentrating their efforts on customer retention and generating more revenue from existing subscribers. In addition, they are moving beyond their traditional business to explore new opportunities in a fast-changing competitive landscape.

In Malaysia, the mobile service providers have introduced their digital mobile services namely Yoodo by Celcom, Ookyo (Maxis) and Tapp (Digi) to target digital natives. Digital mobile services allow subscribers to customise their mobile plans based on individual needs as well as distribute SIM cards via a virtual store. Hence, service providers is able to tap into younger consumers.

In addition, service providers are focusing on the provision of digital ancillary services. For instance, Digi's digital offering of financial technology (vcash) and B2B sales system (iJual). Axiata digital business initiatives are in the areas of financial technology (BOOST), advertising technology (ADA) and API marketplace (Apigate).

[14] MCMC questionnaire to licensees on industry performance.
[15] Ibid.

MVNO Services

MVNO service model represents an opportunity for companies from non-telecommunications industry to penetrate this highly competitive market. At the same time, they can contribute to growing the telecommunications market from different perspectives.

In 2018, 19 licensees have deployed MVNO services (Figure 2.22). These MVNOs[16] have captured 12% of market share or 5.11 million subscriptions in 2018 (2017: 11% or 4.79 million subscriptions). The market has been growing over the past three years, attributed to growth in travel and its related services, branding and niche markets.

List of MVNOs 2018

Mobile Network Operator (MNO)	Thick MVNO[17]	Thin MVNO[18]
Celcom Axiata	• Altel Communications Sdn Bhd (Altel) • Red ONE Network Sdn Bhd (redONE) • Tune Talk Sdn Bhd (Tune Talk) • XOX Com Sdn Bhd (XOX) • Webe Digital Sdn Bhd (webe)	• Merchantrade Asia Sdn Bhd (Merchantrade Asia) • PLDT Malaysia Sdn Bhd (Smart Pinoy)
U Mobile	• Ceres Telecom Sdn Bhd (FRiENDi Mobile) • Telekomunikasi Indonesia (Malaysia) Sdn Bhd (Telin)	• ECI Communications Sdn Bhd (ECI) • Bd Phone Sdn Bhd (Bd Phone) • Mobile 8 Telco Sdn Bhd (Buzz Me) • Mpay Mobile Sdn Bhd (Mpay Mobile) • Uni Comms International Sdn Bhd (UCSI) • Monspace Sky Communication Sdn Bhd (Monspace 365)
Digi	• Talk Focus Sdn Bhd (Tron) • Xiddig Cellular Communications Sdn Bhd (XiddiG)	• Pavo Communications Sdn Bhd (SpeakOut Wireless and Mcalls)
Maxis	-	• REDtone Engineering and Network Services Sdn Bhd (ANSAR Mobile)

Source: MCMC
Figure 2.22 List of MVNOs 2018

16 A licensee is capable of providing public cellular services to end users by accessing radio networks of one or more spectrum holders. A MVNO fulfils at least one of the following criteria:
i. Requires radio access from another service provider;
ii. Requires infrastructures from another service provider to enable services to be provided to the subscribers; or
iii. Subscribes to the wholesale service(s) provided by another service provider.

17 Thick MVNO is defined as a service provider who owns ASP and NSP (I). They might have NFP (I) occasionally.

18 Thin MVNO is defined as a service provider who owns ASP licence only.

In December 2018, Talk Focus Sdn Bhd (brand name TRON) and Enabling Asia Tech Sdn Bhd have terminated their MVNO services through the issuance of a termination notice. Their decision to stop providing MVNO services is due to commercial and financial reasons.

At point of termination notice, Enabling Asia Tech Sdn Bhd has aggregated five thin MVNOs as follows:

1. Bd Phone Sdn Bhd (Bd Phone)
2. Mobile 8 Telco Sdn Bhd (Buzz Me)
3. Mpay Mobile Sdn Bhd (Mpay Mobile)
4. Uni Comms International Sdn Bhd (Unicomms)
5. Monspace Sky Communication Sdn Bhd (Monspace365)

Enabling Asia Tech Sdn Bhd has complied with the Mandatory Standard for the Provision of Services through a Mobile Virtual Network in terms of subscriber migration and refund. Meanwhile, MCMC is monitoring and engaging Talk Focus Sdn Bhd to ensure they comply with the mandatory standard.

MODULE 3: CONTENT SERVICES

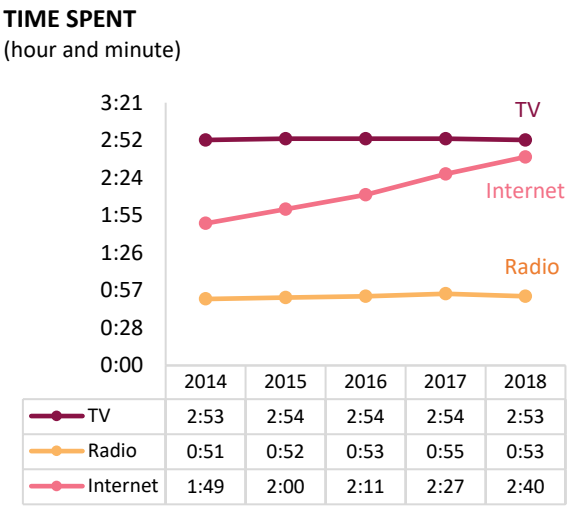
Media Landscape Overview

Media consumption continues to grow

Globally, media consumption over the last five years grew by 42 minutes (9.8%), that is, users consumed 7 hours 51 minutes a day in 2018 compared with 7 hours 9 minutes in 2014. In 2018, Internet consumption constituted 2 hours 40 minutes, almost double that in 2014 at 1 hour 49 minutes (Figure 3.1).

Meanwhile, consumption for TV (2 hours 53 minutes) and radio (53 minutes) remained almost unchanged during the same period. The growth in Internet consumption was driven particularly over the mobile platform.

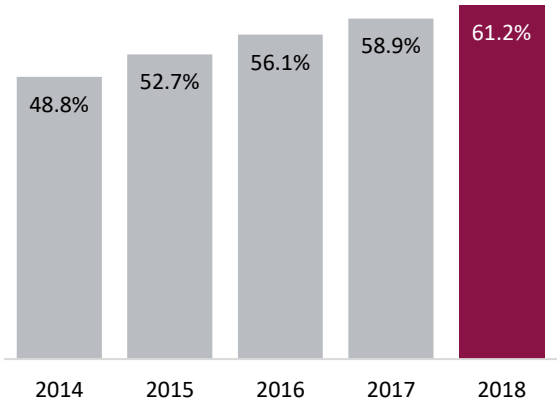
MEDIA CONSUMPTION 2014 – 2018: GLOBAL



	2014	2015	2016	2017	2018
TV	2:53	2:54	2:54	2:54	2:53
Radio	0:51	0:52	0:53	0:55	0:53
Internet	1:49	2:00	2:11	2:27	2:40

Source: Zenith, Media Consumption Forecast 2018
Figure 3.1 Media Consumption 2014 – 2018: Global

MOBILE PHONE INTERNET USER PENETRATION WORLDWIDE 2014 – 2018



Note: Estimates for 2016 to 2018

Source: Statista
Figure 3.2 Mobile Phone Internet User Penetration Worldwide 2014 – 2018

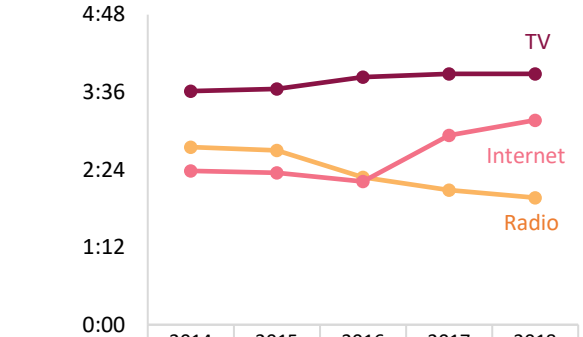
The global mobile phone Internet penetration is expected to grow to 61.2% in 2018 from 58.9% in 2017 (Figure 3.2). The higher proportion of Internet users on mobile devices together with higher speed is offering opportunities for consumers to consume more media content. Hence, service providers offering new services can reduce churn and grow their market accordingly.

Time spent on Internet has moved at a faster pace with 8% to 15% growth in the past five years to be almost comparable to TV. In 2018, the Internet consumption was 13 minutes lower than time spent watching TV. The gap is expected to narrow further.

Note that the Internet time spent comprises all online activities such as browsing websites, including watching TV and video content. Audience today consume video content over linear TV as well as through the Internet via multiple devices such as desktop, smartphone and connected TV.

MEDIA CONSUMPTION 2014 – 2018: MALAYSIA

TIME SPENT
(hour and minute)



	2014	2015	2016	2017	2018
TV	3:37	3:39	3:50	3:53	3:53
Radio	2:45	2:42	2:17	2:05	1:58
Internet	2:23	2:21	2:13	2:56	3:10

Source: Zenith, Media Consumption Forecast 2017; Roy Morgan Research; Nielsen Media Index; IMS Clear; Nielsen Consumer & Media View Q4/2015
Figure 3.3 Media Consumption 2014 – 2018: Malaysia

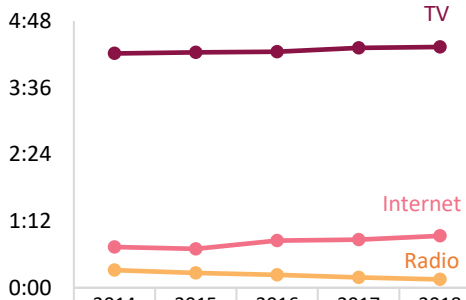
Media consumption for Malaysia, selected ASEAN and developed nations as with global trend, show overall increase in Internet consumption. In Hong Kong, Singapore, Thailand and UK, the Internet consumption is relatively higher than TV while Indonesia, Malaysia and US continue to favour TV over Internet.

Specifically, in Malaysia and US, Internet consumption has increased more dramatically over the last three years compared with TV. It is expected that Internet consumption will surpass TV in the next few years.

MEDIA CONSUMPTION 2014 – 2018: SELECTED COUNTRIES

Indonesia

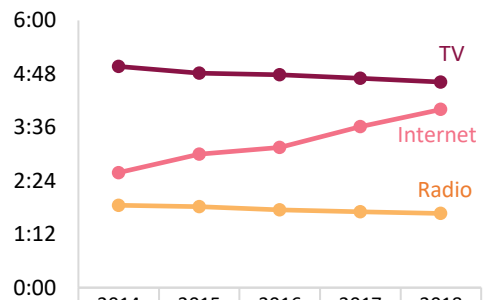
TIME SPENT
(hour and minute)



	2014	2015	2016	2017	2018
TV	4:13	4:14	4:15	4:19	4:20
Radio	0:19	0:16	0:14	0:11	0:09
Internet	0:44	0:42	0:51	0:52	0:56

United States

TIME SPENT
(hour and minute)



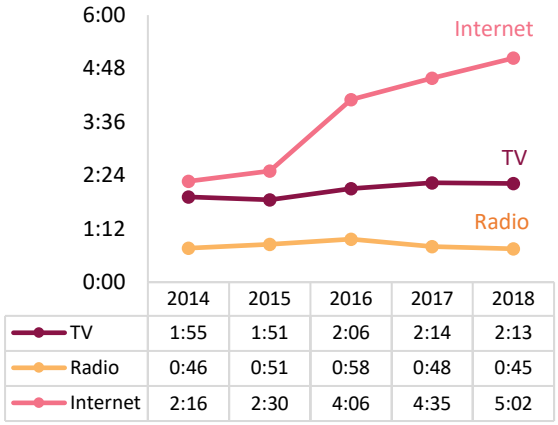
	2014	2015	2016	2017	2018
TV	4:58	4:49	4:47	4:42	4:37
Radio	1:51	1:49	1:45	1:42	1:40
Internet	2:35	3:00	3:09	3:37	4:00

Source: Zenith, Media Consumption Forecast 2017; Roy Morgan Research; Nielsen Media Index; IMS Clear; Nielsen Consumer and Media View 4 Q 2015
Figure 3.4 Media Consumption 2014 – 2018: Selected Countries

City-states such as Hong Kong and Singapore already experience high Internet consumption at 5 hours 2 minutes and 7 hours 29 minutes respectively in 2018. Over the past five years, Internet consumption for the city-states is already way ahead of TV and radio. As for Thailand and UK, Internet consumption has surpassed TV in 2016 and 2017 respectively.

Hong Kong

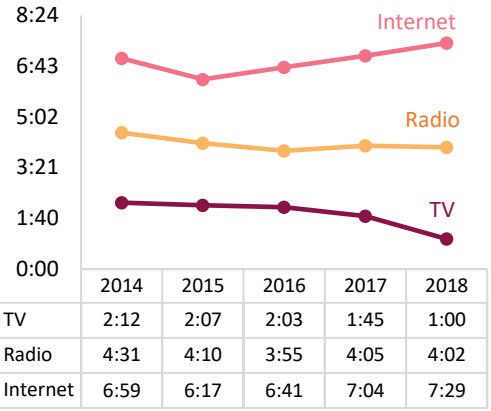
TIME SPENT
(hour and minute)



	2014	2015	2016	2017	2018
TV	1:55	1:51	2:06	2:14	2:13
Radio	0:46	0:51	0:58	0:48	0:45
Internet	2:16	2:30	4:06	4:35	5:02

Singapore

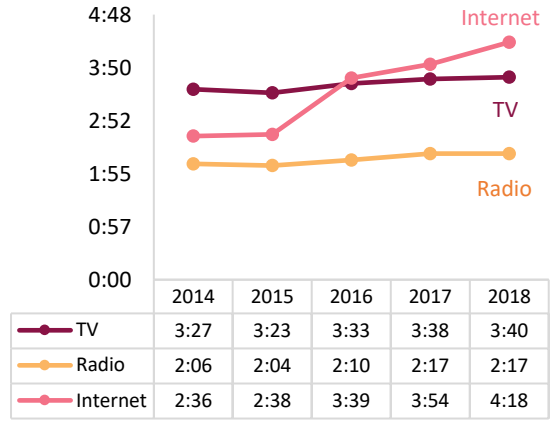
TIME SPENT
(hour and minute)



	2014	2015	2016	2017	2018
TV	2:12	2:07	2:03	1:45	1:00
Radio	4:31	4:10	3:55	4:05	4:02
Internet	6:59	6:17	6:41	7:04	7:29

Thailand

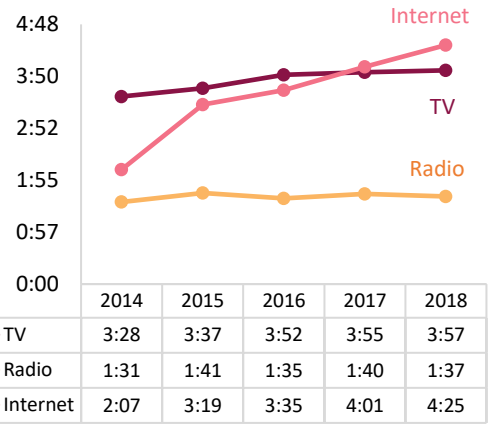
TIME SPENT
(hour and minute)



	2014	2015	2016	2017	2018
TV	3:27	3:23	3:33	3:38	3:40
Radio	2:06	2:04	2:10	2:17	2:17
Internet	2:36	2:38	3:39	3:54	4:18

United Kingdom

TIME SPENT
(hour and minute)



	2014	2015	2016	2017	2018
TV	3:28	3:37	3:52	3:55	3:57
Radio	1:31	1:41	1:35	1:40	1:37
Internet	2:07	3:19	3:35	4:01	4:25

Source: Zenith, Media Consumption Forecast 2017; Roy Morgan Research; Nielsen Media Index; IMS Clear; Nielsen Consumer & Media View Q4/2015

Figure 3.5 Media Consumption 2014 – 2018: Selected Countries (Cont'd)

Notably, video is one of the driving forces behind the shift of media consumption. Both TV and digital video are among the two most important media types for advertisers.

A survey comprising 300 advertising decision makers across the US and UK, revealed that video has become a top priority across all platforms, that is, about half of the respondents reports spending nearly one-quarter of their social budget on video[19].

Video nowadays is viewed over multi-platform such as TV set, mobile or other devices. Subsequently, this trend has contributed to higher Internet consumption over the years.

[19] Advertiser Perceptions, Making Audiences Actionable, June 2018.

Broadcasters Growing Business by Varying Content and Platform

Broadcasters are known for their strength of managing traditional TV business, generating revenue mainly from advertising or subscription business models. However, today, there is a need to optimise content value such as to offer content across multi-platform for greater operating efficiencies[20]. Therefore, a well-positioned broadcaster needs to strategise their business by enhancing operational efficiency and reduce operating expenses.

Local TV broadcasters comprising both Free-to-Air (FTA) and Pay TV service providers are offering services beyond their traditional content business. They are constantly diversifying and maximising their physical assets and capabilities around content such as intensifying home shopping. They also reach out to SMEs for their advertising content aside from selling content to other service providers such as telcos and overseas markets.

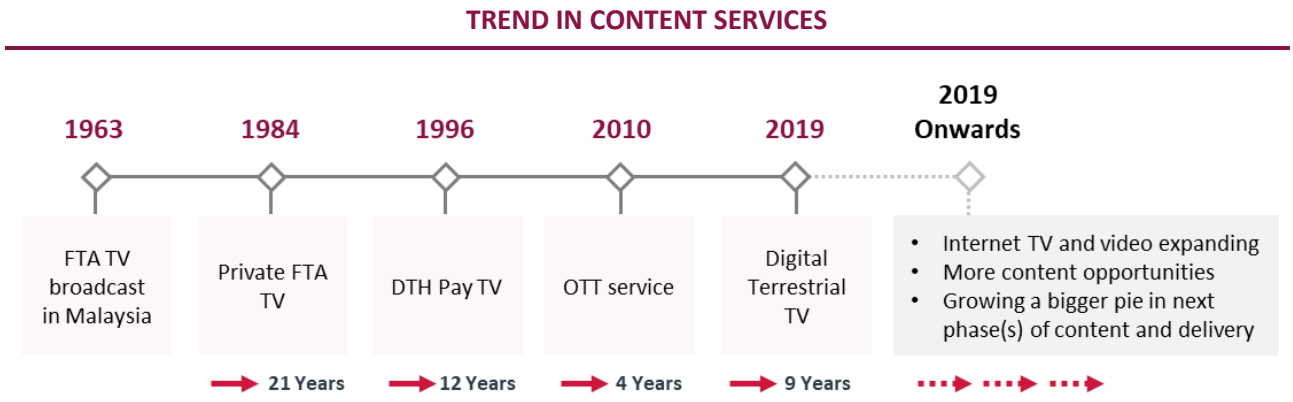
For instance, in December 2018, ASTRO announced that Netflix, a global OTT player, has acquired worldwide rights for its Hong Kong drama series namely *Demon's Path*. Produced in partnership with a Hong Kong production company, the drama is available to Netflix subscribers globally from 22 December 2018[21].

Fast Changing Broadcasting Landscape in Malaysia

Historically, Malaysian FTA TV Radio Televisyen Malaysia (RTM) commenced in 1963 with its first TV channel, followed by a second channel in 1969. Furthermore, in 1984, the first private TV station, Sistem Televisyen Malaysia Bhd (TV3), was launched; followed by Pay TV under ASTRO satellite broadcast Direct-to-Home (DTH) in 1996.

From this historical development summarised in Figure 3.6, broadcasting landscape took 21 years for private FTA TV to materialise in Malaysia and another 12 years for Pay TV to be offered in 1996. In 2019, analogue FTA TV is switching over to digital terrestrial TV.

OTT service by broadcasters was introduced four years later in 2010, and is prevalent over mobile platform and multi-player market.

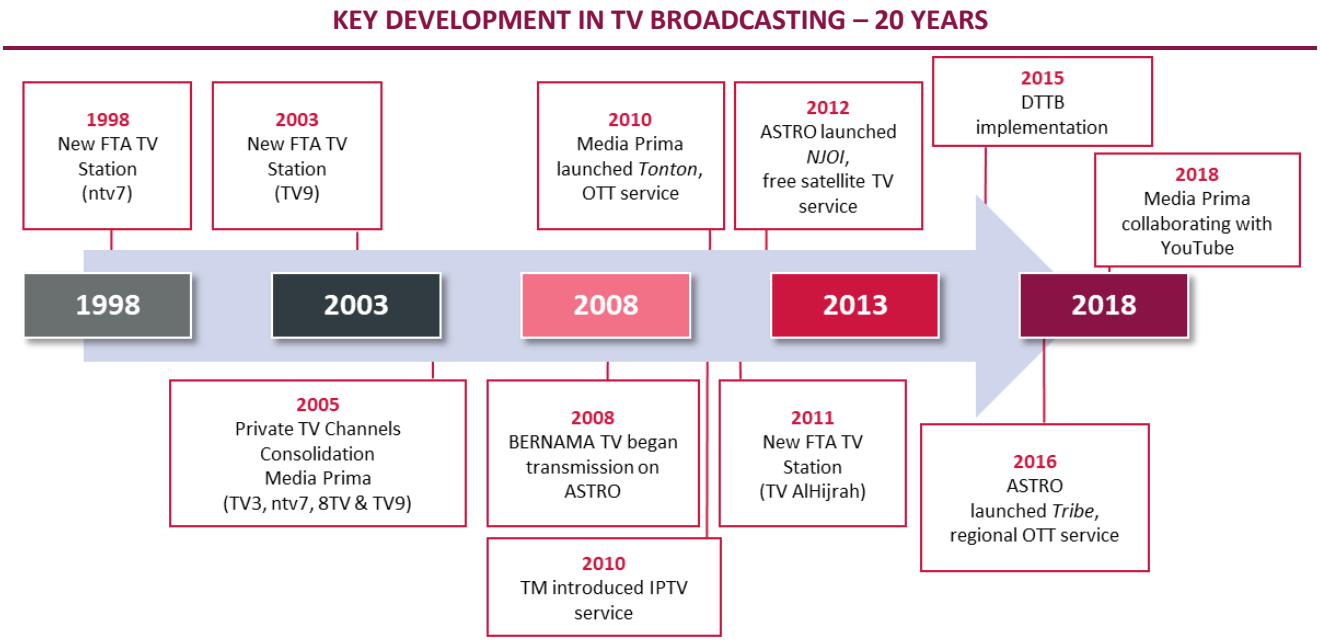


Source: MCMC
Figure 3.6 Trend in Content Services

[20] Asia-Pacific Broadcasting, ABU DBS 2018: Multi-platform delivery will optimise content value, April 2018.
[21] ASTRO, Netflix Buys Global Rights for Astro's First Hong Kong Original Mini Series, December 2018.

The trend in content services delivery is changing from "push" content to offering content over multi-platform and more personalised according to consumer behaviour. Content is even more important going forward as consumers change their viewing habits; creating a more fragmented broadcasting industry, or in other words, more segmented market for content opportunity.

Figure 3.7 shows selected broadcasting development in Malaysia from 1990s to present.



Source: Industry, MCMC

Figure 3.7 Key Development in TV Broadcasting – 20 Years

The convergence licensing framework under the CMA created avenues for change in the broadcasting industry. Today, content is delivered over multi-platform.

For example, telecommunications service providers such as TM is offering IPTV services together with voice and broadband. Consumers have more choice of content via hundreds of TV channels available in the market. In short, the broadcasting industry is more vibrant compared to only a few players back then.

Major broadcasters now distribute their content via dedicated access network and offer OTT services. These developments enable broadcasters to increase audience reach.

Figure 3.8 shows the major TV offerings in Malaysia.

MAJOR TV OFFERINGS IN MALAYSIA 2018

Service Provider		Platform		Core Business Model	Service			Number of Channel(s)
		Dedicated Network	OTT Service		Content	Broadband	Voice	
Terrestrial FTA TV	Media Prima	Analogue and DTTB	Yes	Advertising	✓	×	×	6
	TV AlHijrah	Analogue and DTTB		Advertising	✓	×	×	1
	Bernama News Channel	DTTB		Advertising	✓	×	×	1
Satellite TV	ASTRO	DTH Satellite		Pay TV subscription and free satellite TV service	✓	×	×	193 including 75 ASTRO branded channels
IPTV	ASTRO Maxis IPTV	Fibre			✓	✓	✓	
	ASTRO TIME IPTV	Fibre			✓	✓	✓	
	TM unifi TV	Fibre		IPTV service bundled with voice and broadband	✓	✓	✓	109 channels
		ADSL			✓	✓	✓	

Note 1. DTTB – Digital Terrestrial TV Broadcasting; DTH – Direct to Home
2. TV AlHijrah and Bernama News Channel are government-owned

Source: MCMC
Figure 3.8 Major TV Offerings in Malaysia 2018

FTA TV

FTA TV service providers across many Asian markets are under pressure, particularly for advertising revenue from digital media[22]. The competition comes from OTT video providers (iflix, Netflix and Viu) and others such as Google, Amazon and Facebook, which offer digital advertising.

In emerging Asian markets, FTA TV service providers are taking their linear TV offering to mobile and leveraging on the ongoing digital terrestrial switchover. They are exploring new business models supported by converging platforms. It is said that switchover to digital terrestrial can open multiple doors for FTA service providers[23]. In addition, industry experts believe that these service providers should aim to work with OTT providers on local or unique content, rather than competing directly with them[24].

Media Prima is an integrated media group comprising TV stations, print, radio stations, content creation, out-of-home advertising and digital media. The Group maintains its four main TV channels namely TV3, 8TV, ntv7 and TV9, while on DTTB platform, two TV channels have been recently aired namely *CJ Wow Shop* for home shopping and *Drama Sangat* on Malay drama series. Additionally, the Group owns *tonton*, a video streaming portal with more than 8.4 million registered users in 2018.

Media Prima core strategies include investing in more digital content, growing commerce revenue through integrated media and maximising the value of its existing assets. Notably, the Group ranked third in the country in terms of digital reach with 10.7 million unique visitors, behind Google and Facebook[25].

In January 2019, Media Prima acquired a 25% stake in Monster Scape Sdn Bhd[26], the owner and publisher of Chinese social news portal *TanTanNews*. The acquisition is expected to strengthen Media Prima position in digital media, in view of high demand for Chinese content.

Making Content More Accessible

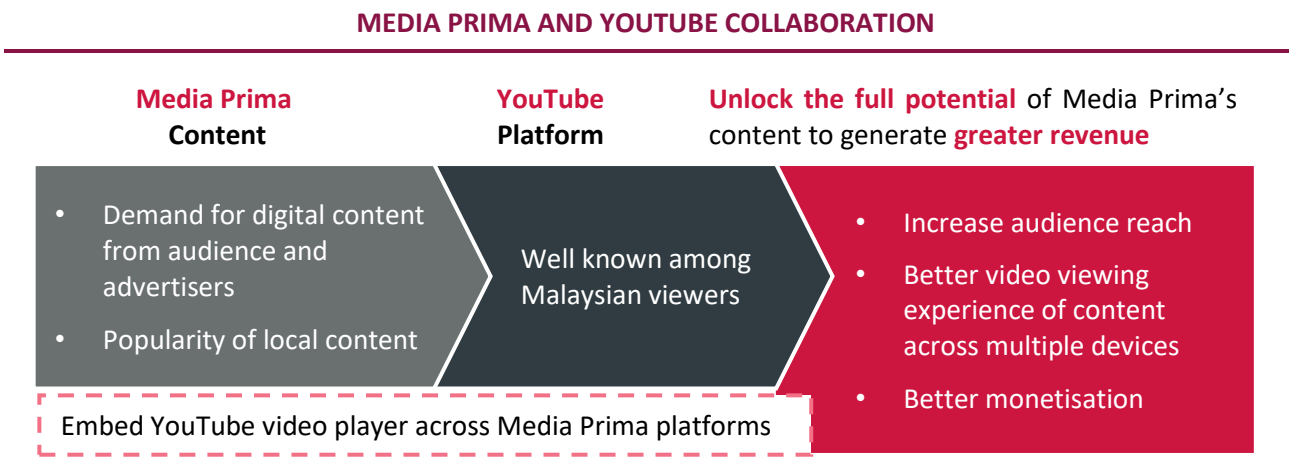
In August 2018, Media Prima announced that its *tonton* service will be offered at no cost, ceasing the subscription video-on-demand (SVOD) model. This is in line with the Group-wide business transformation strategy to increase revenue through innovative advertising such as targeted online audience.

In addition, Media Prima has collaborated with video sharing websites namely YouTube and Dailymotion by democratising their content for wider audience reach across multiple platforms. The collaboration allows binge watching of favourite shows and targeting advertising for audience who frequently watch video online.

Media Prima indicated that this collaboration could replace *tonton* as a more efficient content delivery method[27]. For the record, *tonton* is Malaysia's first VOD streaming service. Introduced in 2010, it offers Asian and international dramas, variety shows, films, telemovies, entertainment programmes and live events.

---

22 OVUM, Asian FTA broadcasters are embracing modern technologies to remain competitive and viable, July 2018.
23 Ibid.
24 IBC365, European broadcasters unite to fight FAANG, July 2018.
25 Media Prima, Investor Presentation, Financial & Business Review for the FYE 31st December 2018.
26 Rev Asia Holdings Sdn Bhd is an indirect wholly-owned subsidiary of Media Prima and acquired 25% Stake in TanTanNews.
27 The Edge Markets, Media Prima's YouTube tie-up may replace tonton, August 2018.



Source: Media Prima

Figure 3.9 Media Prima and YouTube Collaboration

Media Prima is using data management platform for its data analytics. This connects to their data warehouse to analyse user data and behaviour across its digital platforms and the data is linked to their omni-channel marketing tool. Media Prima also has several systems in place built on top of Google Cloud Environment[28].

Continued Investment in Local and Regional Content

According to Media Prima, its TV networks has a reach of 28 million viewers. In its Group's mission to keep audience informed and entertained, they have continued to invest in local and regional content. Media Prima indicated that programmes such as dramas and reality shows are costly to produce, hence, they emphasise on managing costs while maintaining overall production quality.

TV3, which is known for its local drama series, has new shows in 2018 such as *Vila Ghazara* and *Leftenan Zana*. On reality shows, TV3 features *Bintang Bersama Bintang*, *Da'i Season Six*, *Mentor Otai* and *Mentor 7*.

Furthermore, football fans can watch local football matches Liga Super, Piala FA and Piala Malaysia via TV9. The station also has a football-related live activity, that is, *Pentas Kita Juara*, as well as a mobile app (*Kita Juara*), which coincide with the sports. Media Prima also introduced two Turkish telenovelas on ntv7 titled *New Bride* and *Brave and Beautiful*.

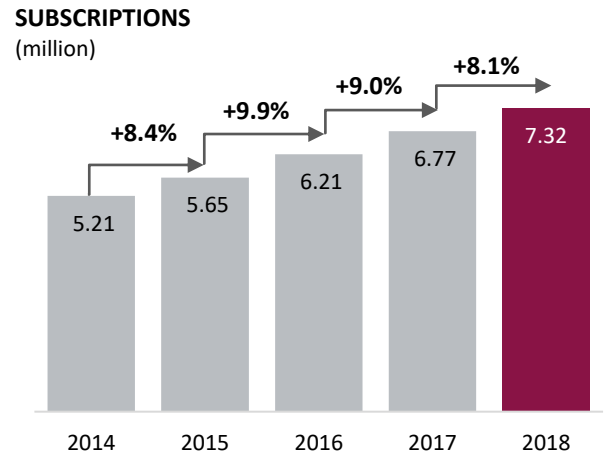
[28] MCMC questionnaire to licensees on industry performance.

Pay TV

Globally, the trends for Pay TV revolve around business transformation including big data analytics on user behaviour to enhance user experience and build new business models to increase ARPU. More service providers are expected to leverage on scale using cloud-based services and improve agility. Hence, they can effectively migrate to IP delivery of content, which improves user experience in meeting consumer demand[29].

In Malaysia, the overall Pay TV subscriptions comprising ASTRO and TM Unifi TV has been increasing for the past five years (Figure 3.10).

PAY TV SUBSCRIPTION 2014 – 2018



Source: MCMC
Figure 3.10 Pay TV Subscription 2014 – 2018

As at end 2018, the Pay TV subscriptions increased by 8.1% to 7.32 million from 6.77 million in 2017. However, the growth is at a slower pace compared with previous years.

In terms of household penetration, it has reached 87.3%, with 7.06 million household subscriptions.

ASTRO has 5.71 million subscriptions as at January 2019, increasing 4% from 5.49 million in the previous year. As at January 2019, ASTRO reported a total of 193 Pay TV channels, while 30 channels can be viewed via NJOI (no monthly subscription).

ASTRO home shopping segment, Go Shop achieved 1.8 million registered customers (January 2018: 1.3 million), whilst its mobile app, Astro Go, has reached 2.2 million registered users as at January 2019, an increase of 32% from 1.6 million a year ago.

ASTRO CUSTOMER VALUE PROPOSITION

Best in Class Content	Seamless Experience Across Devices	Exclusive Membership Privileges and Lifestyle Experience
• Vernacular content • Live sports • Premium user experience with 4K UHD channels/titles*	• Recording and on demand services with access to over 40,000 titles within ASTRO content library • Accessible on multiple devices • Seamless content with cloud Personal Video Recorder services*	• Rewards and privileges • Off-screen lifestyle engagement and experiences* • Exclusive bundle including broadband*

**Note: Denotes upcoming initiatives*

Source: ASTRO, 3Q FYE19 analyst briefing
Figure 3.11 ASTRO Customer Value Proposition

[29] Broadcastprome.com, Nagra outlines pay TV trends for 2018, February 2018.

ASTRO is investing significant resources in building an ecosystem for reach and scale, focusing on customer, digital, cloud and mobile-first as well as analytics-driven technologies. ASTRO also embarked on a digital transformation journey with Amazon Web Services to digitise business processes by employing a cloud-based infrastructure across its end-to-end value chain.

In 2018, ASTRO selected Telaria, a complete software platform to manage video advertising for premium publishers, as the video management platform. This partnership enables live TV inventory available on Astro GO apps and ASTRO live streaming player. With this platform, advertisers are able to reach ASTRO audience across multiple screens, benefiting from advanced audience insights[30].

ASTRO is using Natural Language Processing and other Machine Learning algorithms in delivering personalised content, which would contribute to higher digital traffic and monetisation. Furthermore, ASTRO uses AI chatbots and virtual agents to manage customer queries[31].

TM Unifi TV, launched in 2010, has 109 channels with 57 in HD format. These include 58 premium, 25 free and six VOD channels, available through a variety of packages.

In 2018, TM added 13 new channels including from Fox Networks Group Asia to its Unifi TV service such as Fox Movies, Fox Action Movies, Fox Family Movies, National Geographic and Sky News. The new channels have potential to strengthen content offerings with more sought after programmes.

Set Top Boxes Play Significant Role in Driving Demand

In the past, set top boxes (STBs) were mostly used for cable and satellite TV for transmission of content. Today, most STB systems provide interactive features and Internet access. STB functionality has increased, with viewer friendly features like advanced electronic programme guide, content search functionality and full 4K Ultra-High Definition (UHD)[32].

UHD content brings four times more stunning and clearer video than HD format as well as smooth and natural viewing experience with its higher frame rate[33]. Sports events such as FIFA World Cup, Olympics and football leagues are already shown in UHD format. Specifically, ASTRO has showcased Live 4K UHD Broadcast of two live matches on Premier League season opening day on 13 August 2018.

In a related development, ASTRO reported that their connected STBs[34] are driving on demand content consumption. As at January 2019, a total of 54 million VOD were downloaded, up 135% from 23 million a year ago. To date, there is a total of one million connected ASTRO STBs at its customer premises.

30 ASTRO, Astro selects Telaria as preferred video platform partner, November 2018.
31 MCMC questionnaire to licensees on industry performance.
32 OVUM, 2019 Trends to Watch: Smart TV Devices, Streamers and Set Top Boxes, October 2018.
33 In motion picture technology — either film or video — high frame rate refers to higher frame rates than typical prior practice and it keeps motion video smooth.
34 Connected STBs are those that are connected to the Internet and have access to ASTRO on Demand library of content.

Sports Broadcasting Rights in 2018

According to a survey by PwC, live sports is a primary motivator keeping US consumers tied to their Pay TV subscriptions. This can be seen when broadcasters are prepared to spend a large amount of money on broadcasting rights for top sport events.

Similarly in Malaysia, sports such as football is a significant event that drives Pay TV subscriptions. Figure 3.12 shows several Pay TV key broadcasting rights.

PAY TV KEY FOOTBALL BROADCASTING RIGHTS 2018

Service Provider	Broadcasting Rights	Details
ASTRO	FIFA World Cup 2018	FIFA World Cup is the largest sporting event globally. ASTRO has the broadcast rights to all 64 matches of the 2018 FIFA World Cup tournament in Russia to viewers in Malaysia. Non-ASTRO customers can purchase Astro World Cup Channel Pass to watch all matches on Astro Go.
	English Premier League (EPL)	ASTRO announced that it has secured the EPL broadcast rights in Malaysia for next three seasons from 2019/20 to 2021/22.
	UEFA Champions League and UEFA Europa League	ASTRO announced its partnership with beIN Asia Pacific to offer live coverage of UEFA Champions League and UEFA Europa League from 2018/19 season to 2020/21. Both leagues are offered on beIN SPORTS and beIN dedicated UEFA channel, beIN SPORTS MAX.
TM	M-League (*Malaysia-League*)	TM and Football Malaysia Limited Liability Partnership announced a collaboration for sponsorship of M-League. The eight-year agreement worth RM480 million is the highest in local sports history. As part of the deal, TM Unifi TV to broadcast two out of six Super League matches on every match day. On top of this, they also air Charity Shield, Malaysia Cup, FA Cup and selected Malaysia Premier League matches.

Source: MCMC, www.stadiumastro.com; Utusan online, Kerjasama TM, Liga M hampir setengah billion, February 2018
Figure 3.12 Pay TV Key Football Broadcasting Rights 2018

On a related note, ASTRO hosted an eSports event called the *Kuala Lumpur Major* in November 2018, an international eSports tournament in Malaysia with more than 110 players gathered from around the world. The event reported a total of 870,000 unique viewers on eGG Network in eight Asian countries with 100 hours of live broadcasting in more than four languages.

Content Creation and Ratings

ASTRO produces content of about 10,000 hours in 2018. The programmes include content in various languages such as Bahasa Malaysia, English, Mandarin, Hokkien and Tamil. Among the most prominent by viewership are:

- ASTRO serial drama, *Tak Ada Cinta Sepertimu* garnered 3.3 million viewerships while a singing competition featuring professional singer, *Gegar Vaganza 2018*, also obtained 3.3 million viewership.

- *Gempak*, an entertainment portal which focuses on latest Malay segment interest programmes, gained 26 million views on digital platform comprising YouTube, Facebook and its website. The video recorded 120,000 live interactions on *Gempak* YouTube during the transmission.

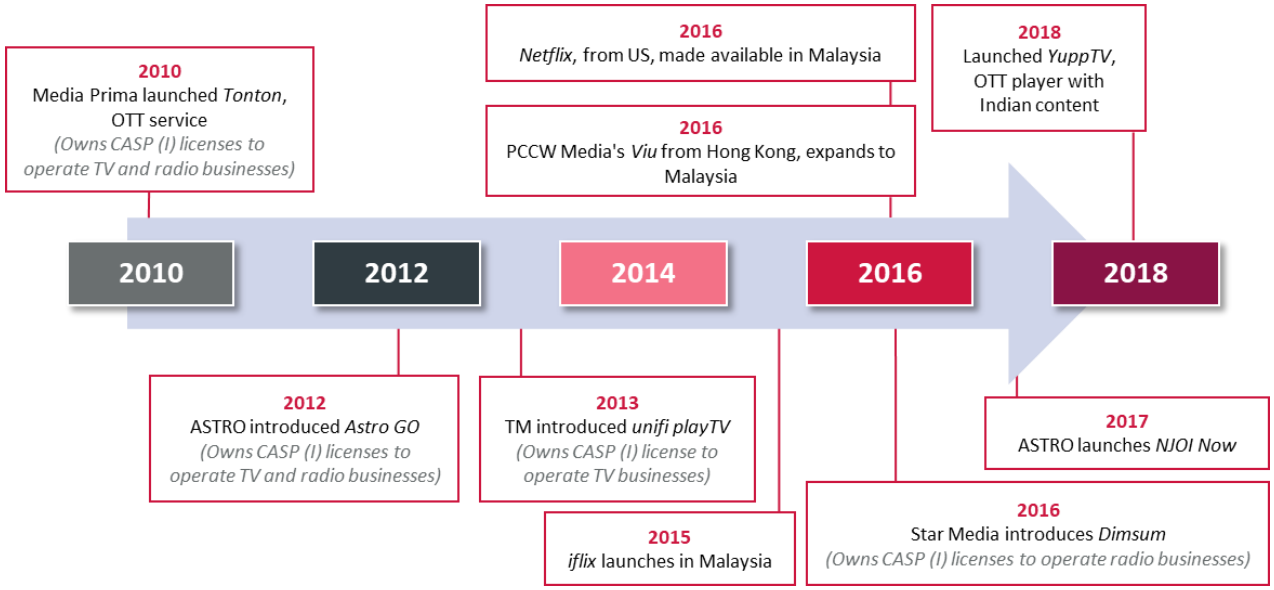
- One of ASTRO special interviews in *Hello TUNs*, has garnered 7.4 million digital views with an unprecedented social reach of 80 million.

Competition in the OTT Space

The advent of pervasive Internet has created competition across vertical industries. OTT players like Netflix and Hulu have disrupted the video content market, providing choices and flexibility to consumers. Consumers demanding more for less and affordable streaming services have affected DVDs and blu-ray discs business. Today, globally, OTT video is disrupting the broadcasting sector be it for cable, satellite and FTA.

Figure 3.13 shows the OTT services in Malaysia. Major broadcasters with CASP (I) licences are already providing OTT video services, together with other OTT players such as Netflix and iflix.

OTT SERVICES IN MALAYSIA



Note: Astro GO was formally known as Astro on the Go; unifi playTV was known as HyppTV Everywhere

Source: MCMC, Service Providers, News Articles
Figure 3.13 OTT Services in Malaysia

This competitive media environment has created wide choice of content for consumers and provided another revenue source for service providers.

For instance, Media Prima partnered with Viu, a regional OTT video service. This is the first time a regional OTT brand has partnered with a major TV broadcaster on content for same day airing, witnessing synergies between linear TV and OTT in Malaysia. The three shows namely *Salon*, *Jibril* and *The Bridge* were released from September 2018 on both ntv7 and Viu platform.

National Broadcasting Digitalisation Project

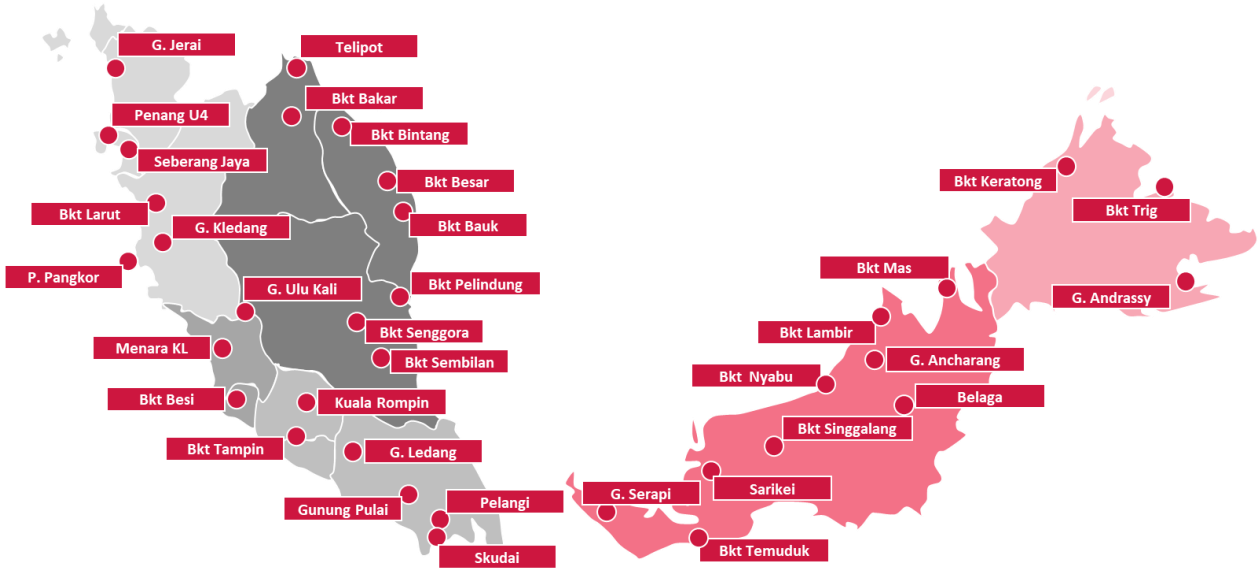
Digital Terrestrial Television Broadcasting Infrastructure Deployment

Towards convergence in the C&M digital connectivity, traditional analogue terrestrial TV will eventually be replaced by Digital Terrestrial Television (DTT). Under the Digital Terrestrial Television Broadcasting (DTTB) project, infrastructure and facilities are provided by MYTV Broadcasting Sdn Bhd (MYTV), which include digital multimedia hub and digital TV transmitters nationwide.

MYTV is to deploy 60 digital TV transmitter sites nationwide covering 98% of the population. As at end 2018, with a total of 35 sites are in operation, covering 92.8% of the population, that is, a slight improvement from 92.1% in 2017.

The roll out of another nine sites is to be completed by March 2019 covering 95.3% population nationwide. In order to reach blind spots and remote areas in the country, MYTV has proposed DTH service via satellite distribution[35]. This will eventually provide 100% coverage nationwide upon Analogue Switch Off (ASO) in 2019.

DIGITAL TV TRANSMITTER SITES DEPLOYED



**As at 31 December 2018*

Source: MCMC

Figure 3.14 Digital TV Transmitter Sites Deployed

[35] For reference, many countries around the world namely United Kingdom, Chile, Finland, France and Italy have successfully implemented DTH solution to complement DTT coverage.

Digital Multimedia Receivers

MYTV also committed in their detailed business plan to distribute two million free STBs to eligible *Bantuan Sara Hidup Rakyat* (BSHR) households. To date, MYTV has distributed 486,084 free STBs nationwide. The balance 1.5 million free STB is targeted to be distributed prior to ASO.

MYTV has a 5-year moratorium (from 2014 to 2019) as sole provider of STB in Malaysia. Effective 15 August 2018, the Government lifted this moratorium in order to drive STB prices lower by enabling competition and encouraging more STBs to be available in the market.

Consumers that are not entitled to receive free STB from MYTV are still able to enjoy DTT service, by purchasing receivers available in the market:

- Integrated Digital TV (iDTV) sets with the DTTV label approved by SIRIM comes with a built-in digital tuner. Hence, these do not require a separate decoder to receive DTT service. To date, 18 iDTV brands for purchase are namely Sony, Toshiba, Panasonic, Samsung, Sharp, Singer, LG, Philips, Hisense, Daewoo, Skyworth, Haier, TCL, A&S, iSONIC, Daema, HITEC and Pensonic.

- MYTV Advanced STB are available for purchase at electrical outlets and online. (https://shop.mytvbroadcasting.my and https://shopee.com.my/mytvbroadcasting/)

DIGITAL MULTIMEDIA RECEIVERS

Integrated Digital TV

MYTV Advanced STB

Source: myFreeview, MYTV
Figure 3.15 Digital Multimedia Receivers

Education and Awareness (EA) Campaign

Since 2015, the EA campaign is being led by Media Prima in collaboration with other public and private FTA TV broadcasters. These broadcasters comprise incumbent FTA broadcasters and new CASP (I) licensees on DTT platform.

The EA campaign promotes myFreeview services. The EA campaign comprises five phases as shown in Figure 3.16.

Source: MCMC
Figure 3.16 EA Campaign

Phases 1, 2 and 3 of the EA campaign have been implemented since 2016. Phase 4 commenced in conjunction with the KL 2017 SEA Games to encourage conversion to DTT platform for myFreeview channels via TV, video, print, radio and out-of-home advertising as well as digital marketing and public service announcement.

Nielsen's research report in March 2018, indicated almost 50% of Malaysians were exposed to myFreeview advertisements throughout the EA campaign Phase 1 to Phase 3. Awareness advertisement with the volcano eruption concept (Volcano advertisement) in Phase 3 captured highest visibility among Malaysians. Individuals who recall watching this particular advertisement are more likely to be aware of myFreeview brand name and a MYTV decoder. The Volcano advertisement is reported to have increased the conversion to DTT platform.

Phase 5 commencing in 2019 is to provide widespread awareness to all Malaysians, especially the remaining analogue viewers for readiness to ensure smooth switchover process.

myFreeview for Malaysian Viewers

The public-owned and private broadcasters are continuously offering a range of quality content and programmes to Malaysian viewers for free. This can be seen with the increase of new TV channels on myFreeview platform as follows:

- RTM HD Sports, a dedicated sports TV channel was launched as a trial transmission in June 2018; and
- Channel W broadcasting news, business matters, entertainment and interviews was launched as a trial transmission in August 2018.

To date, 13 TV channels and four radio channels are aired on myFreeview platform.

TV AND RADIO CHANNELS ON MYFREEVIEW PLATFORM

Service Provider	TV Channel	Radio Channel
RTM	• TV1 • TV2 • TV OKEY • RTM HD Sports	• Nasional FM • Minnal FM • Traxx FM • Ai FM
Media Prima	• TV3 HD • NTV7 • TV8 • TV9 • Drama Sangat • CJ Wow Shop	-
Alhijrah Media Corporation	• TV Al-Hijrah	-
Bernama	• BNC	-
Online Dynamics (M) Sdn Bhd	• Channel W	-

Source: MCMC
Figure 3.17 TV and radio channels on myFreeview platform

Analogue Switch Off

Upon ASO, viewers will have the option to enjoy free digital TV services via myFreeview. Viewers will need to connect their digital TV decoder and Ultra High Frequency (UHF) aerial to existing TV sets in order to watch myFreeview. Alternatively, viewers can connect iDTV set to a UHF aerial.

GUIDE TO ACCESS MYFREEVIEW

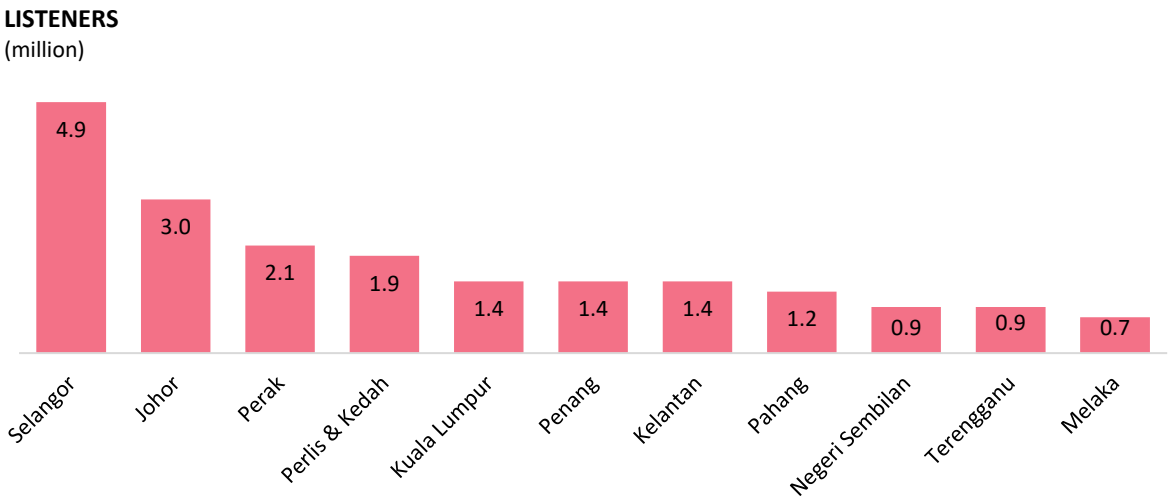
Source: myFreeview
Figure 3.18 Guide to Access myFreeview

Radio Listenership in Malaysia

There are 28 privately owned radio stations in Malaysia[36]. Preference for radio stems from many angles, that is, localised content and anywhere we go. Content caters to culture, age, urban or rural and many more.

In Malaysia, radio remains as one of the primary information media, reaching 20 million listeners in 2018 compared with 19.7 million in 2017. By State, Selangor recorded the highest number of listeners with 4.9 million followed by Johor and Perak with three million and 2.1 million listeners respectively (Figure 3.19).

RADIO LISTENERSHIP BY STATE



Source: GfK RAM Wave 2 2018

Figure 3.19 Radio Listenership by State

More listeners are tuning in for entertainment during peak traffic hours as they commute from home to office and vice versa. From an estimated 13.8 million morning hours listeners, 3 million (21.9%) are from the age group of 20 to 29 years. From 12.9 million evening-hour listeners, 4.1 million (31.9%) listeners are from 10 to 29 years age group.

Figure 3.20 shows the privately-owned radio stations in Malaysia.

[36] MCMC

PRIVATELY-OWNED RADIO STATIONS

No.	Managing Group or Operating Company	Station	Language	Genre/Target Market
1	Astro Radio Sdn Bhd	ERA	Malay	• Entertainment and information • Age 10 to 29
		MIX	English	• Contemporary music from 1990s onwards • Age 25 to 39
		SINAR	Malay	• New and oldies music • Age 25 to 39
		Raaga and Gegar	Tamil Malay	• Raaga – Urban Indian age 18 to 34 • Gegar – Target Malay age between 15 to 40 years old in East Coast of Peninsular Malaysia
		Lite	English	• Music ranges from the 80s onwards • Age 35 to 49
		MY	Chinese (Mandarin & Cantonese)	• Entertainment and information • Age 10 to 29
		hitz	English	• Latest international hit music • Age 10 to 29
		MELODY	Chinese (Mandarin & Cantonese)	• Entertainment and information • Age 35 to 49
		Zayan	Malay	• Contemporary content • Age 25 to 39
		GoXuan	Chinese (Mandarin)	• Entertainment to connect and engage with digital natives • Age 12 to 24
2	Media Prima Radio Networks	Hot FM	Malay	• Entertainment and information • Age 18 to 24
		Fly Fm	English	• Professionals, managers, executives and businessmen • Age 15 to 29
		one FM	Chinese	• Entertainment and information • Age 15 to 29
		Kool FM	Malay	• Aired in Klang Valley, Penang, Terengganu, Kelantan and Kedah • Age 25 to 44
3	Star Radio Group	Suria FM	Malay	• Entertainment and information • Age 25 to 34
		988 FM	Chinese	• Professionals, managers, executives and businessmen • Age 25 to 34

PRIVATELY-OWNED RADIO STATIONS

No.	Managing Group or Operating Company	Station	Language	Genre/Target Market
4	Genmedia Sdn Bhd	iM4Ufm	Malay and English	• Promotes volunteerism, social causes and latest music • Available at Klang Valley • Targeting urban youths
5	Suara Johor Sdn Bhd	Best FM	Malay	• A station to suit the listening taste of the then Sultan of Johor, Almarhum Sultan Iskandar. Available in Johor, Klang Valley, Melaka and Seremban and Singapore. • Age 25 to 45
6	BFM Media Sdn Bhd	BFM	English	• Business topics and current affairs • Targeting working professional group
7	Pertubuhan Berita Nasional Malaysia (BERNAMA)	Radio24	Malay and English	• News and talk shows • Available in Kuala Lumpur, Johor, Sabah and Sarawak • Age 25 and above
8	Institut Kefahaman Islam Malaysia (IKIM)	IKIMfm	Malay, Arabic and English	• Promote Islamic content • General public
9	Kristal Harta Sdn Bhd	Cats FM	Malay, Iban and English	• Entertainment and information available in Sarawak • Age 16 to 40
10	Husa Network Sdn Bhd	Manis FM	Malay	• Available in East Coast of Peninsular Malaysia • Age 20 to 45
11	Cense Media Sdn Bhd	Kupikupifm	Kadazan, Dusun, Murut, Chinese, Malay and English	• Entertainment and information available in Sabah • Targeting locals from Kadazan, Dusun and Murut
		CITYPlus FM	Chinese (Mandarin, Cantonese, Hakka)	• Business radio station in Seremban and Klang Valley • Targeting people living in Kuala Lumpur and Negeri Sembilan
12	Arus Rentas Sdn Bhd	KK12 FM	English and Sabahan Dialect	• Promoting local culture in Sabah • Targeting population of Kota Kinabalu
13	Ephrata Services Sdn Bhd	VOK FM	Sabahan Dialect	• Available in Sabah • Promoting local cultures to young listeners in Keningau, Tenom and Tambunan

Source: Industry, MCMC

Figure 3.20 Commercial Radio Stations

Based on industry feedback, Astro Radio listeners prefer listening to radio in the car, followed by online via laptop or desktop.

Furthermore, listening through connected devices also gained popularity among Astro Radio listeners. In 2018, there were 3.8 million Astro Radio listeners via online streaming compared with 3.3 million in 2017.

Radio stations also advertise for online shopping. In conjunction with Lazada 12.12 Grand Year End Sale from 10 to 12 December 2018, three of Astro Radio stations namely hitz, ERA and MY, were temporarily renamed as Lazada1212.fm during the sales period. With such advertising, it is expected that both advertiser and broadcaster can do more effective advertising.

Radio in Digital Age

In October 2018, Media Prima transformed its radio broadcast segment into an audience-focused company known as Ripple[37]. Ripple consolidates all Media Prima traditional and digital assets and allows flexibility for Media Prima to connect with audience on a more personal level and explore new revenue opportunities.

Media Prima aims to expand their audience reach and groups through new digital brands. This will also enable them to offer customised solutions for advertisers to reach a variety of target audiences to design effective campaigns.

Ripple includes four broadcast brands namely Fly FM, Hot FM, One FM and Kool FM; a podcast platform that is Ais Kacang; an e-commerce brand – SuperDeals; and seven digital brands namely Dhia, Donna, Lunaria, The Laki, Likely, Chapters and Wakeke.

Ripple is expected to drive growth, leveraging on the strength of its digital brands and wide reach to create new revenue opportunities and target new consumers.

DIGITAL BRANDS UNDER RIPPLE

Dhia	Donna	Lunaria	The Laki	Likely	Chapters	Wakeke
Malay-speaking female audience age 18-29	Malay-speaking female audience above 29	Malay-speaking female audience below 18	Malay-speaking male audience age 18-29	English-speaking audience above 29	Chinese-speaking audience above 29	Chinese-speaking audience age 18-29

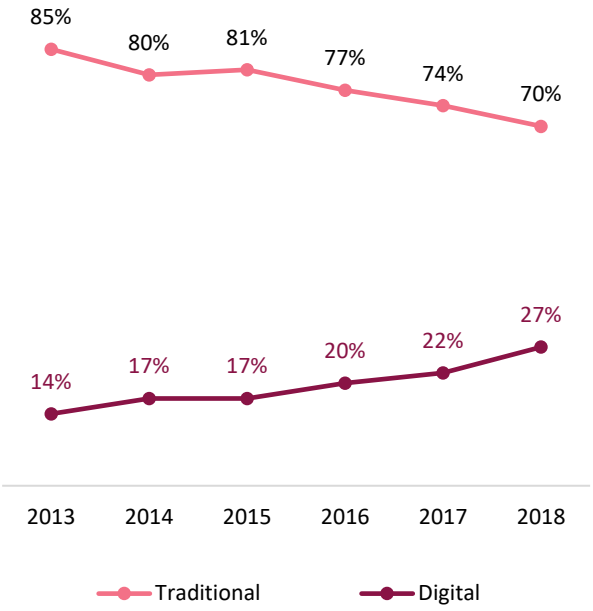
Source: Industry Feedback
Figure 3.21 Digital Brands under Ripple

[37] Media Prima Press Release, Media Prima revamps radio segment with Ripple, October 2018.

Digital Listenership on Uptrend

According to Jacobs Media survey[38], 70% of radio listeners still consume radio through traditional means, which is from radio in vehicle (46%) and radio at home or workplace (24%) (Figure 3.22 and Figure 3.23). In contrast, around 27% are listening by digital means, that is, through mobile apps, podcast, computers and other connected devices.

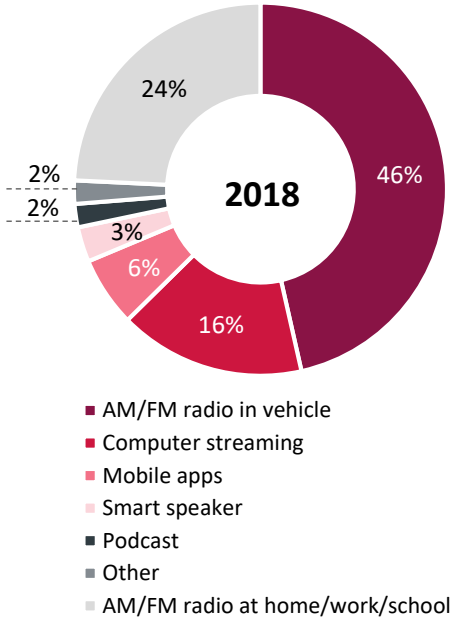
TRADITIONAL AND DIGITAL LISTENERSHIP 2013 – 2018



Source: Jacobs Media

Figure 3.22 Traditional and Digital Listenership 2013 – 2018

RADIO LISTENERSHIP BY MEDIUM 2018



Source: Jacobs Media

Figure 3.23 Radio Listenership by Medium 2018

Radio broadcasters are optimistic that they can create new revenue streams from digital platform and hence, improve profitability. Strategic steps taken include offering high quality streaming music, online radio and podcasts through its website and mobile apps. They are also aligning to produce content, which reflects local culture and lifestyle.

Radio announcers or hosts today play an integral role in radio broadcasting. According to Nielsen, radio listeners spend most of their time with their favourite station as they can relate and engage with the hosts. Majority of radio listeners say they tune in because they like particular announcers and shows[39]. Therefore, to remain competitive, radio stations place strategic focus on strengthening and enhancing talents of the announcers.

Furthermore, research and development (R&D) can be an integral part of any organisation. Radio stations embark on R&D by conducting focus group surveys and auditorium music tests[40] to gain understanding of their audience. They also conduct online survey to gauge listener preference.

[38] Jacobs Media Survey, The Rapidly Changing Face of Radio Listening, May 2018. The survey is based on 560 stations.

[39] MarketingCharts, AM/FM Radio Listeners Spend the Majority of Their Time With Their Favorite Station, December 2017.

[40] The most commonly employed method for finding out what songs to play on the radio is to conduct an Auditorium Music Test where a precisely recruited group of listeners or potential listeners is assembled in a meeting room.

Podcast Listenership and Monetisation

Apart from listening to live radio, listeners also prefer podcasts. Podcast refers to digital audio file, basically the best bits of radio cut out, made available on the Internet for download to a computer or mobile device for consumption on listeners' own schedule.

Podcasts is a way for radio stations to expand their brand presence and revenue streams. Podcasts are monetised through sponsorship and advertisement, where the host introduces or talks about a product during the show. Another method is by membership or subscription where listeners can have early access to content, ad-free listening, or exclusive bonus episodes. There is also additional interview, behind the scene content and even Q&A with the host.

High quality podcast content attracts higher listenership and thus, higher advertising revenue[41]. However, podcast listenership in Malaysia is still relatively new. Most of the radio stations in Malaysia can capitalise on podcasts. Figure 3.24 shows some podcasts offered by radio stations.

SELECTED PODCAST OFFERED BY RADIO BROADCASTERS

Suria FM	ManisFM	BERNAMA Radio	Astro Radio	Media Prima Radio Networks
Cik Gayah	Jom Jadi Orang Baik-Baik	A La Carte Pagi	ERA - JoHaraPagiERA	One FM - Morning Kaki
PU Azman Nak Cakap	Santai Bersama Ustaz Syed	Ni Hao	Sinar - SepahtuSinar	Fly FM - Krappy Call
Selamat Pagi Ibu Bersama Fauziah Nawi	Inspirasi Al- Quran	League of Bosses	Hitz - HitzMorningCrew	Kool FM - Jangan Cerita

Source: MCMC questionnaire to licensees on industry performance
Figure 3.24 Selected Podcast Offered by Radio Broadcasters

According to PwC Global Entertainment and Media Outlook in US, the total number of listeners who listens to at least one podcast a month surged to 78 million in 2017 from 23 million in 2013. Globally, PwC predicted podcast advertising revenues to reach USD650 million in 2018, with a CAGR of 30% to USD1.6 billion in 2022[42].

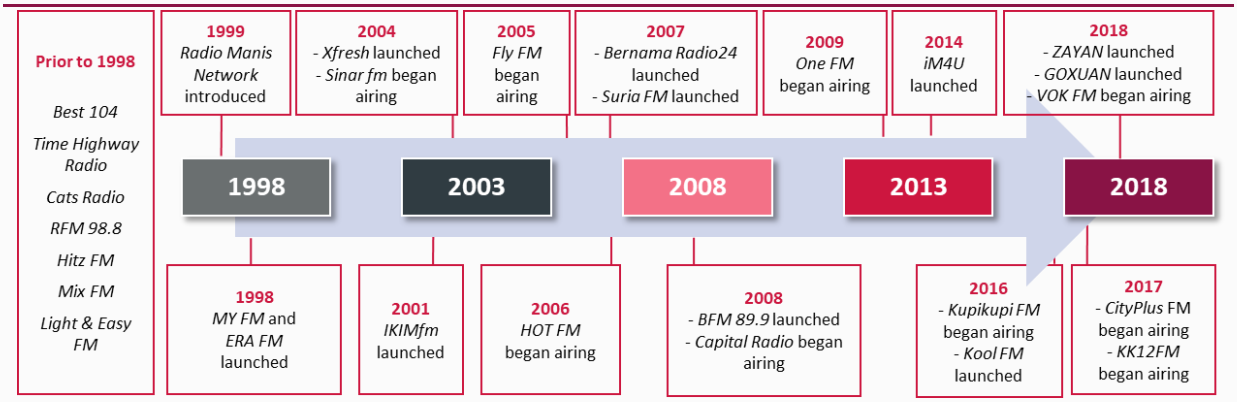
In particular, PwC highlighted that revenue generated from podcast in the US in 2017 reached USD314 million, up 86% from USD169 million in 2016. For reference, the podcast genres such as Arts/Entertainment (17%), Technology (15%), News/Politics/Current Events (13%) and Business (11%) generated more than half of the revenue.

[41] Strategy+Business, The Podcasting Revenue Boom Has Started, October 2018.
[42] Interactive Advertising Bureau, The Second Annual Podcast Revenue Study by IAB and PwC: An Analysis of the Largest Players in the Podcasting Industry, June 2018.

HISTORY OF RADIO BROADCASTING IN MALAYSIA

RTM started broadcast over radio in April 1946 while in 1989, Malaysia saw the launch of the first private radio station, Suara Johor, currently known as Best 104[43]. Since then, more radio stations were introduced (Figure 3.25).

RADIO STATIONS IN MALAYSIA



Note 1: Selected radio stations were relaunched for various reasons e.g. Kool FM was created following the revamp of Ultra FM and Pi Mai FM, whilst the slot which ERA FM is broadcasted, 103.3 FM, was originally Classic Rock.

Note 2: As at 2 January 2018, ASTRO no longer use the "FM" suffix; Xfresh is currently known as Melody; Light & Easy is currently known as Lite; Time Highway Radio is currently known as Raaga and Gegar; RFM 98.8 is currently known as 988; Bernama Radio 24 is currently known as Bernama Radio.

Source: Industry, MCMC, www.commercialradio.my
Figure 3.25 Radio Stations in Malaysia

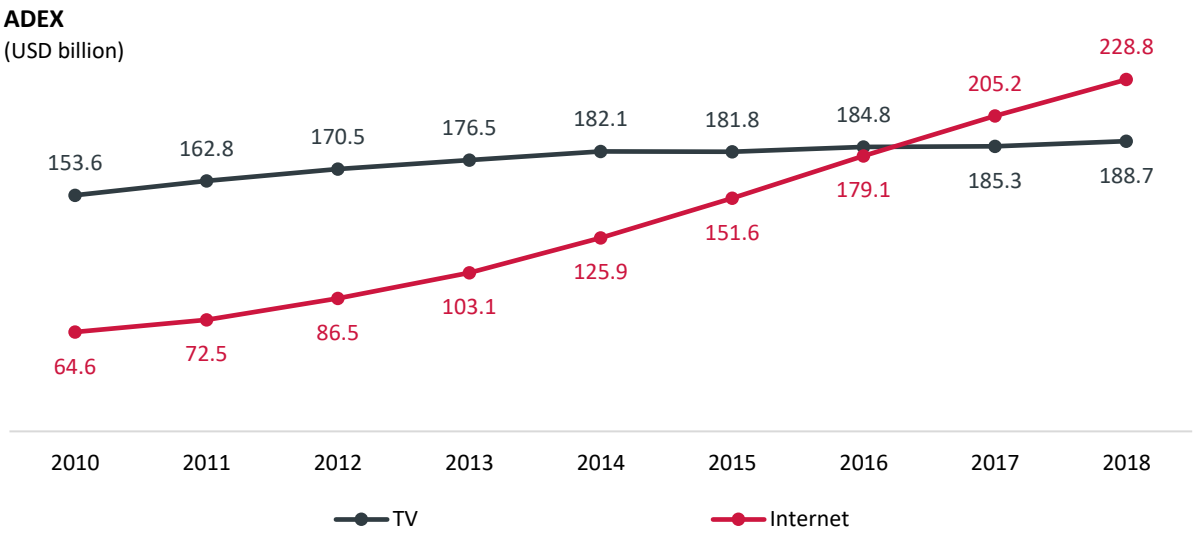
[43] www.commercialradio.my

Advertising Expenditure

Zenith expects global advertising expenditure (ADEX) in 2018 to grow by 4.5%, reaching USD581 billion (2017: USD556 billion)[44]. The Internet has outperformed TV in 2017 as the preferred medium for advertisers, contributing total ADEX of USD205 billion. The Internet continues to dominate in 2018 with ADEX worth USD228.8 billion, a double digit increase of 11.5% from previous year.

Meanwhile, TV captured ADEX of USD189 billion in 2018, a marginal increase of 2.2% from USD185 billion in 2017. Figure 3.27 profiles global TV and Internet ADEX trend.

GLOBAL TV AND INTERNET ADEX 2010 – 2018



Source: Zenith, Advertising Expenditure Forecasts, September 2018
Figure 3.26 Global TV and Internet ADEX 2010 – 2018

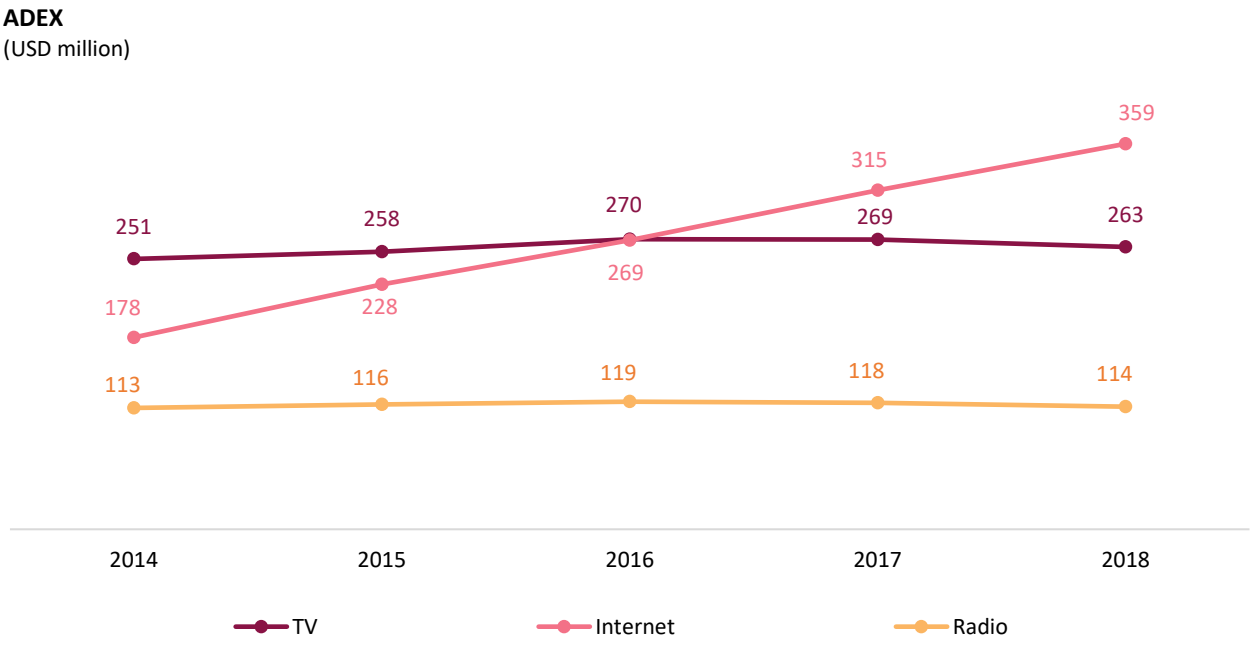
In contrast, Malaysia recorded total ADEX of USD1.2 billion in 2018, an increase of 0.3% compared to USD1.19 billion in 2017. Similar to global development, Internet is the local advertisers' top choice with ADEX of USD358.6 million, followed by TV at USD262.8 million (Figure 3.27).

Major global events in 2018 such as FIFA World Cup in Russia, Winter Olympics South Korea and Asian Games in Indonesia played a significant role in stimulating ADEX growth in the country.

By advertising medium, Internet ADEX shows an increasing trend in 2018 at USD358.6 million (RM1.5 billion) compared with 2014 at USD178.5 million (RM625 million). Among factors contributing to higher Internet ADEX were more online content and Internet users[45], pervasive mobile access and higher speeds.

[44] Zenith, Advertising Expenditure Forecasts, September 2018
[45] As at December 2018, 87.4% of Malaysia's population are Internet users compared with 76.9% in 2016 (Source: MCMC IUS 2018)

MALAYSIA ADVERTISING BY SELECTED MEDIUM 2014 – 2018



Source: Bloomberg, Magna Global

Figure 3.27 Malaysia Advertising by Selected Medium 2014 – 2018

While Internet ADEX shows growth, radio ADEX is stable over a five-year period. This is due to advertisers focusing on online medium including OTT platform. Internet ADEX growth is supported by changing consumer habits, whereby they access content online.

As such, service providers have strategised their content production to be delivered online. For example, Media Prima is leveraging on digital content to meet demand by partnering with YouTube video streaming service known as "Player for Publishers"[46].

Digital Advertising

Digital advertising is gaining popularity among advertisers due to various factors such as audience targeting and multi-platform campaign. Digital advertising is cost effective, has global reach and offers content monetisation as well as branding.

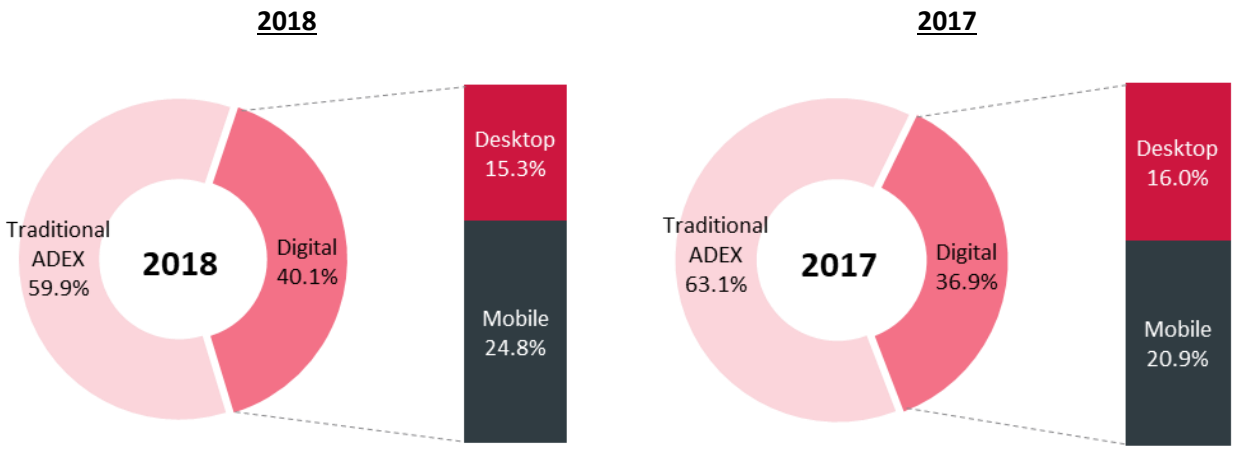
According to Dentsu Aegis Network[47], ADEX for APAC region is forecasted to grow by 4.2% in 2018, led by China, Japan, India and the Philippines.

[46] NST, Media Prima partners with YouTube to enhance its digital media platform, January 2019.

[47] Dentsu Aegis Network Ltd is a multinational media and digital marketing communications company with headquarters in London, United Kingdom, and is a wholly owned subsidiary of the Japanese advertising and public relations firm Dentsu.

Digital ADEX is expected to grow by 12.6% to reach USD220.3 billion in 2018[48]. Digital ADEX comprising mobile and desktop, contributes 40.1% of total global ADEX in 2018 compared with 36.9% in 2017.

GLOBAL DIGITAL ADVERTISING BY CATEGORY 2017 – 2018



Source: Dentsu Aegis Network
Figure 3.28 Global Digital Advertising by Category 2017 – 2018

Malaysia is expected to experience similar trend as the APAC region. Digital ADEX in Malaysia is expected to reach RM1.3 billion in 2018[49], and top all other platforms in terms of ADEX growth.

AI in Digital Advertising

Previously, advertisers use "one advertisement fit all" format for linear TV, which capture all categories of audience. Today, digital advertising is encroaching into traditional advertising. This is despite linear TV advertising still relevant capturing majority market share.

With fragmentation of audience over multiple platforms, consumers are harder to reach. Thus, to reach this wide and varied consumer preferences, advertising needs to be more personalised. This can be done using AI to improve personalisation technique and strategies for advertisers who want to compete in digital advertising.

For reference, targeted or personalised advertising means consumer online activities, interests and devices used are taken into consideration when putting up an advertisement. In this regard, AI can create a stronger brand connect with consumers, offering consumers with their preferred and frequently used products and services.

For instance, ASTRO has implemented AI in collaboration with Microsoft in identifying user profiles, such as media consumption habits and social media activities. This approach enables advertisers to deliver relevant content at the right time, through the right channel, aligned to consumer demand.

[48] Marketing Interactive, A breakdown of global ad spend across mediums, January 2018
[49] Ministry of Communications and Multimedia, November 2018

According to Adobe[50], 78% of consumers are interested in personalised advertisements. In contrast, 42% of consumers get annoyed when their advertisement content is not to their interest.

Most importantly, 66% of consumers would stop making any purchase in cases whereby content is not personalised, poorly designed or not optimised for user devices[51]. Hence, it is crucial to engage with customers on a personal level with relevant content and messaging.

In addition, AI is widely used in digital marketing, reaching consumers over digital platforms as indicated in Figure 3.29.

AI IN DIGITAL MARKETING

Usage	Description
Proposal	• E-commerce websites, blogs, search engine and social networking use AI to analyse consumer online activities and make recommendation based on historical data.
Pricing	• Pricing strategy is determined upon demand, availability and profile of the customer.
Data Analysis	• Pool of data points related to the target audience that can be accurately analysed in giving insight on which advertisement is going to appeal to whom.
Chatbots	• Chatbots such as Apple Siri, Google Assistant, Amazon Alexa and Microsoft Cortana can converse with users and assist in providing information. • National Geographic allows consumer to chat with Albert Einstein on Facebook messenger to raise awareness of its new original series, Genius, which dissects the psyche of the physicist Albert Einstein.

Source: www.feedough.com, Examples of AI in Marketing, August 2018
Figure 3.29 AI in Digital Marketing

[50] Report based on analysis of over 183 billion visits to US websites, Adobe, Digital Insights Advertising Demand Report 2018.
[51] Giselle Abramovich, Consumer Demand For Personalised Content Reaches All-Time High, February 2018.

This Page Intentionally Left Blank

MODULE 4: DIGITAL SERVICES

Services in Digital – Beyond the Pipe

Digital services are entirely automated and controlled by the customer, delivered via the Internet or an app[52]. Examples of digital services today include Internet banking, online shopping, online learning and streaming video or music.

Digital services in simple form are weaving into our lifestyle, driven by competitive forces, time pressures and the need for convenience. Such services are offered as the consumer and enterprise demand convenience to simplify their daily tasks or operations. This development creates opportunities for the C&M industry to increase revenue streams beyond connectivity to include digital services for consumer and enterprise[53].

To enhance digital services, service providers need to transform their network and business models. This is aside from managing churn and retaining market share. In Malaysia, for instance, service providers have initiated digital services in financial sector, connected car solutions and using chatbots in their customer service centre.

Financial services

In January 2018, Boost, a digital mobile wallet (e-wallet) app developed by Axiata Digital Services Sdn Bhd[54], supports gamification and social interaction features. This has extended from the service introduced in 2017, for lifestyle loyalty and prepaid top-up. Boost is reported to have 2.5 million users with online and offline merchants located in over 25,000 merchant touchpoints. Boost is operated by Axiata Digital Ecode Sdn Bhd and its website is registered to Celcom. Celcom subscribers can enjoy zero-rated Internet charge while using the Boost app[55].

Celcom AirCash[56], introduced in 2013, is a mobile financial service enabling subscribers to access their money securely via mobile phones. The subscribers' money is stored in a 'mobile wallet', that is, a virtual account with a predetermined maximum limit. With this, e-payments are made for e-commerce or online shopping using their mobile phones. Users can deposit and withdraw money through online banking channels, transfer money to other Celcom AirCash subscribers or make international money remittance aside from paying bills.

Digi recently announced going into partnership with supporting technology partners to offer a digital prepaid card allowing young Malaysians to make digital payments online and in-app across selected merchant locations globally. A single mobile app is used for sign up, activation and card use, which is indicated as part of a simple, safe and secure end-to-end customer experience[57].

Digi also offers an e-payment solution to SMEs, where a bank's merchant point-of-sale (POS) terminal accepts Digi vcash QR code transactions. This means that vcash users can pay for their transactions via Digi vcash mobile app. The users only need to scan the QR code to pay[58].

---

52 Schneider Electric, What the Heck are Digital Services, August 2016; Lea-Cos and Associates, Business Services vs IT Services vs Digital Services.

53 Digital Transformation Initiative, Telecommunications Industry, January 2017 by World Economic Forum in collaboration with Accenture.

54 Digital News Asia, A Year On, Axiata Digital Tags on Mobile Wallet to Boost App, January 2018.

55 Digital News Asia, Boost Mobile Wallet Launched, can be used at over 5,000 Locations, February 2018.

56 Digital News Asia, Celcom Rolls Out Aircash Free Mobile Wallet Service, December 2013.

57 Digital News Asia, Digi, MPay and Mastercard Partner to Offer New Digital Payment Option, January 2019.

58 Ambank, Digi Partner to Lower Barriers for SMEs to Adopt e-Payments, August 2018.

ASTRO also released its own digital wallet app called Payfy in May 2018[59]. Payfy offers Malaysians with a valid MyKad to make cashless payments from their preloaded account. It is currently limited to the payments of ASTRO bills and topping up of NJOI credit. ASTRO indicated they would introduce more features and options for the platform in the future.

For the banking sector, apps are used in many ways such as e-transfers within same bank, to other banks and overseas; quick search availability; receipt sharing over mobile channel; digital assistants and personal loan calculators and payment alerts. Access is secured and authenticated using biometrics and other security solutions.

In addition, many organisations have offered digital services using apps including Employee Provident Fund since 2016, which offers e-Caruman for small businesses with less than 10 employees.

Connected car solutions

Other digital services offered by service providers involve "connecting cars". In December 2018, Digi launched a connected car solution in collaboration with AXA insurance. "Digi Connected Cars with AXA FlexiDrive" is an initiative to encourage Malaysians to stay safe on the roads and reward good driving behaviour. Touted as first in Malaysia, the product assists drivers of insured vehicles to learn and understand their driving behaviour through installation of a telematics security device and AXA FlexiDrive mobile app[60].

Since 2017, Digi has embarked into connected car solution as part of its IoT strategy. Its intelligent fleet management solution is end-to-end, which manages hardware, software and connectivity. The solution adds a layer of intelligence to fleet vehicles and handles everything from installation, system integration, fleet monitoring automation, to lifetime warranty and after sales support. This enables business owners to focus on what is most important – running their business.

Maxis has a fleet tracking solution, mDrive, which is used internally for its own business operations. Leveraging on its suite of IoT solutions and backed by 4G network, this tracking solution reduces cost and promotes safer driving habits within its fleet management[61].

IoT systems become complex as devices proliferate and are facilitated by mobile or fixed wireless network. According to GSMA, massive IoT is one of the areas of application in 5G, which has basis to improve network coverage, device lifetime and a high density of connections. Massive IoT is one of three key 5G use cases, alongside critical communications and enhanced mobile broadband for industrial automation and smart cities[62].

Chatbots

In September 2018, TIME is reported leveraging on AI technology to create an interactive and smart virtual assistant for its customers. Its chatbot, named T-Bot, runs on IBM Watson Assistant. T-Bot assists TIME to enable a harmonious medium between technological efficiency

[59] Vulcan Post, Malaysia Sees the Launch of Another e-Wallet, This Time from Astro, May 2018.
[60] Digital News Asia, Safety First on the Road with Digi's Connected Cars Solution, December 2018.
[61] Digital News Asia, Maxis Works with MDEC's Solution Providers to Build IoT Ecosystem, March 2018.
[62] GSMA, Mobile IoT in the 5G Future, NB-IoT and LTE-M in the Context of 5G, April 2018.

and human reasoning, improving TIME query response rate and their overall customer experience[63].

IoT in Manufacturing

Industry 4.0 or the Fourth Industrial Revolution refers to the trend of advanced automation and data exchange in manufacturing technologies. It includes cyber-physical systems, IoT, cloud computing and cognitive computing.

The manufacturing industry in Malaysia is moving towards Industry 4.0. Among notable multi-national companies (MNCs) that produce intermediary products for IoT are Intel, Bosch and ASE Electronic in Penang, Infineon in Melaka as well as ON Semiconductor in Negeri Sembilan. Local champions include Salutica, K-One Resources and SmartTrac[64].

These companies either design, develop or manufacture consumer and business electronic products. Their products include Bluetooth headsets, smart watches, security or surveillance gadgets, industrial products, healthcare or medical devices, RFID, IoT solutions and devices.

[63] Marketing Magazine, Telco TIME dotcom Unveils Chatbot to Boost Customer Experience, September 2018.
[64] MIDA, IoT Malaysia 2017 Talking Points for Minister of International Trade and Industry, November 2017.

IoT Awareness and Initiatives

In an effort to encourage the adoption of IoT applications and services, MCMC has initiated two programmes namely myMaker and Digital Lifestyle Malaysia, since 2015 and 2011 respectively to create awareness and instil interests of IoT among consumers and industries. These initiatives also aim to prepare the community and industry with IoT solutions and digital lifestyle applications.

myMaker Initiatives

myMaker is an initiative by MCMC to raise public awareness of Science, Technology, Engineering and Mathematics (STEM), incorporating IoT development towards Industry 4.0 for technology enthusiasts, start-ups, educators, tinkerers and students.

The platform enables the makers society a chance to exercise their creativity and innovativeness in the areas of 3D printing, drone, embedded system, electronic, VR, IoT programming and others.

The initiative aims to drive regional and national harmonisation through building myMaker spaces and communities by organising training and programmes related to STEM and IoT.

Digital Lifestyle Malaysia Initiative

Digital Lifestyle Malaysia (DLM) is an MCMC initiative in relation to digital lifestyle and IoT applications and services development. It promotes innovative digital lifestyle solutions to industries and communities, with main objective to create ecosystems to adopt digital applications for competitiveness and lifestyle.

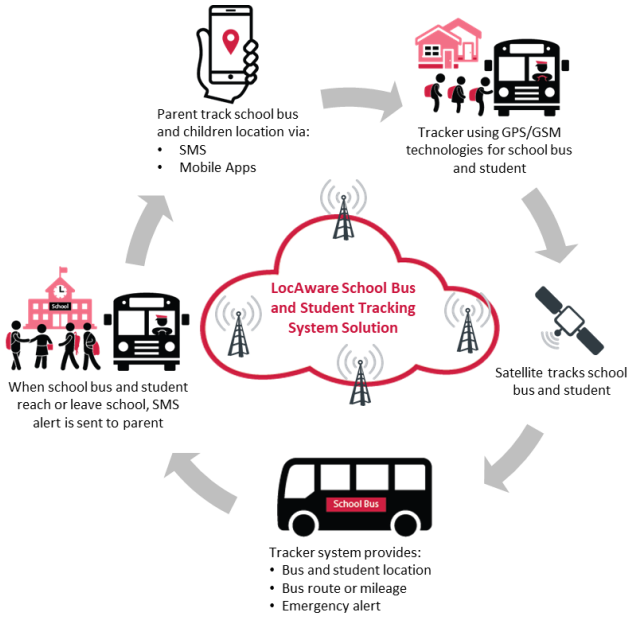
DLM initiatives provide a platform for IoT applications and services creation to enhance efficiency and increase economic activities. The initiatives are expected to create new opportunities for people to improve income.

The tangible benefits of DLM initiatives to users are:

- Creating better quality of life within the dynamic digital lifestyle ecosystems.
- Competing internationally using ICT and IoT through increased productivity and sustainability.
- Boosting sustainable income and economic growth, which incorporates industry and society participation.
- Enabling higher income for all. ICT and IoT applications and services remain among the best enablers to bridge the digital divide.

DLM Collaborations with Industry and Community

DLM PROOF OF CONCEPT PROJECTS

Programme	Collaboration Partners	Description
DLM Ecosystem for Healthcare	• MDT Innovations Sdn Bhd • Sunway Medical Centre	• Development of RAPITA Active RFID Asset Management System (RAMS), which provides real time asset tracking and monitoring. With RAMS, hospital personnel will be able to locate hospital assets instantly. • Combination of RFID technology and IoT Gateway using sensors to monitor temperature, humidity and air quality in Intensive Care Unit and Coronary Care Unit.
DLM Ecosystem for Transportation	• Nissen Technology Sdn Bhd • UNITEN Smart UniverCity Programme	• A tracking and notification system for school bus and children using GPS, GSM, RFID and IoT technologies. 
DLM Ecosystem for Retail and Payment	• Front Connect Sdn Bhd • Segaris Art Gallery under UiTM Holdings Sdn Bhd	• Development of BLE Proximity Marketing - an IoT solution with Bluetooth 4.0 Beacon, which allows personalised marketing information to be sent to smart devices. The mobile app is developed on Android and iOS platforms, allowing integration with online payment gateway for instant purchase of products online.
Smart Quran	• Jabatan Kemajuan Islam Malaysia (JAKIM) • Jabatan Agama Islam Negeri (JAIN)	• Smart Quran is the second mobile app development under the initiative of a strategic partnership between MCMC and JAKIM through JAKIM-JAIN-MCMC Joint Committee. • Development of Smart Quran is based on Rasm Uthmani by An-'Asim with Tafsir Pimpinan Rahman, fully checked and authorised by JAKIM, Kementerian Dalam Negeri and JAIN.

Source: MCMC

Figure 4.1 DLM Proof of Concept Projects

The above-mentioned digital lifestyle and IoT applications and services are hosted on DLM Virtual Private Cloud, which is located at AIMS Data Centre, Kuala Lumpur. It is an Infrastructure-as-a-service (IaaS) type of cloud computing service. With this platform, developers can use the IT infrastructure during the project implementation.

Smart Community

Various major programmes have been formulated and implemented at five districts. The most common flagship programme is the improvement of infrastructure and service coverage, whereas the applications developed are based on local issues and requirement.

Communications Infrastructure: Key Element in Developing Smart Community

Since its implementation in 2015, the 4G LTE and 3G coverage in Smart Community districts has increased between 11% and 30%. The coverage improvement for all Smart Community districts are summarised below:

MOBILE SERVICES COVERAGE IN SMART COMMUNITIES

District	Coverage (%)					
	2G		3G		4G LTE	
	Before	After	Before	After	Before	After
Kemaman	95.3	96.4	89.0	95.4	8.4	73.4
Kota Belud	86.9	93.8	76.9	93.8	17.0	51.4
Putrajaya	100	100	100	100	78.1	100
Lundu	78.2	84.6	55.6	79.1	5.9	36.7
Langkawi	97.7	97.9	90.6	97.7	71.2	82.1

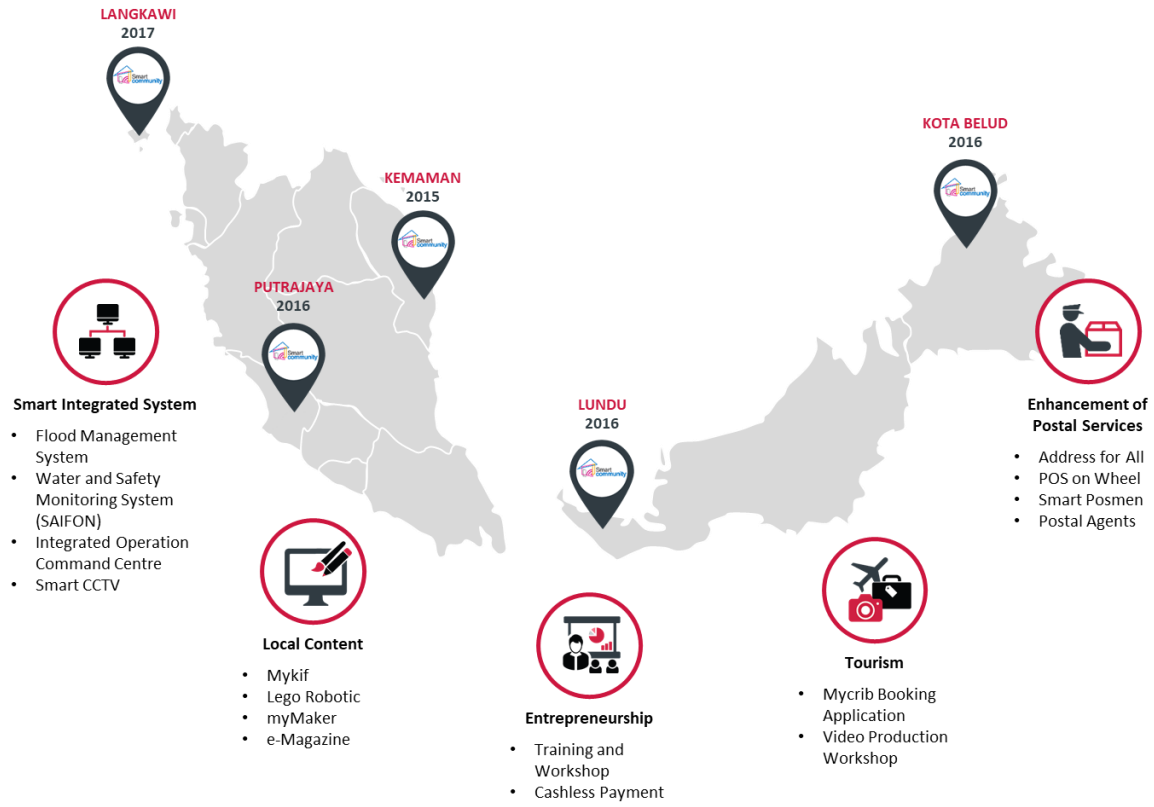
Note: As at end November 2018

Source: MCMC

Figure 4.2 Mobile Services Coverage in Smart Communities

Since the implementation of Smart Community, MCMC advocates a two-prong strategy namely "Supply and Demand", to promote the take up of communications services and ensure a critical mass where growth is then determined by market forces. This strategy aims to ensure network and services investment made by government and service providers are utilised at optimum level.

As a result of pervasive infrastructure roll out, new innovative services and applications such as smart solution, e-education, e-commerce, e-government were introduced to fulfil the needs of the local community in the districts as well as to improve their quality of life through the use of ICT.



Source: Industry, MCMC

Figure 4.3 Smart Community Common Flagship Programmes

The common flagship programmes are developed to address local community issues. The programmes cover most aspects related to daily basic needs in which its implementation can be replicated to other districts in Malaysia.

Each identified district is driven by respective local requirement and their own uniqueness. A key success factor for sustainability of the Smart Community programme is strong community, public and private sector collaboration. The presence of institutional support at district, state and federal levels is critical to ensure immediate successful projects in improving communications services, coverage and applications development.

Smart Community 2.0

Moving forward, MCMC intends for the Smart Community 2.0 to be anchored upon the Government's vision of using technology solutions as an enabler. The Smart Community 2.0 will be shifting from district level to smart flagship applications towards addressing community needs and is to be driven by the local government.

It is crucial to recognise that Smart Community 2.0 needs to be strategised effectively so that it provides significant impact to the community and promotes a sense of ownership among the community after project handover. This is to ensure sustainability of the project.

In addition, the smart flagship applications should support and strengthen local authority role in building and supporting the local economy. Collaboration with local government and state administrations are needed as champions to ensure successful implementation for smart community development.

Internet Centres: Empowering Digital Community

Internet centre is one of the initiatives under the Universal Service Provision (USP) programme, which aims to provide underserved communities with access to broadband services and to bridge the digital divide between those in urban and rural areas. To date, there are 870 Internet centres nationwide.

Internet centres serve as a local transformation platform for communities to enhance their knowledge in the use of ICT tools as well as in multimedia technology. Hence, this platform promotes the community quality of life and improves their economic well-being.

Activities conducted allow local communities to engage and interact with strategic stakeholders such as government, non-government entities including institutions of higher learning.

The following parties were involved in the strategic collaboration partnerships for the various initiatives and programmes for the benefit of the communities involved:

- Federal Agricultural Marketing Authority
- Department of Orang Asli Development
- TM
- Pejabat Daerah dan Tanah Kemaman
- Ministry of International Trade and E-Commerce Sarawak (MITEC)
- Lazada
- Malaysia Digital Economy Corporation Malaysia (MDEC)
- Institutions of higher learning
- Pos Malaysia
- GD Express Sdn Bhd (GDEX)
- Ministry of Health

Figure 4.4 shows initiatives and programmes conducted through various collaboration.

COMMUNITY EMPOWERMENT THROUGH INTERNET CENTRES

DIGITAL LITERACY	ENTREPRENEURSHIP AND E-COMMERCE	STEM AND IOT	COMMUNITY OUTREACH
• e-learning modules • IoT and STEM modules • Online tuition • Online reading	• e-fulfilment • e-marketplace • Online job market • e-payment gateway	• Script writing and video making • Coding tutorials (Robotic 3D printing) • Online certification through exam	• Online health screening • Community day • Advocacy and awareness • ICT volunteers programme

Source: MCMC

Figure 4.4 Community Empowerment Through Internet Centres

Success Story: Opportunity to Improve Learning Environment

The success of Smart Community initiative is dependent on the programme and technology developed as well as commitment from local authority and community to adopt such technology in their everyday life.

As an example, Smart Community in Pulau Mantanani, Kota Belud, Sabah benefits from the improvement of communications infrastructure. Notably, the availability of cellular and broadband services enabled the community to have access to educational material and assistance from teachers using ICT-based learning for students. This has resulted in improving the students' examination results.

MODULE 5: QUALITY ASSURANCE AND CONSUMER PROTECTION

Consumer Protection and Empowerment

Consumer protection is designed to promote and protect consumer interests. It also aims to improve industry responsiveness to consumer requirements, ensure consumer confidence in the quality of service, promotes widespread access to services and affordability of services.

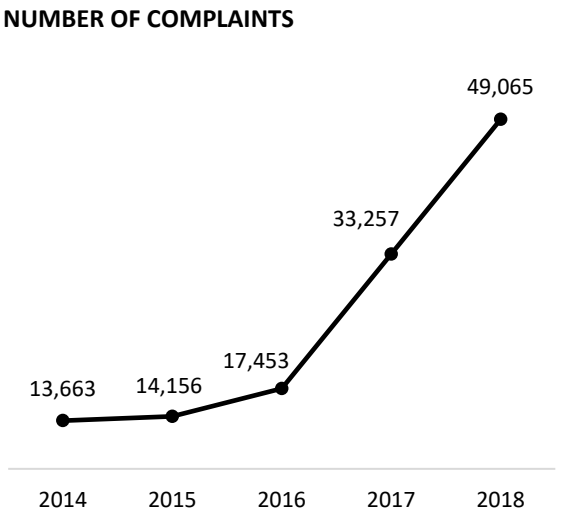
Consumer rights to C&M services in Malaysia are protected under the CMA. Complaints and disputes on consumer rights as well as content are covered. There are codes of conduct governing how service providers deliver their services and respond to consumers as compliance with these codes are mandatory for all licensees.

Consumer Complaints

MCMC observes an upsurge in complaints over the past few years. Rising complaints were due to increased awareness of right to complain to relevant authorities. Others include poor or no 4G LTE coverage and Streamyx customers complaining on unfair pricing and no HSBB coverage in their areas to enjoy new offerings and packages.

In 2018, a total of 49,065 complaints were received by MCMC compared with 33,257 complaints in 2017, representing about 47.5% increase. These complaints were related to issues on telecommunications services and other matters such as new media complaints, complaints under MCMC purview as well as those not under MCMC purview.

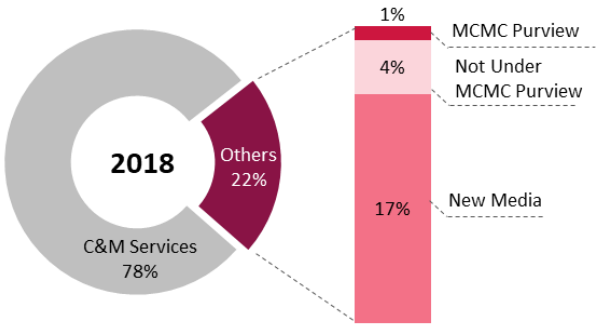
CONSUMER COMPLAINTS RECEIVED BY MCMC 2014 – 2018



Source: MCMC

Figure 5.1 Consumer Complaints Received by MCMC 2014 – 2018

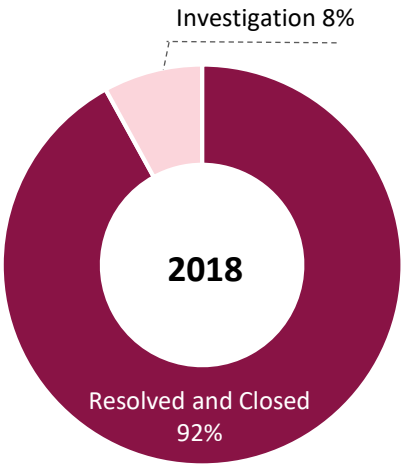
TYPE OF COMPLAINTS 2018



Source: MCMC

Figure 5.2 Type of Complaints 2018

COMPLAINTS STATUS 2018



Note: Complaint resolved will automatically be closed in the ICMS if there is no further escalation by the complainant within the stipulated 30 working days timeframe from the date resolved. Closed complaint refers to those cases closed in the ICMS.

Source: MCMC

Figure 5.3 Complaints Status 2018

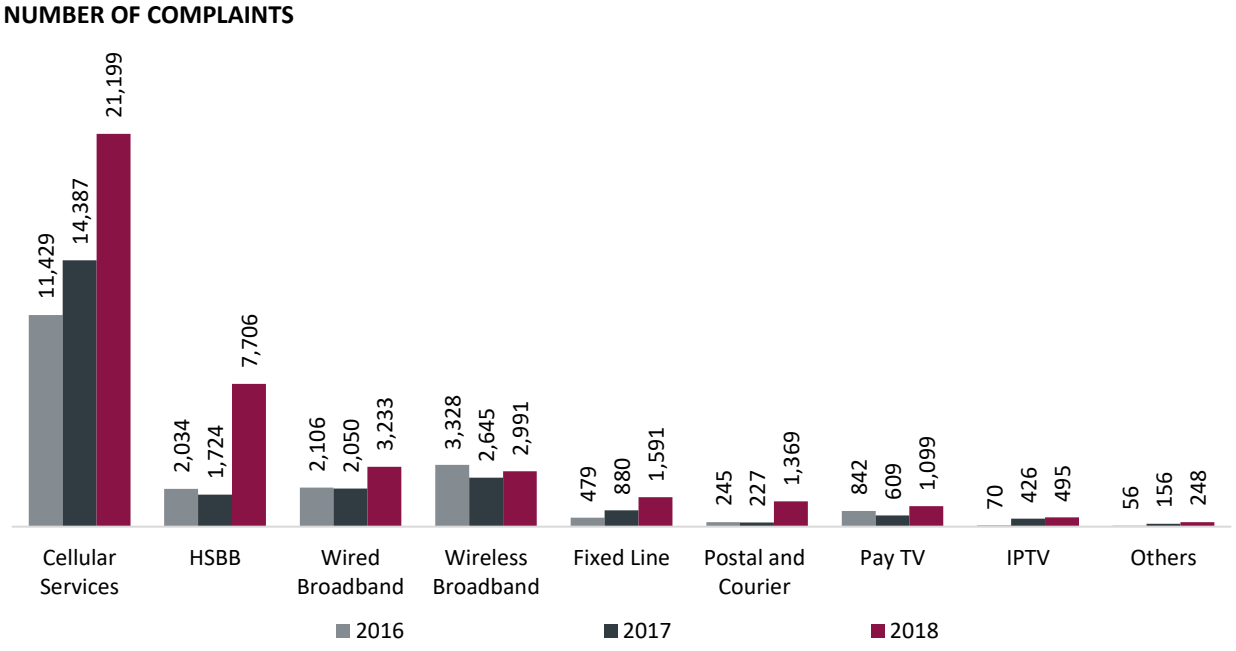
In 2018, a total of 99% complaints were acknowledged within 72 hours or 3 working days whilst 22% complaints were resolved within the same period. Also, 74% complaints were resolved within 15 working days.

As at end 2018, 92% of the cases were resolved and closed, whilst 8% was escalated for further investigation.

Cellular services represent 43% of total complaints

Complaints by services shows that cellular services comprised 43% of total complaints received in 2018. This is followed by HSBB (16%), wired broadband (7%) and wireless broadband (6%).

COMPLAINTS BY SERVICES 2016 – 2018



Source: MCMC

Figure 5.4 Complaints by Services 2016 – 2018

The top five categories of complaints lodged with MCMC in 2018 are:

1. Coverage and network related issues have the most complaints with a total of 14,501 compared with 8,863 in 2017. Complaints were mainly on poor or unavailability of HSBB, 3G and 4G LTE. Intermittent call connection due to network congestion including service disruption or downtime were also among main complaints.

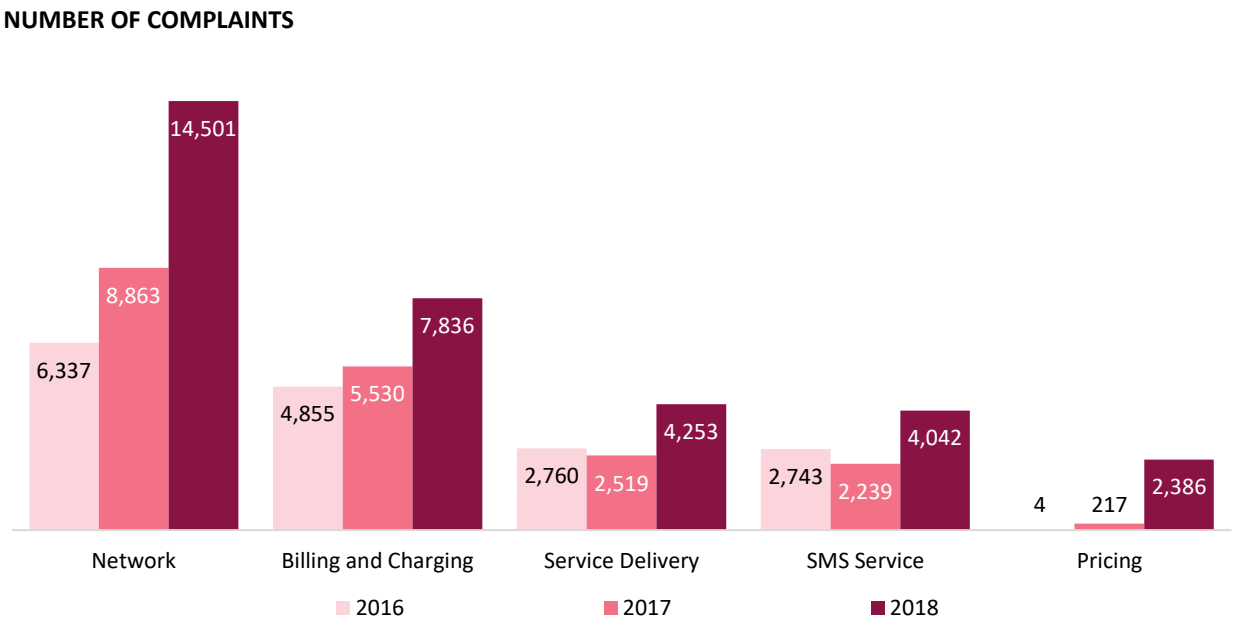
2. Complaints related to billing and charging were relatively high in 2018. Most of the cases were related to hefty billing charges for unknown transactions, that is, dispute on charges for call or SMS, roaming, data or GPRS and rebate or refund.

3. Service delivery issues were on delay in installation and service activation or restoration. Poor customer service, technical and service termination failure including faulty customer device or customer premises equipment were among complaints.

4. SMS complaints were on Mobile Content Services such as gambling, unsubscribed or promotional SMS from external content provider including telco, scam and peer to peer spam.

5. Complaints on pricing were significant in 2018 with a total of 2,386 (2017: 217). Following the announcement of broadband price reduction by service providers, complaints were raised on factors such as long waiting time to enjoy new prices and no service.

TOP FIVE COMPLAINTS 2016 – 2018



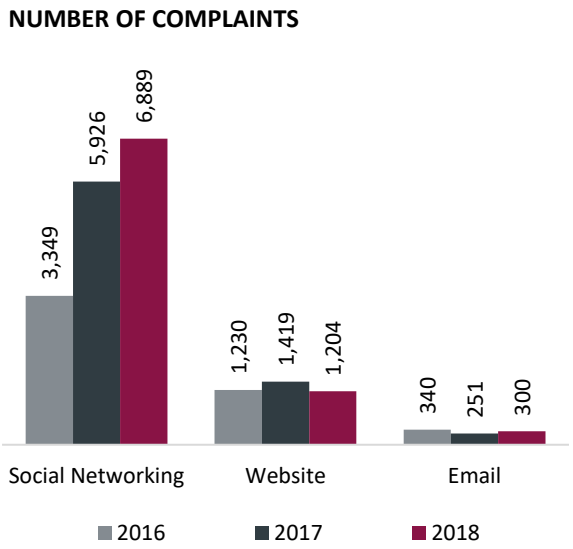
Source: MCMC

Figure 5.5 Top Five Complaints 2016 – 2018

Complaints on New Media

In 2018, a total of 8,393 complaints were classified under new media, increased by 10.5% compared with 2017. It is observed that complaints related to social networking were the most received over the past five years. In contrast, complaints on websites saw a drop of 15% in 2018 compared with the previous year. Most of the cases were related to false or misleading content, offensive or menacing remarks, obscene or indecent content as well as political issues.

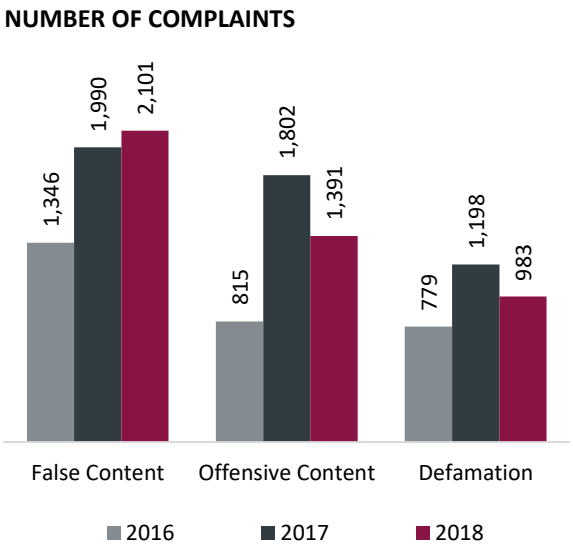
TYPE OF COMPLAINTS ON NEW MEDIA 2016 – 2018



Source: MCMC

Figure 5.6 Type of Complaints on New Media 2016 – 2018

TOP THREE COMPLAINTS ON NEW MEDIA 2016 – 2018



Source: MCMC

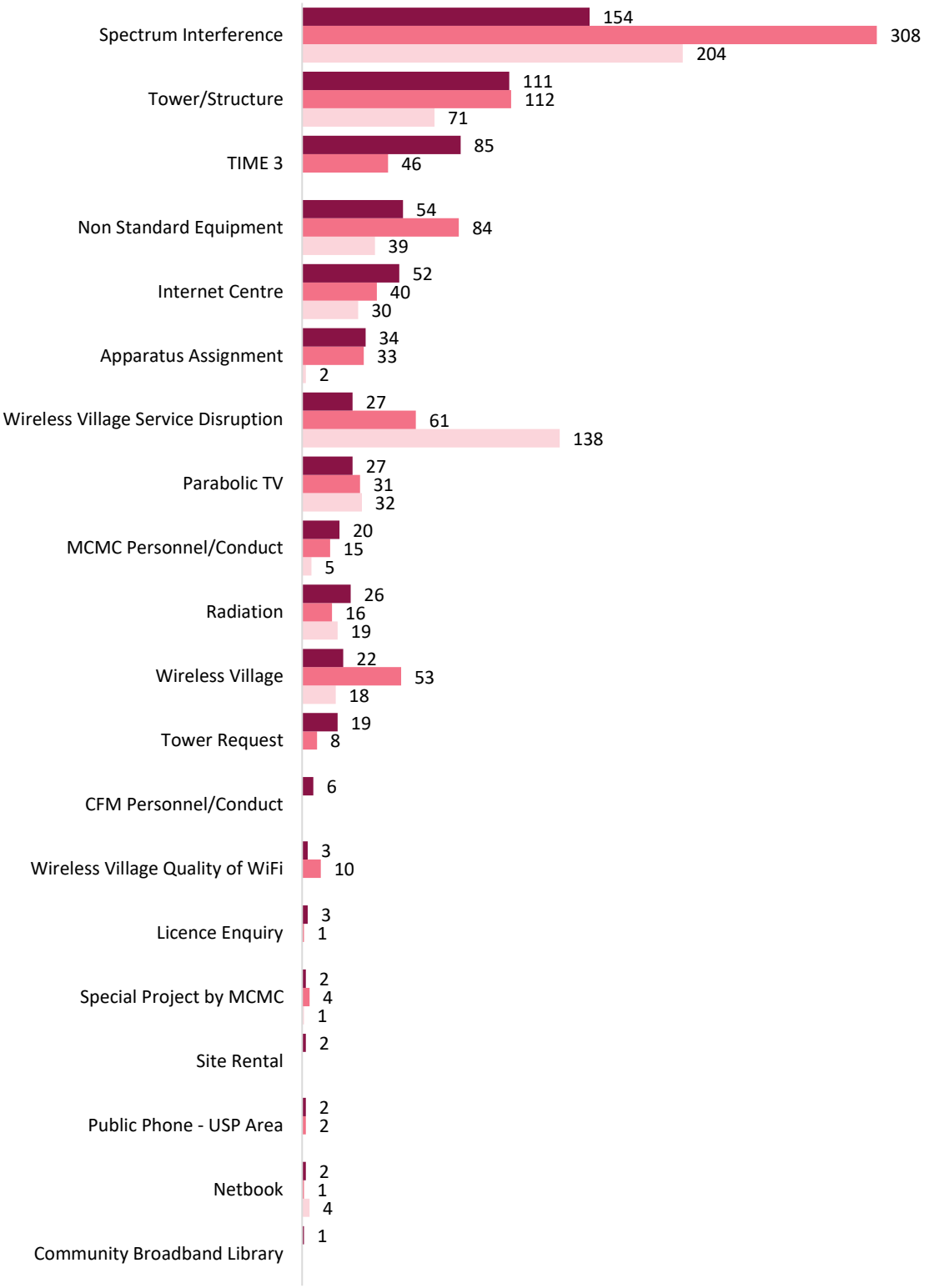
Figure 5.7 Top Three Complaints on New Media 2016 – 2018

Complaints related to false or misleading content increased by 111 or 6% to 2,101 in 2018 from 1,990 in 2017. Notably, complaints on offensive content decreased by 411 (23%) in 2018 as compared with the preceding year. Defamation related complaints also saw decrease in 2018, that is, by 215 (18%) compared with those reported in 2017 (Figure 5.7).

Complaints under MCMC Purview

Complaints under MCMC purview declined by 20% to 664 in 2018 (2017: 826). The top three categories of these complaints were spectrum interference, tower or structure and Time 3.

NUMBER OF COMPLAINTS



	2018	2017	2016
Total Complaints	**664**	**826**	**563**

Source: MCMC

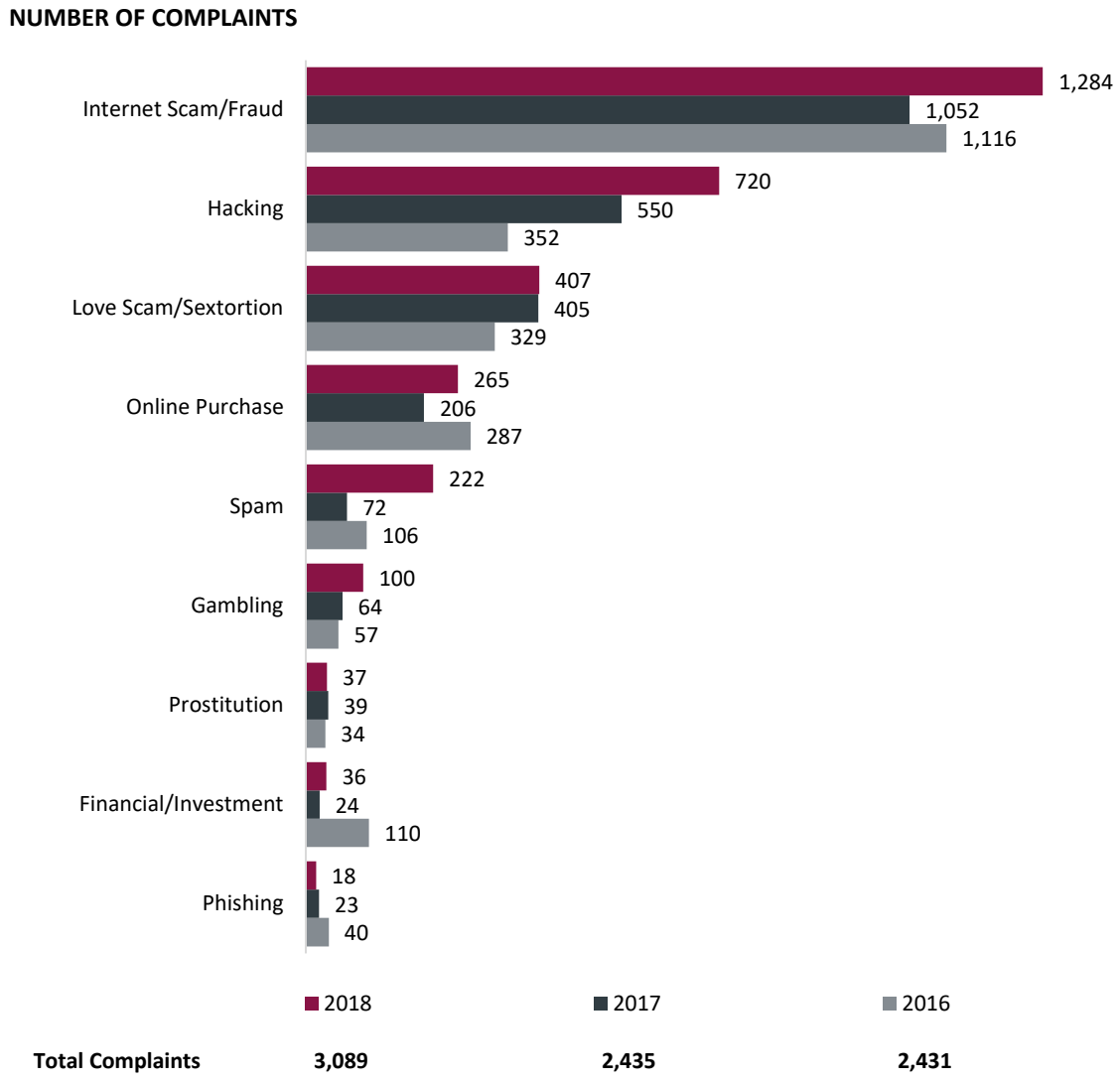
Figure 5.8 Complaints Under MCMC Purview 2016 – 2018

Complaints Not Under MCMC Purview

Over the past three years, complaints about matters not under MCMC purview have been increasing. In 2018, Internet scam or fraud has 1,284 complaints, followed by hacking of social media accounts (720) and sextortion or love scam (407). MCMC plays an active role together with other enforcement agencies towards eradicating such illegal activities.

Complaints under "Others" category include investment or quick cash scheme. MCMC advise complainants to lodge their complaints with relevant parties such as police, Bank Negara Malaysia or other agencies.

COMPLAINTS NOT UNDER MCMC JURISDICTION 2016 – 2018



	2018	2017	2016
Total Complaints	**3,089**	**2,435**	**2,431**

Source: MCMC

Figure 5.9 Complaints Not Under MCMC Jurisdiction 2016 – 2018

Ministerial Direction on the Registration of Subscribers of Prepaid Public Cellular Services

Prepaid Registration Guidelines

Ministerial Direction on the Registration of Subscribers of Prepaid Public Cellular Services, Direction No. 1 of 2006, was issued in 2006. This prepaid registration guideline requires every service provider that provides prepaid mobile services to register its users in Malaysia. This guideline aims to empower consumers in ensuring identification information provided during registration are valid and to ensure integrity of the data. With automation in the registration process, it is expected that fraudulent registration using false ID is reduced.

MCMC revised Guidelines on Registration of End-Users of Prepaid Public Cellular Services (Prepaid Registration Guidelines) was issued 1 June 2017, which came into effect 1 January 2018[65]. The Prepaid Registration Guidelines eliminated manual registration and required every registration to meet requirements as in Figure 5.10.

PREPAID REGISTRATION GUIDELINES

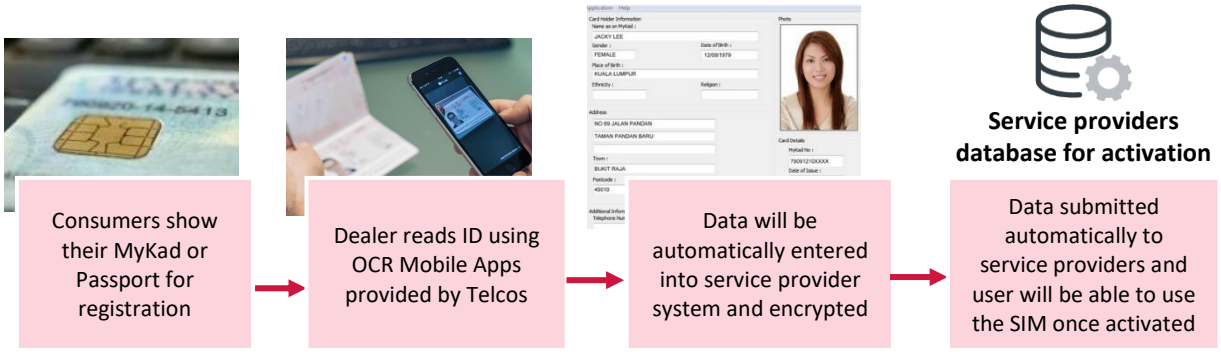
New Provisions	Details
New requirement for registration of foreigners.	• Foreigners need to show both passport and work permit or student ID card to subscribe to public cellular service. • Foreigners with Passport only will be treated as tourists and the validity of the SIM card is limited to three months only.
Registration using encrypted and secured Automated Platforms only *(manual verification by dealers, hardcopy forms or SMS are prohibited)*	• Telcos or its dealers are required to use automated platforms such as MyKad reader, biometric reader, Optical Character Recognition, secure online registration verified via financial account or any other automated platforms as may be approved by MCMC from time to time. • With this, it is anticipated that the number of false registrations will be reduced.
Number of SIM cards allowed per individual	• Service providers shall not register any new customer for more than five SIM cards per individual*.
New and free of charge platform for customers to check their subscriptions	• Service providers shall develop a free of charge mechanism that enables subscribers to check for any SIM cards registered under their name.

**Note: Previously, service providers were allowed to register 10 SIM Cards per individual. This had created abuse by dealers, especially in registering foreigners or foreign workers.*

Source: MCMC
Figure 5.10 Prepaid Registration Guidelines

[65] The Guideline is available on www.skmm.gov.my/skmmgovmy/media/General/pdf/Prepaid-Registration-Guidelines-MCMCG0117.pdf

Registration Using OCR



Source: MCMC

Figure 5.11 Registration Using OCR

Assessment of OCR Implementation

In 2018, MCMC conducted a ground survey exercise to assess the readiness of OCR implementation by service providers. The audit was conducted in Northern region covering Perlis, Kedah, Penang and Perak. A total of 338 registered dealers were randomly selected and audited. From these, only 295 dealers or 87% of audited dealers were equipped with OCR.

SUMMARY OF GROUND SURVEY (NORTHERN REGION)

		Number of Dealers Audited
1. **Guidelines**	a. Not aware of the Guidelines	101
2. Registration	a. Using portal for registration	164
	b. Allowed registration using international student card	253
	c. Allowed registration using United Nations High Commissioner for Refugees (UNHRC) card	18
	d. Allowed third party to do registration	22
	e. Using photocopy of identification document	11
	f. Using driving licence	8
TOTAL		**338**

Source: MCMC

Figure 5.12 Summary of Ground Survey (Northern Region)

Based on the audit report, compound was issued to service providers not complying with the Prepaid Registration Guidelines.

COMPOUND ISSUED

No.	Service Provider	Compound (RM)
1	Maxis Broadband Sdn Bhd	450,000
2	Celcom Axiata Bhd	350,000
3	Digi Telecommunications Sdn Bhd	250,000
4	U Mobile Sdn Bhd	200,000
5	Tune Talk Sdn Bhd	150,000
6	Merchantrade Asia Sdn Bhd	50,000
7	XOX Com Sdn Bhd	50,000
8	Altel Communications Sdn Bhd	30,000
9	YTL Communications Sdn Bhd	10,000
TOTAL		**1,540,000**

Source: MCMC
Figure 5.13 Compound Issued

Mobile Content Services

Mobile content services is defined as any messaging service providing content, wherein charges may be imposed over and above the standard network charges of the relevant service provider.

Mobile content services is also categorised as a service that is only offered through the five-digit short code via SMS broadcast. There are three assigned variants of short codes commonly used. A sample of activities under mobile content services and short code used is in Figure 5.14.

EXAMPLE OF MOBILE CONTENT SERVICES

Services	Description	Short-code Used
Service Provider Information	• Billing information, top-up status, missed calls, offers from service providers	2-series (e.g. 22222)
Mobile Phone Personalisation	• Ring tones, graphics (log, picture message, colour wallpapers, animations, themes) and Java games	2-series and 3-series
Infotainment	• Sports news, gaming result, updates, tips and advice	
Information	• World and financial news, weather forecast, stock alerts, prayers information	
Communications	• Chat, find a friend, share a joke and others	
Banking and Financial Services	• Transaction Authorisation Code (TAC), alert and notification, e-commerce	6-series

Source: MCMC
Figure 5.14 Example of Mobile Content Services

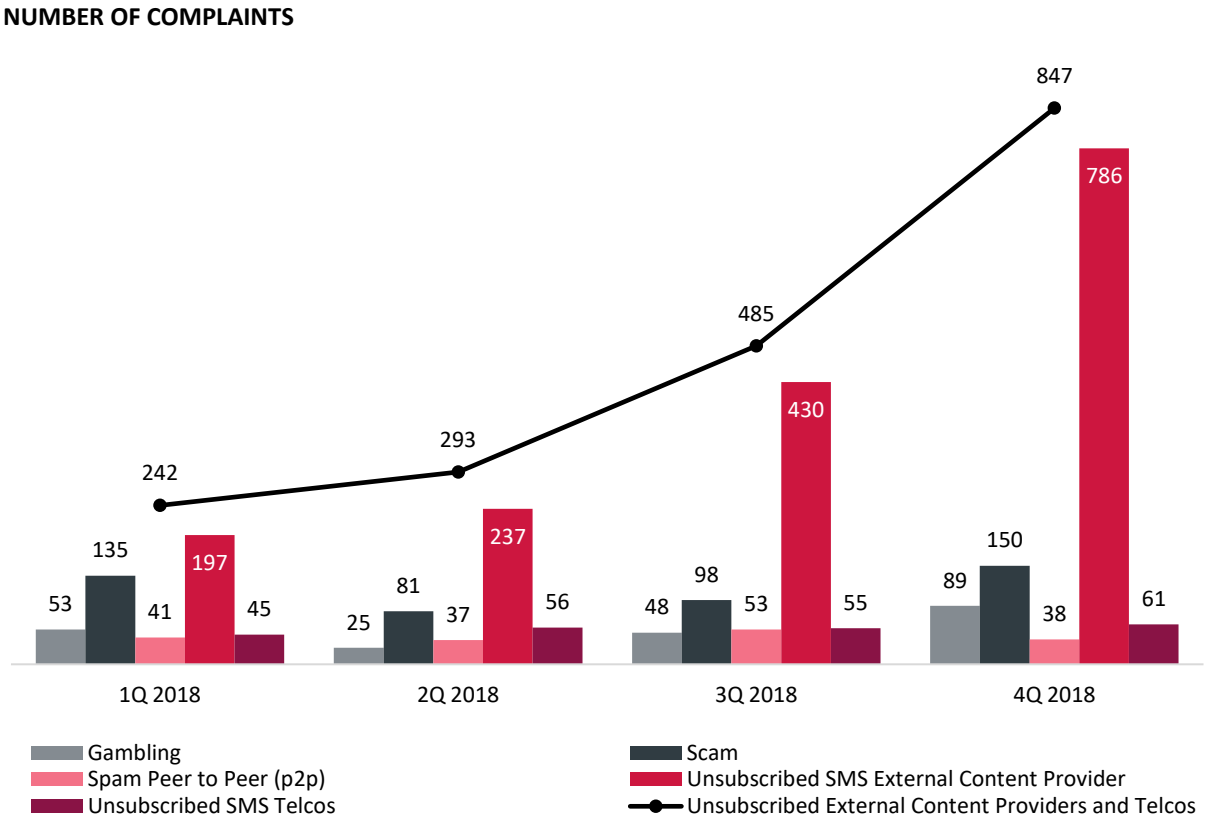
Mandatory Standards for the Provision of Mobile Content Services, Determination No.4 of 2009 (MSMCS) is used to provide adequate consumer safeguard and guidelines for the mobile content industry. In recent years, evolution of mobile communication technologies and Internet Protocol (IP) based services enable mobile content to be available on any devices that supports IP-based content platforms.

The convergence of mobile content services with IP-based content services has created a gap in the regulatory framework of MSMCS. The fluidity of the mobile content services caused it to be one of the top SMS related complaints received by MCMC, which is represented by "unsubscribed external content providers and telcos" category illustrated in Figure 5.15.

Actions taken on non-compliance are through issuance of warning letters, penalties and suspension of the mobile content services short codes and keywords involved. MCMC is continuously working together with the mobile content industry players and aggregators in addressing mobile content services issues faced by subscribers at large.

Since 2015, MCMC consulted and engaged with various stakeholders in reviewing MSMCS, which is targeted to be completed by 2019. The review is expected to provide an update to the MSMCS and necessary tools to ensure continued safeguard of consumers.

TOP SMS RELATED COMPLAINTS 2018



Source: MCMC

Figure 5.15 Top SMS Related Complaints 2018

Termination of Mobile Number Due to Illegal Advertisement

Illegal advertisement (ads) is a concern among local authorities in Malaysia. This issue is seen escalating whereby illegal ads are posted everywhere, affecting the image of cities in Malaysia, particularly Kuala Lumpur.

In response to this concern, local authorities have intensified their monitoring and enforcement actions to curb such activity and ensure due punishment of parties involved.

Furthermore, in 2012 local authorities have initiated a collaboration with MCMC to terminate all numbers displayed or posted on the illegal ads. This process requires local authorities to send an official application to MCMC to enable termination process of the mobile numbers involved. A working group consisting of the Ministry of Urban Wellbeing, Housing and Local Government and MCMC was established to develop a standard operating procedure to coordinate and standardise the process for termination of such mobile numbers.

The figure below indicates mobile numbers related illegal ads as at December 2018.

MOBILE NUMBERS TERMINATED: ILLEGAL ADS

No.	Local Authority	Received	Terminated	Not Processed (Incomplete Submission)	Inactive
1	Dewan Bandaraya Kuala Lumpur	1,197	942	0	257
2	Dewan Bandaraya Kota Kinabalu	33	30	3	0
3	Majlis Bandaraya Alor Setar	12	0	12	0
4	Majlis Bandaraya Melaka	13	13	0	0
5	Majlis Bandaraya Petaling Jaya	32	0	32	0
6	Majlis Bandaraya Shah Alam	31	28	3	0
7	Majlis Daerah Kuala Langat	38	36	2	0
8	Majlis Daerah Kubang Pasu	72	71	1	0
9	Majlis Perbandaran Klang	94	94	0	0
10	Majlis Perbandaran Muar	1	1	0	0
11	Majlis Perbandaran Port Dickson	41	0	41	0
12	Majlis Perbandaran Sg Petani	30	30	0	0
13	Majlis Perbandaran Subang Jaya	19	19	0	0
TOTAL		**1,613**	**1,264**	**94**	**257**

Source: MCMC

Figure 5.16 Mobile Numbers Terminated: Illegal Ads

Industry Self-Regulating Forums

Communications and Multimedia Consumer Forum of Malaysia (CFM)

The role of CFM is to ensure the industry embraces self-regulation while empowering and protecting consumer rights. Designated as a self-regulating forum under the CMA, CFM has developed the General Consumer Code of Practice for the Communications and Multimedia Industry Malaysia (GCC), which was registered in 2003.

Serving the key responsibility areas of ensuring consumer protection, CFM represents both the supply and demand sides and offers a platform for consumers seeking to redress their unresolved complaints related to C&M services. As at end 2018, CFM received a total of 6,330 complaints with 91% of the complaints resolved within 15 working days.

CFM prioritises consumer rights by organising public awareness programmes. In Sabah and Kedah, such programmes include "CFM Gags & Coffee", which uses a relaxed and easy-going approach in tackling telecommunications issues and delivering consumer rights information, through comedy and sketches. This programme featured local comedians who attracted the public and delivered CFM targeted messages.

In the same spirit, CFM first fun race, "CFM Explorace", took place at Pusat Sains Gunung Kerian, Kedah in conjunction with the World Telecommunications and Information Society Day 2018. CFM signature programme was an Industry Knowledge Sharing Session held twice in 2018 in Putrajaya and Kedah respectively.

Overall in 2018, CFM highlighted consumer issues were quoted by media 352 times.

MCMC Monitoring Activities

Monitoring of CASP (I) Licensees through Content Monitoring Centre

MCMC monitors the CASP (I) licensees compliance with their licence conditions, Content Code and relevant provisions of the CMA.

As at end 2018, a total of 26 complaints related to TV and radio broadcast content were received and investigated by MCMC. By broadcast platform, there were 15 complaints on terrestrial FTA TV, six complaints on terrestrial radio and the remaining on subscription TV. There was a 45% decline in complaints received in 2018 compared with 47 complaints received in 2017.

COMPLAINTS ON BROADCAST CONTENT

Year	FTA TV	Subscription TV	Radio	TOTAL
2018	15	5	6	**26**
2017	30	10	7	**47**
2016	15	13	6	**34**

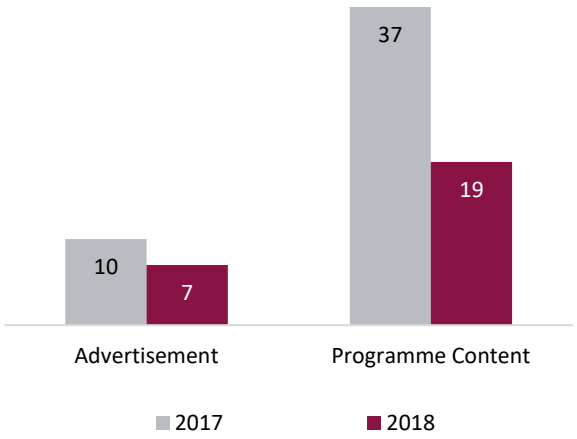
Note: Subscription TV – ASTRO, HyppTV; Terrestrial FTA TV – TV3, TV9, ntv7, 8TV and TV AlHijrah

Source: MCMC

Figure 5.17 Complaints on Broadcast Content

Out of 26 complaints received in 2018, 73% were on programme content such as news, movie, drama and song lyrics whereby content were offensive, menacing, indecent or obscene. Among the complaints, sensitive content refers to inappropriate visuals or scenes or use of vulgar language. The remaining 27% were complaints on commercial ads whereby most of these were repeatedly aired.

COMPLAINTS ON CASP (I) LICENSEES CONTENT BY CATEGORY 2017 – 2018



Source: MCMC

Figure 5.18 Complaints on Broadcast Content by Category 2017 – 2018

Due to the high number of non-compliance cases related to ads on health, food and cosmetic products on TV and radio, MCMC with Ministry of Health Malaysia (MOH) (Food, Cosmetic and Pharmacy Divisions) conducted a workshop on *Iklan Tuntutan Kesihatan* in January 2018.

This workshop was attended by CASP (I) licensees. Through this workshop, an Industry Reference on *Iklan Tuntutan Kesihatan* was released as guidelines and best practices for the licensees to comply with.

In addition, MCMC organised an information sharing session in August 2018 to obtain industry feedback on MOH policy of *Larangan Pengiklanan Makanan Dan Minuman Yang Tinggi Kandungan Lemak, Garam Dan Gula* in support of healthy lifestyle.

Co-regulation efforts between MCMC and MOH has improved CASP (I) licensees' compliance with commercial ads or promotion on health, food and cosmetics products. As a result, there was a 45% decline in complaints on broadcast content, that is, only 26 complaints reported in 2018 compared with 47 complaints in 2017.

Under their Special Licence Conditions, live or delayed content transmission requires MCMC approval before the programme could be aired. MCMC has taken proactive action to monitor live programmes, conduct compliance briefings to the licensees prior to the scheduled live programmes as well as attend rehearsal and live events to ensure the stations comply with the Content Code, CMA and other relevant laws.

LIVE AND REHEARSAL PROGRAMMES ATTENDED

No.	Programme	Station
1	*Anugerah Juara Lagu ke-32*	TV3
2	*Rahmatan Lil 'Alamin*	TV Al-Hijrah
3	*Wanita Hari Ini 2018*	TV3
4	*Anugerah Bintang Paling Popular Berita Harian 2018 ke-31*	TV3
5	*Anugerah Skrin 2018*	TV3
6	*Konsert Gegar Vaganza musim ke-5*	Astro Ria

Source: MCMC

Figure 5.19 Live and Rehearsal Programmes Attended

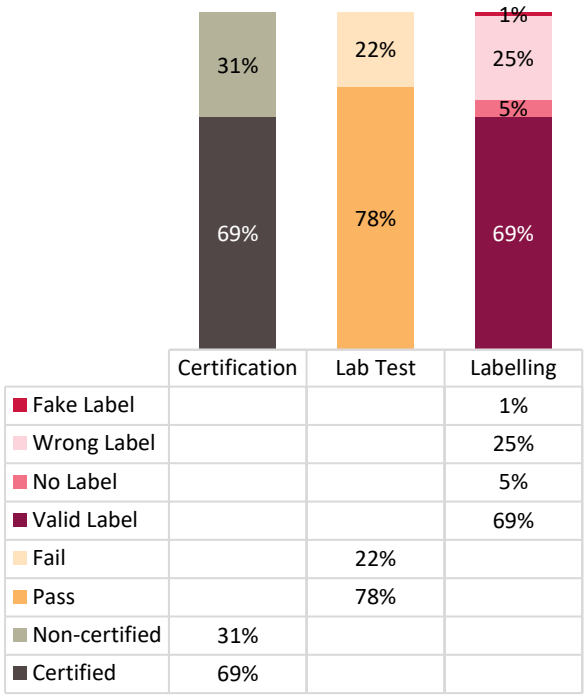
Surveillance on communications equipment and devices

All communications equipment are required to be certified in accordance with the Communications and Multimedia (Technical Standards) Regulations 2000 before the equipment can be sold to the public. The certification is performed based on technical codes published by MCMC, which cover the requirements on safety, radio frequency, electromagnetic compatibility and interoperability.

MCMC conducts regular market surveillance programme whereby the latest exercise was conducted from January to July 2018. This market surveillance involved purchase of 133 samples or 96 models of products. It covers 15 product categories, which include cellular phones, computers, mobile radios, telephones, Wi-Fi products, short range wireless devices, RFID devices and hybrid products such as laptops, smart TV and wireless wearables.

A more targeted approach was adopted for market surveillance in 2018 whereby samples were purchased primarily from major outlets (hypermarket and chain stores) and online stores. The approach has enabled MCMC to assess the compliance level among these players and facilitate corrective and preventive measures as well as enforcement actions. The samples were purchased from sales outlets throughout the country according to a predetermined sampling plan.

OVERALL RESULT OF MARKET SURVEILLANCE 2018



	Certification	Lab Test	Labelling
Fake Label			1%
Wrong Label			25%
No Label			5%
Valid Label			69%
Fail		22%	
Pass		78%	
Non-certified	31%		
Certified	69%		

Source: MCMC

Figure 5.20 Overall Result of Market Surveillance 2018

The samples were evaluated to determine its compliance with the requirements enforced by MCMC as follows:

a) Certification status;
b) Laboratory testing (safety, communications and electromagnetic compatibility); and
c) Labelling status.

Figure 5.20 shows the results of market surveillance for 2018. Note that the certification and lab testing results are calculated based on the number of models while the labelling results are calculated based on the number of samples.

For any non-compliance found during the market surveillance in 2018, the following actions were taken for the two categories as follows:

ACTIONS TAKEN AGAINST NON-COMPLIANCE

No.	Category	Action	Total Cases
1	Certified products	Corrective and preventive actions by the certificate holders	9
2	Non-certified products	Legal actions against the suppliers	30

Source: MCMC

Figure 5.21 Actions Taken against Non-Compliances

The findings from this market surveillance programme provides valuable information on the state of communications equipment compliance. This assists MCMC in identifying areas of improvement in order to reduce non-compliance cases.

The public should always exercise caution by ensuring communications equipment that they purchase has MCMC label. In case of doubt, they can verify the validity of the label by using Check Your Label mobile app, which can be downloaded from Google Play or Apple App Store.

Quality of Service

Mandatory Standards for Quality of Service

Mandatory Standards for Quality of Service (QoS) under the CMA was created to ensure that consumer rights are protected as well as service providers adhere to their commitments to provide good quality services to consumers. Mandatory Standards for QoS is enforced by the MCMC through monitoring and regulating the performance of C&M services offered to users by the service providers.

Mandatory Standards were established for these objectives:

1. Enhance and protect the rights of consumers;
2. Provide users with clear and specific criteria for measuring the QoS received or applied; and
3. Enhance international competitiveness by strengthening the local C&M industry.

A total of eight Mandatory Standards for QoS registered between 2002 and 2016 are namely:

i. Wired Broadband Access Service
ii. Content Applications Services
iii. Dial Up Internet Access Service
iv. Digital Leased Line Service
v. Public Cellular Service
vi. Public Payphone Service
vii. Public Switched Telephone Network Service
viii. Wireless Broadband Access Service

Licensees are required to submit a report on half yearly or quarterly basis to MCMC on the services provisioned. Non-compliance with the Mandatory Standard for QoS is categorised into three aspects:

i. Non-compliance with the minimum standard imposed;
ii. Late submission; and
iii. Failure to submit.

Non-compliance is an offence under Section 105(3) of the CMA and if found guilty is subject to penalty, under Section 242 on General Offence and Penalty. The offender shall be liable to a fine not exceeding RM100,000 or imprisonment for a term not exceeding two years or both.

As at end 2018, a total of 29 notices were issued, which may lead to further enforcement actions. The notices were pertaining to non-compliance with both submission of report in the required manner and on a timely basis, as well as compliance with the minimum standard stipulated.

Network Performance Assessment

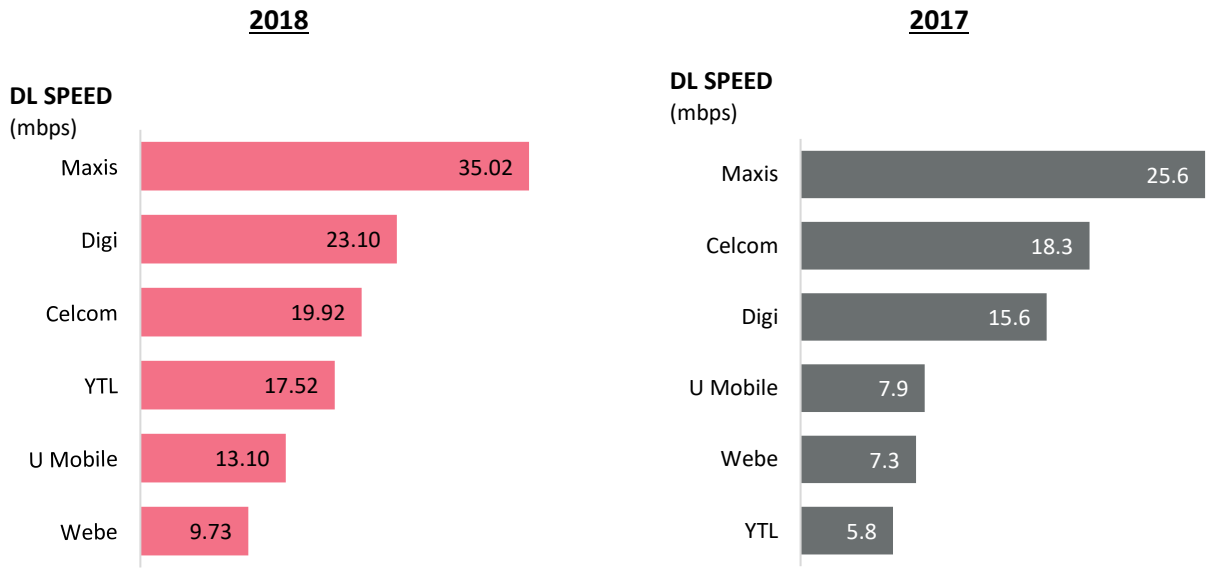
Network performances for service providers are measured nationwide based on Mandatory Standards implemented by MCMC namely QoS of Wireless Broadband Service, Wired Broadband Service and Public Cellular Service. These measurements were conducted in 2018 and the full report was published in January 2019[66].

The assessment on network performance is crucial in determining the state of service providers' network as consumer experience relies heavily on the condition of network QoS. Therefore, service providers adhering to the requirements set by the Mandatory Standards for QoS will improve their network performance to ensure better services to consumers.

Driven by improved device capabilities, attractive data plans offered by service providers and also expansion of data centric network such as 4G LTE, data consumption among mobile phone users is generally expected to be met. Indeed, broadband speeds offered by mobile service providers is one of the important criteria to meeting consumer requirements such as surge of real time services like video calls and mobile games. These services require appropriate network latency such as low round-trip time.

The average download (DL) throughput for network performance and network latency as measured in average round-trip time (RTT) for the respective mobile service providers offering wireless broadband are shown in Figure 5.22 and Figure 5.23 respectively.

NETWORK PERFORMANCE FOR WIRELESS BROADBAND – AVERAGE DL THROUGHPUT

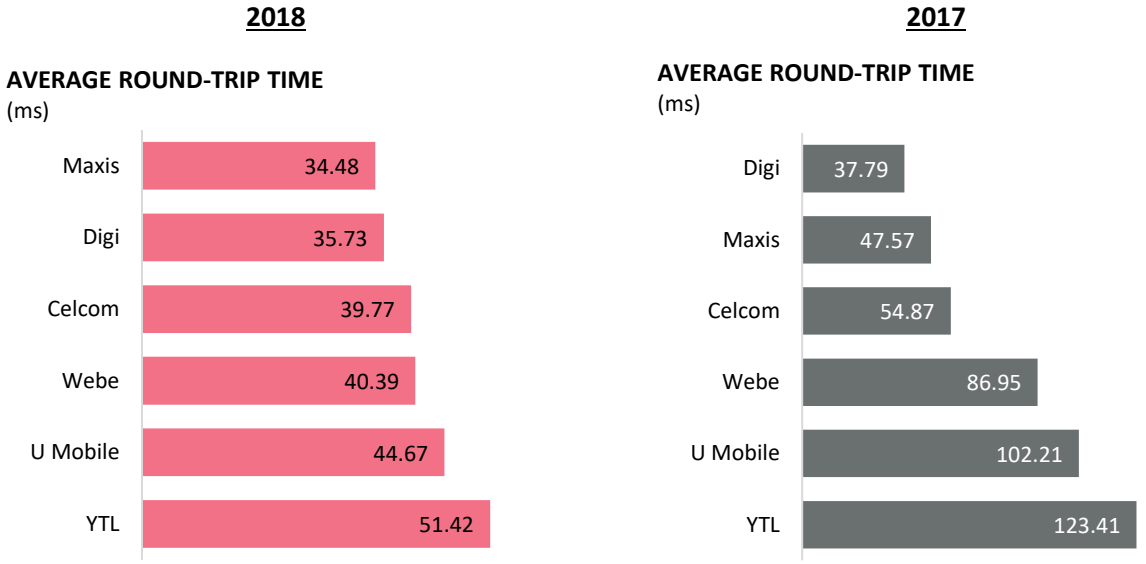


Source: MCMC

Figure 5.22 Network Performance for Wireless Broadband – Average DL Speed

[66] Report is accessible from https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Network-Performance-Report-2018-Latest.pdf

NETWORK PERFORMANCE FOR WIRELESS BROADBAND – NETWORK LATENCY



Source: MCMC

Figure 5.23 Network Performance for Wireless Broadband – Network Latency

We note that while all service providers have reduced their average RTT, U Mobile, YTL and Webe have reduced their average RTT by more than half in 2018 compared with their respective test results in 2017.

The minimum requirement on wireless broadband download speed is set at 1Mbps, network latency not more than 250ms and data packet loss of not more than 3%, in accordance with the Mandatory Standards for Wireless Broadband. The compliance with the mandatory standards for 2018 is shown in figure below:

WIRELESS BROADBAND PERFORMANCE TEST RESULT 2018

Service Provider	% of Time		Packet Loss (%) (≤ 3%)
	Speed ≥ 1 Mbps (≥ 80%)	Latency ≤ 250ms (≥ 70%)	
Celcom	96.91	99.83	0.12
Digi	98.49	99.36	0.12
Maxis	99.89	99.94	0.02
U Mobile	89.07	98.69	0.03
Webe	87.90	99.01	0.53
YTL	99.51	99.51	0.03

Source: MCMC

Figure 5.24 Wireless Broadband Performance Result 2018

In contrast, network performance of wired broadband is measured against customers' subscription value of the package for their home Internet. The measurement was conducted for both digital subscriber line (DSL) or copper and fibre connections.

Notably, the performance of fibre connections is typically better compared to copper at the last mile connection. Steps have been taken by service providers to upgrade their copper subscribers to fibre connections in order to provide better experience to consumers. The Mandatory Standards for Wired Broadband Service stipulates that service providers must provide the required percentage of speed for the required percentage of time depending on the type of last mile connection.

Figure 5.25 describes the network performance of wired broadband service for 2018.

WIRED BROADBAND PERFORMANCE TEST RESULT 2018

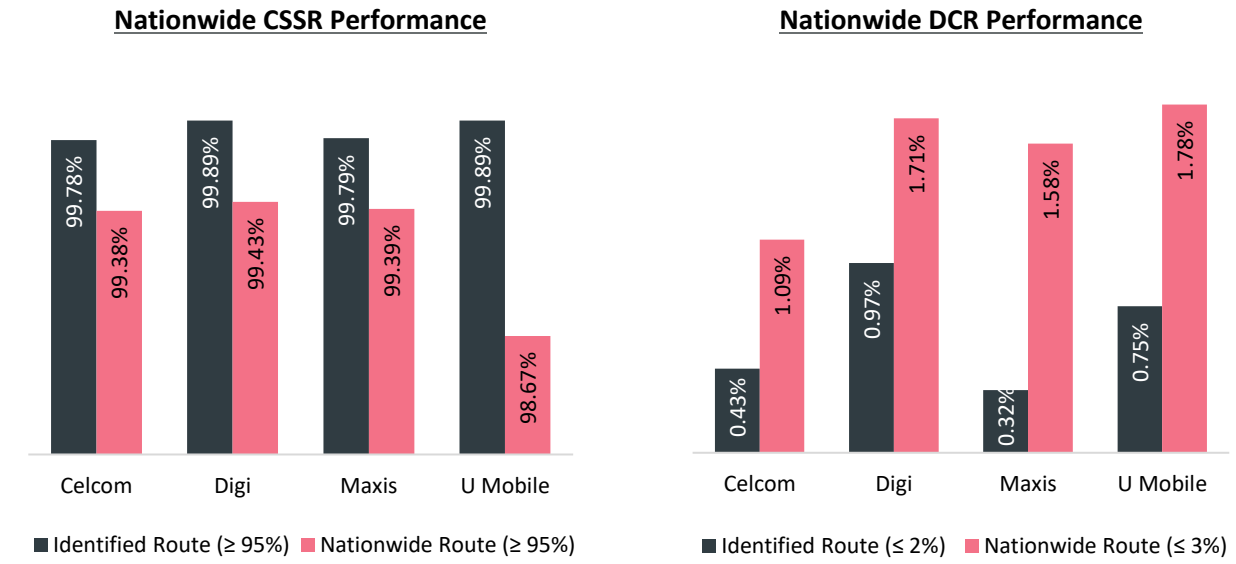
Service Provider	Digital Subscriber Line Technology (%)				Fibre Technology (%)			
	Upload Speed	Download Speed	Round Trip Time	Packet Loss	Upload Speed	Download Speed	Round Trip Time	Packet Loss
	≥ 70% subscribed speed for ≥ 90% of the time		≥ 95% of the time	≤ 1.0%	≥ 90% of subscribed speed for ≥ 90% of the time		≥ 95% of the time	≤ 1.0%
TM	100	99.98	88.62	0.47	98.92	95.12	97.36	0.69
Maxis	100	100	99.08	0	95.63	97.68	98.34	0.34
TIME	N/A				95.63	96.20	100.00	0

Source: MCMC

Figure 5.25 Wired Broadband Performance Result for 2018

Note that public cellular service QoS is essential in retaining voice connectivity. Even when data consumption is on the rise, the importance of voice call is still prevalent among consumers. Service providers must meet the minimum requirement on call setup success rate (CSSR) and dropped call rate (DCR) as stated in the Mandatory Standards for Public Cellular Service. Figure 5.26 shows the CSSR and DCR for identified routes and nationwide.

PUBLIC CELLULAR SERVICE PERFORMANCE RESULT 2018



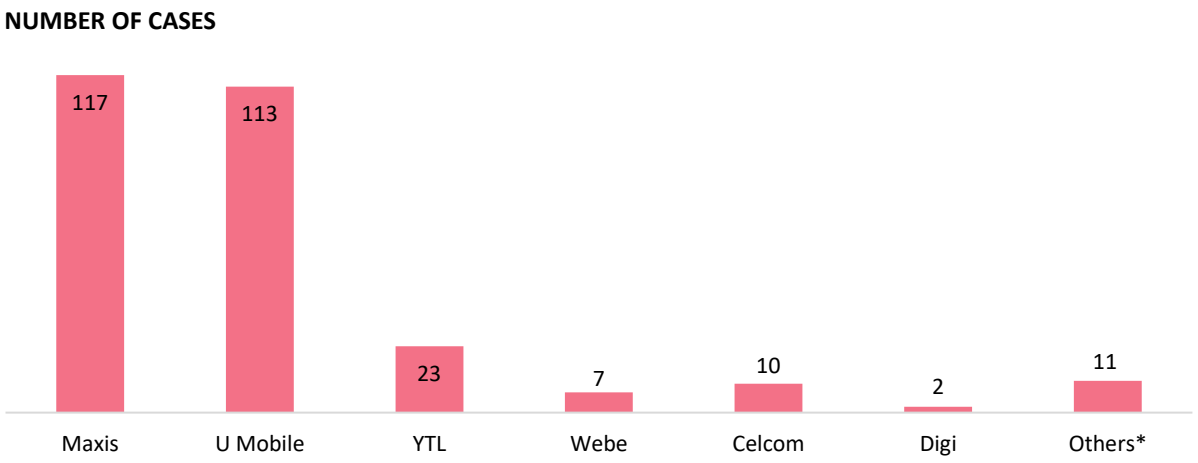
Source: MCMC

Figure 5.26 Public Cellular Service Performance Result 2018

Radio Frequency Interference

In 2018, a total of 283 radio frequency interference (RFI) cases were resolved, with 81% of these cases involving Maxis and U Mobile (Figure 5.27). U Mobile RFI cases increased to 117 cases from 62 cases in 2017 due to its aggressive roll out on newly acquired 900 MHz spectrum as well as continuous public usage of non-standard long distance Ultra High Frequency (UHF) RFID reader for barrier gates.

RESOLVED RFI CASES 2018

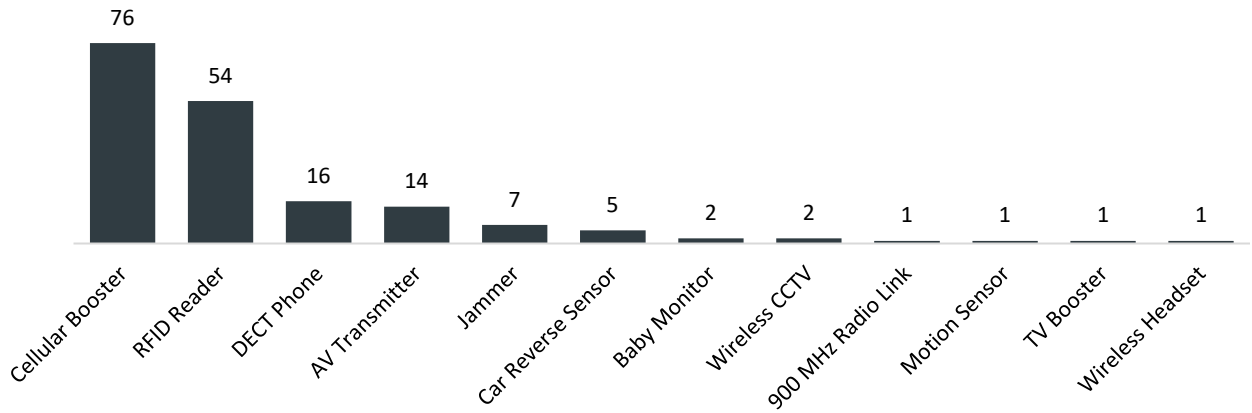


** "Others" refers to one case each from the following companies or organisations: Ancom-ChemQuest Terminal Sdn Bhd, Suruhanjaya Penerbangan Malaysia, Info-Communications Media Development Authority of Singapore, Lynas (M) Sdn Bhd, Mal-Tel Communication Sdn Bhd, Malaysia Amateur Radio Transmitters Society, MRT Sdn Bhd, PDRM, Tenaga Nasional Bhd, TS Global Network Sdn Bhd and Kelab Peminat Radio Amatur and Rekreasi Kerian (REAKSI)*

Source: MCMC
Figure 5.27 Resolved RFI Cases 2018

By category, RFI cases under mobile service remained the highest in 2018, mainly due to non-standard devices such as cellular boosters and UHF RFID readers.

SOURCE OF INTERFERENCES



Source: MCMC
Figure 5.28 Source of Interferences 2018

Cellular booster is an equipment installed by service providers to improve in-building coverage. The usage requires registration under Apparatus or Spectrum Assignment similar to a typical base station.

In 2018, wideband cellular boosters were often used by the public to improve coverage inside their premises. Such boosters cause permanent noise interference to signal of nearby base stations. Therefore, the general public should not put up their own cellular boosters, but instead lodge a complaint on coverage issues with their service providers.

EXAMPLE OF CELLULAR BOOSTERS FOUND DURING INTERFERENCE INVESTIGATION 2018

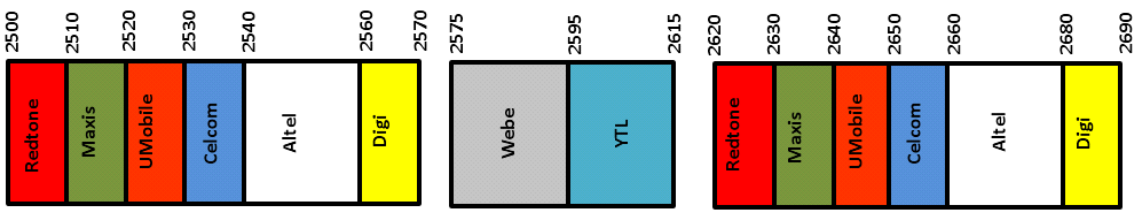
Source: MCMC

Figure 5.29 Example of Cellular Boosters Found during Interference Investigation 2018

Spectrum Occupancy Measurement for 2.6GHz Band in Central Region

In 2018, MCMC continues with 2.6GHz spectrum occupancy measurement in Kuala Lumpur, Selangor and Negeri Sembilan.

2.6GHZ SPECTRUM ALLOCATION

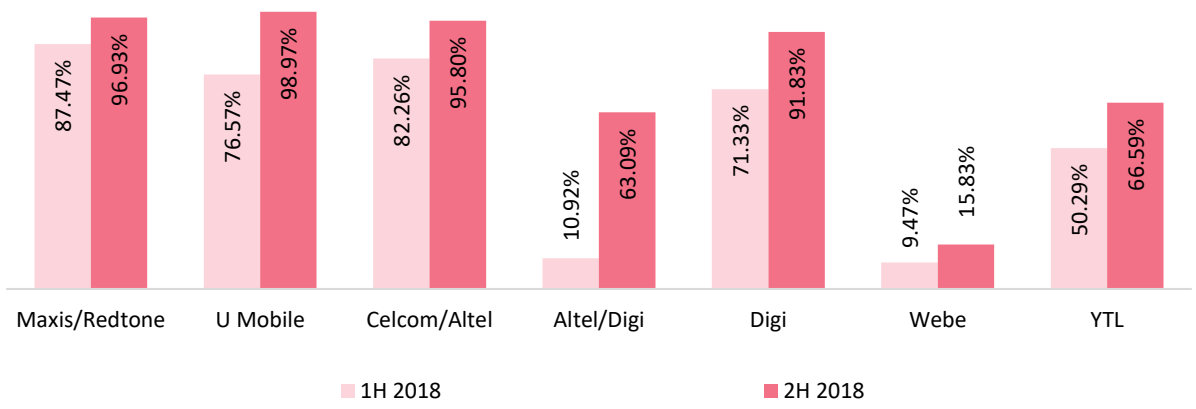


Source: MCMC

Figure 5.30 2.6GHz Spectrum Allocation

The spectrum occupancy results for eight service providers during first and second half of 2018 are summarised in Figure 5.31. Spectrum occupancy for under-utilised spectrum block from 2670 to 2680 MHz allocated for Altel Communications Sdn Bhd has increased in second half. However, Webe Digital Sdn Bhd spectrum block remains under-utilised. The increase in spectrum utilisation to 63.09% by Altel was due to spectrum sharing with Digi whereby Digi increased its bandwidth from 10 to 20 MHz starting July 2018.

2.6GHZ SPECTRUM OCCUPANCY IN CENTRAL REGION



Source: MCMC

Figure 5.31 2.6GHz Spectrum Occupancy in Central Region

Note that the above-indicated results benchmark utilisation of 2.6GHz spectrum are among the eight service providers. Data provided will be used to ensure scarce national spectrum resource is allocated to efficient service providers.

Digital Terrestrial Television (DTT) Signal Measurement

MCMC continues to conduct DTT signal measurement. From a total of 259 locations measured, 22 of these have coverage issues. The locations are:

LOCATIONS WITH DTT COVERAGE ISSUE

No.	Location Name	States
1	Pondok Polis Nami	Kedah
2	Dewan Kampung Termas	Kedah
3	Masjid Al-Falahiah Perlop 2, Lasah	Perak
4	Dataran Lenggong	Perak
5	Masjid Ar-Rashidah, Selama	Perak
6	SMK Gedangsa	Selangor
7	Stesyen Bas Pekan Nenasi	Pahang
8	SK Balong, Jalan Ulu Sarikei	Sarawak
9	SK Peladok, Kota Belud	Sabah
10	SK Tamu Darat, Kota Belud	Sabah

LOCATIONS WITH DTT COVERAGE ISSUE

No.	Location Name	States
11	SK Pekan Tenghilan	Sabah
12	Surau Kampung Bongol, Jalan Ranau Tamparuli	Sabah
13	SMK St. Mary Papar	Sabah
14	SK Moyog, Jalan Tambunan	Sabah
15	SK Sukau Kinabatangan	Sabah
16	Stesen Penyelidikan Pertanian Ulu Dusun	Sabah
17	Klinik Desa Pekan Sari, Maran	Pahang
18	Kompleks Sukan Paroi	Negeri Sembilan
19	Bukit Layang-layang, Pasir Gudang	Johor
20	SK Sungai Bakas	Sarawak
21	SK Kampung Tarikan Subis	Sarawak
22	Masjid Al Jabbar Niah	Sarawak

Source: MCMC

Figure 5.32 Locations with DTT Coverage Issue

Some of these locations will be re-measured after a new adjacent DTT site is up on-air to ascertain whether Single Frequency Network network gain could address the coverage issue.

To perform DTT signal measurement, MCMC Mobile Monitoring System is set up, involving installation of two antennas. That is, a log periodic antenna is used for field strength measurement and typical household Yagi antenna for coverage verification as below:

ANTENNAS FOR DTT SIGNAL MEASUREMENT

Source: MCMC

Figure 5.33 Antennas for DTT Signal Measurement

In October 2018, MCMC confirmed that the test location in Bukit Layang-layang, Pasir Gudang, failed reception of DTT service due to co-channel interference from analogue TV transmitter in Batam, Indonesia. DTT service in the southern part of Johor from Pasir Gudang to Pengerang is affected by this interference. Notably, this interference issue will be brought into bilateral meetings for resolution.

Electromagnetic Fields (EMF) Measurements

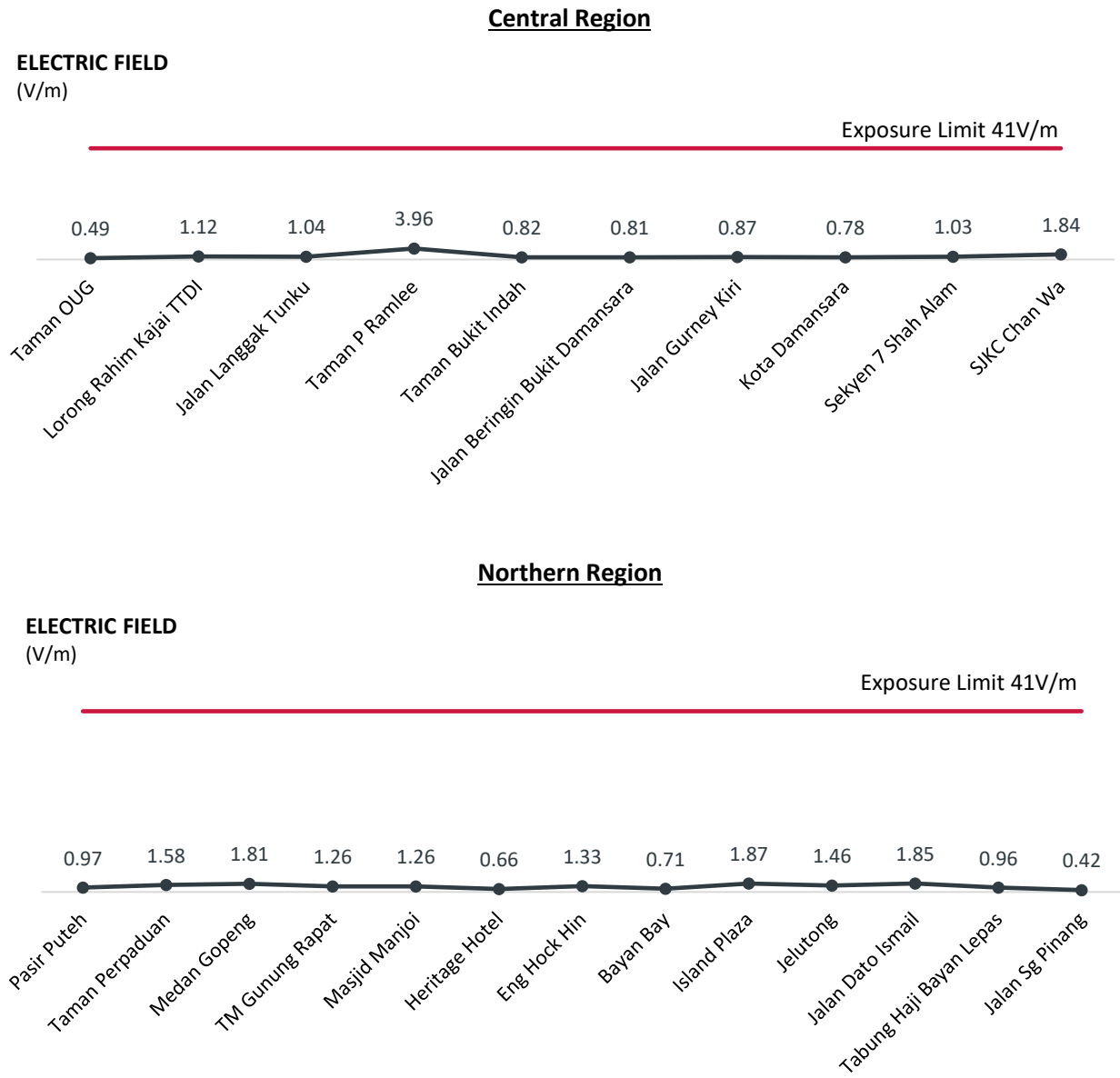
The Commission Determination on the Mandatory Standard for Electromagnetic Field Emission from Radiocommunications Infrastructure, Determination No. 1 of 2010 (MSEMF) provides reassurance to the public that radiocommunications infrastructure is safe and does not cause adverse health effect to the surrounding communities.

EMF measurements aim to verify industry compliance with the MSEMF. During the first half of 2018, MCMC in collaboration with a third party vendor to conduct EMF measurements at 52 selected sites in four regions as follows:

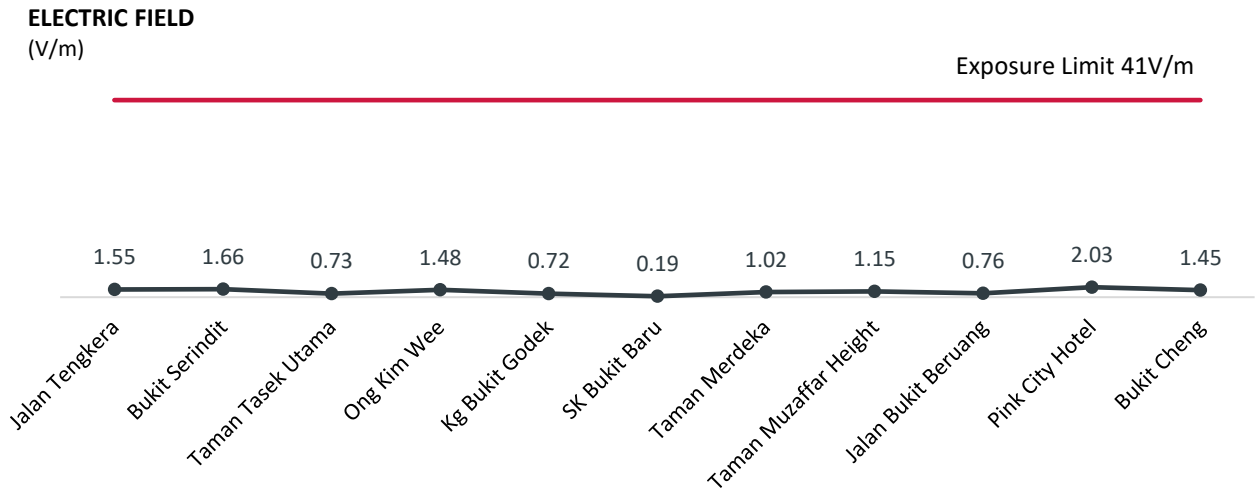
- Central (Kuala Lumpur, Selangor, Negeri Sembilan);
- Northern (Perak, Penang);
- Southern (Johor, Melaka); and
- Eastern (Pahang, Kelantan, Terengganu).

Figure 5.34 shows EMF measurement result on selected sites.

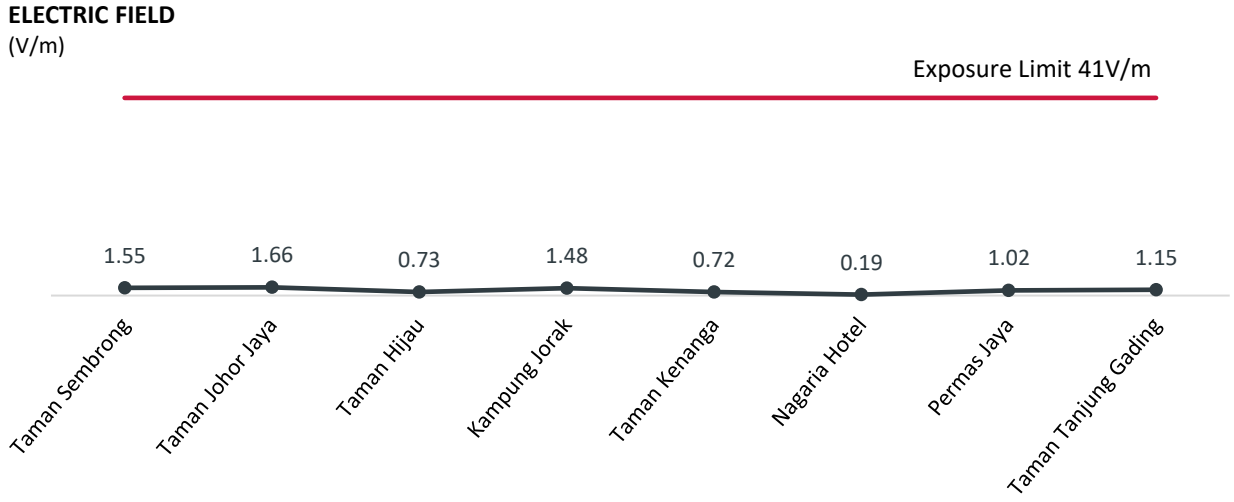
EMF MEASUREMENT RESULT ON SELECTED SITES



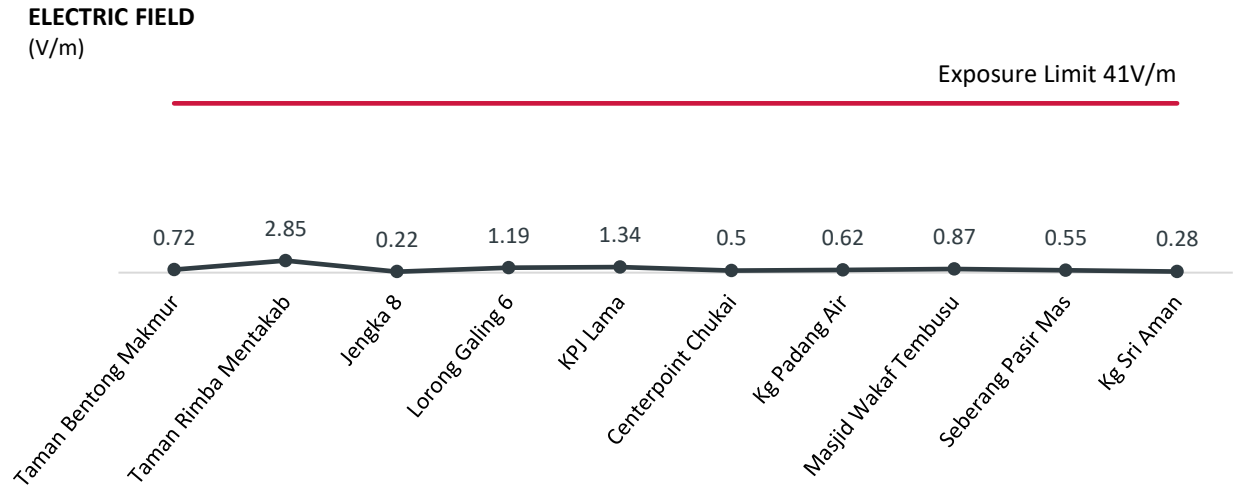
Southern (Melaka) Region



Southern (Johor) Region



Eastern Region



Source: MCMC

Figure 5.34 EMF Measurement Result on Selected Sites

Figure 5.34 illustrates the average long term monitor result against permissible exposure limit at 41 V/m for general public in Central, Northern, Southern (Melaka), Southern (Johor) and Eastern regions. Based on the measurement results, the overall EMF emission within public area surrounding the radiocommunications infrastructure are very low.

The highest average reading was 3.96 V/m (recorded at Central Region: Taman P Ramlee), which is about 9.7% of the exposure limit for general public at 41 V/m. Hence, the measurement result complied with the MSEMF.

These emission levels will remain unchanged as long as there is no new system, antenna or modifications introduced to the site and the transmitted power for all of the antennas remains unchanged. Adding new antennas or system to the infrastructure or increasing the transmitted power of the existing antennas will likely enhance the emission levels and require another assessment to be carried out.

Training on Guideline on the MSEMF

MCMC published the Guideline on the MSEMF (Compliance towards Determination No. 1 of 2010) on 29 December 2017.

The main target group for the Guideline on MSEMF are:

- NSP; and
- NFP operating radiocommunications infrastructure, which emits EMF for the purpose of communications.

Subsequent to publication of the Guideline, MCMC organised two sessions of training on the following topics in 2018:

1. Overview of MSEMF
2. Overview of Guideline on the MSEMF
3. Prediction Methods for Compliance Achievement
4. Verification of Compliance using Measurement
5. Uncertainty Estimation
6. Warning Signage
7. Reporting and Submission

Based on the feedback from the industry participants, the training serves as a platform for comprehensive understanding of the Guideline, compliance procedures and requirements of the MSEMF.

Training on EMF Awareness in C&M Industry

MCMC conducted a training course on EMF Awareness in C&M Industry, to provide comprehensive understanding of EMF emission with specific focus at Radio Frequencies (RF-EMF).

The course is part of MCMC's initiative to deliver informative and accurate facts to dispel any myths about EMF emissions and quell unfounded fears of the public. While discussing the relationship between EMF exposure and human health, this programme also provides basics on spectrum and wireless technology.

The course also aimed to improve understanding on the management of EMF exposure at international and national levels.

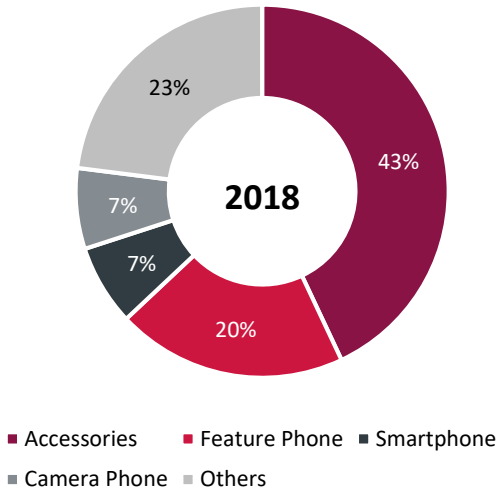
Mobile e-Waste Programme

MCMC, along with strategic partners, continue to minimise generation of electronic wastes in order to mitigate the hazards arising from used telecommunication or ICT equipment through Mobile e-Waste programme. This programme has received encouraging traction in 2018 since its launch in August 2015 with the addition of new members and implementation of several advocacy activities.

The campaigns and activities have raised public awareness on the importance of recycling their electronic waste, especially mobile phones, in a safe and environmentally friendly manner.

Mobile e-Waste collection trend shows an encouraging rate of growth since 2015. Total collection increased by over 75% (1,344.54kg) to 3,107.01kg in 2018 (2017: 1,762.47kg). In total, mobile phone accessories recorded the highest percentage of e-waste collected, followed by other devices, feature phones, smartphones and camera phones (Figure 6.12). Over 5,500 units of old and faulty mobile phones of various categories have been collected so far.

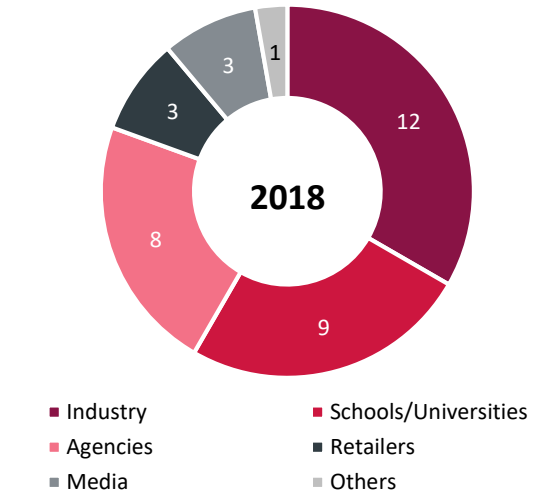
MOBILE PHONES AND ACCESSORIES COLLECTION 2018



Source: MCMC

Figure 5.35 Mobile Phones and Accessories Collection 2018

MOBILE E-WASTE PARTNERS BY CATEGORIES 2018



Source: MCMC

Figure 5.36 Mobile e-Waste Partners by Categories 2018

In 2015, there were six partners from telecommunications industry under the mobile e-waste programme. Currently, there are 30 active participating partners contributing to placement of more than 150 collection boxes throughout Peninsular Malaysia, Sabah and Sarawak.

MCMC partners include companies from various industries, retail companies, media agencies, government agencies and NGOs, including schools and universities (Figure 5.36).

This Page Intentionally Left Blank

MODULE 6: SECURITY AND TRUST

Digital Certificates Development

Malaysia was among the earliest countries in the Asian region that developed Public Key Infrastructure (PKI) in support of the Government's goal in driving ICT. The ICT sector is enhanced through initiatives such as e-Government and e-commerce as well as the development of C&M industry through cyber laws including Digital Signature Act 1997.

PKI not only involves the development of infrastructure for distributing and managing public key and digital certificates, but also provides a framework for ensuring safe Internet communications which involve software, regulations, policies and standards. Controller of the Certification Authority (CA) was created in 1997 and the function was handed over to MCMC in November 2000 through an amendment of the Digital Signature Act 1997.

Development of Certification Authorities and Digital Certificates Issuance

After five years with three CAs, the MCMC has, on 1 May 2018, appointed Raffcomm Technologies Sdn Bhd (Raffcomm Technologies) as the fourth CA in the country. The existing CAs are namely Pos Digicert Sdn Bhd (Pos Digicert[67]), MSC Trustgate.com Sdn Bhd (MSC Trustgate) and Telekom Applied Business Sdn Bhd.

CERTIFICATION AUTHORITY

Appointment Year	Company	Remarks
1998	Pos Digicert	• 92.5% of the certificates were issued • Until January 2018, four million people have utilised Pos Digicert services via the Inland Revenue Board e-filing services[68]
2000	MSC Trustgate	• 7.3% of the certificates were issued
2013	Telekom Applied Business	• 0.2% of the certificates were issued
2018	Raffcomm Technologies	• Only five certificates issued in 2018

Source: MCMC

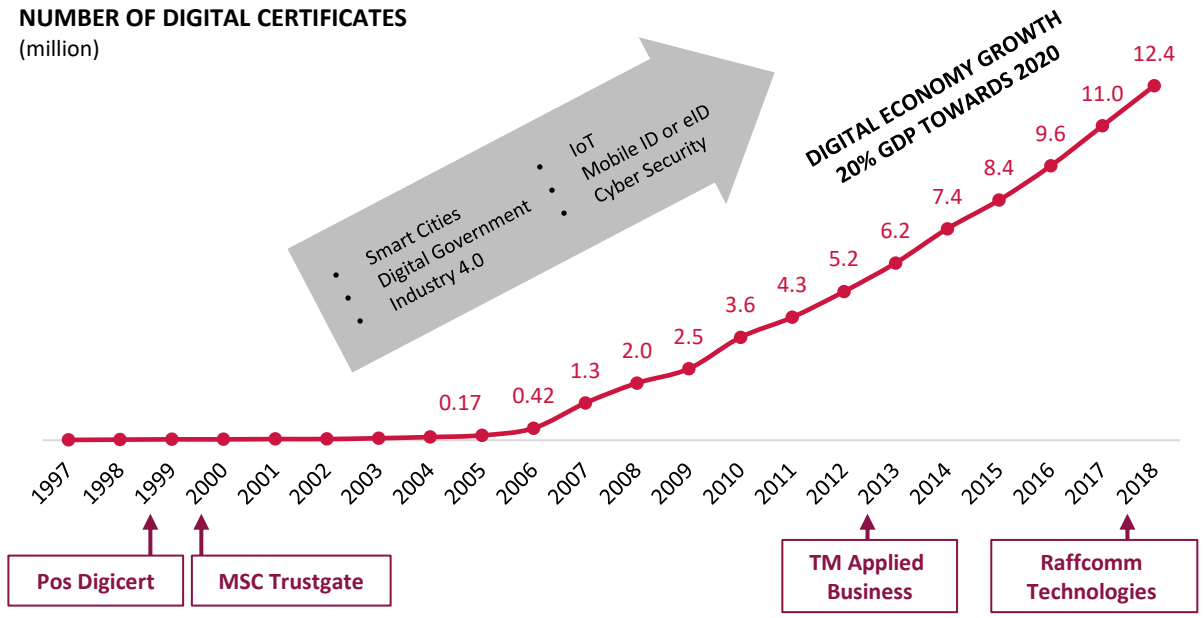
Figure 6.1 Certification Authority

Note that a CA is responsible for issuing and managing the legally binding digital certificate and offer various professional online security solutions. A digital certificate is an electronic credential that represents the identity of individuals, organisations and computers. Digital certificates are used for online authentication, encryptions and digital signature. The demand for digital certificates is expected to increase in tandem with digital transformation and growth of digital economy.

The entry of Raffcomm Technologies indicates the entry of new qualified companies with more innovative business models to compete with existing CAs. A new CA indicates the growing demand for digital certificate services and this strengthens the PKI industry in Malaysia. The total number of digital certificate products has increased from 11 million in 2017 to 12.3 million as at end of 2018.

[67] Formerly known as Digicert Sdn Bhd.

[68] New Straits Times, Revisit Digital Signature Act to Ensure Relevancy, January 2018.



Source: Industry

Figure 6.2 Digital Certificate Issuance 1997 – 2018

The public sector is the major contributor to the usage of digital certificates in Malaysia, which took up 96.6% of total certificates issued. Most of the Government online application services are supported by the usage of digital certificates to secure online transmission of data via the Internet. The remaining 3.1% was issued to corporate sectors such as banking, healthcare and other industries, with 0.2% to individuals.

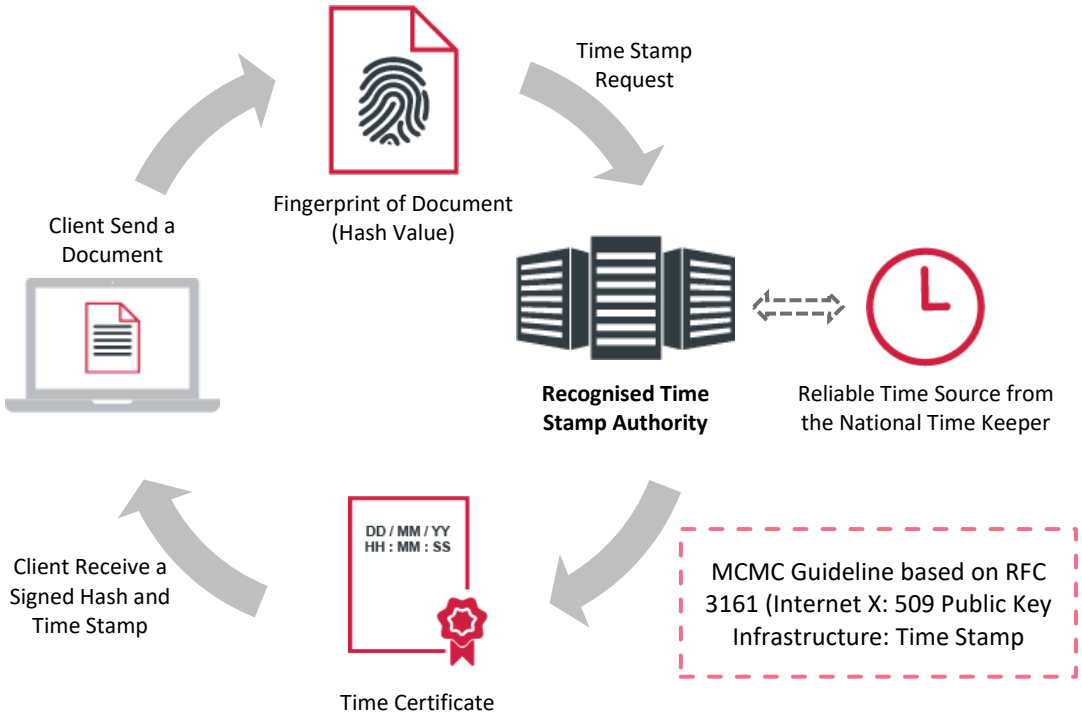
Innovation in Digital Certification 2018

Digital Time Stamping Authority

Digital Time Stamping (DTS) is a combination of electronic documents with date and time information to verify the existence and prove the integrity of an information or data at a particular time. The exact date and time source from a recognised party is important in legal and commercial use where the existence of a digital information is proved based on a recognised DTS as well as ensuring the reliability of a digital information.

Note that a recognised DTS is a digital based service using PKI system. On 1 February 2018, MCMC issued a Certificate of Recognition of DTS (Establishment Stage) to three CAs in Malaysia namely Pos Digicert, MSC Trustgate and Raffcomm Technologies, to establish a trusted DTS system based on international RFC 3161 standards.

Through RFC 3161 standard framework, the trusted DTS is a timeline marker issued by Time Stamping Authority. Time Stamping Authority uses cryptography and PKI technology, and reliable time source from accredited party, which is the National Metrology Institute of Malaysia, SIRIM, as the National Time Guard in Malaysia.



Source: MCMC
Figure 6.3 Trusted Time Stamp Process Flow

Digital Initiative with State Governments of Sabah and Sarawak

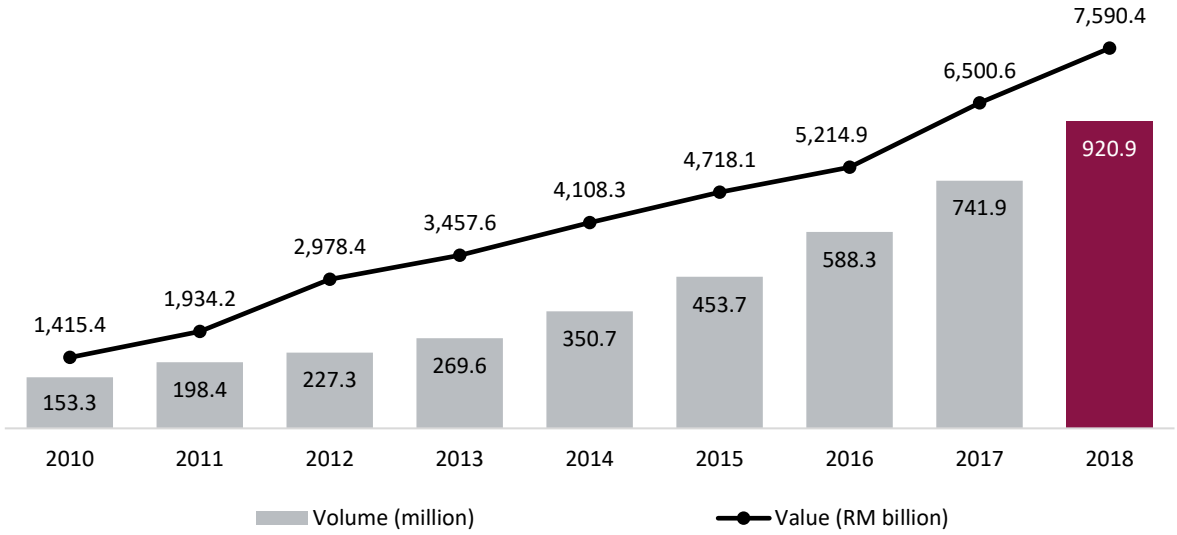
MCMC has collaborated with State Governments of Sabah and Sarawak in order to transform the states digital-based system. This collaboration is able to provide operational cost savings of public services to the people.

Notably, the Sarawak State Government in collaboration with MCMC has organised a PKI Master Plan workshop with stakeholders in the public sector. This workshop is to assist in building capacity for development of Sarawak towards digital transformation.

Digital initiative for PKI in Sabah began in 2015, where several programmes were organised under Sabah PKI Plan. A digital marriage certificate system was initiated in 2018 to replace physical certification, thus enhancing the public service delivery system.

Trust and Confidence in Internet Banking

In line with the Government's call for more cashless transactions, the use of Internet banking, including consumers and sole proprietor businesses to opt for digital payments have been encouraged. Towards this end, Bank Negara Malaysia (BNM) has waived the instant transfer fee of 50 sen for digital payments of up to RM5,000 per transaction by individuals and for small and medium enterprises, effective 1 July 2018.



Source: BNM

Figure 6.4 Internet Banking Transactions 2010 – 2018

As at end 2018, the PKI supported 921 million Internet banking transactions with value of RM7,590.4 billion (2010: 153.3 million). Note that this value of transactions for 2018 is five times the value transacted in 2010 at RM1,415.4 billion.

It is noted that overall, digital technology usage is still relatively low in the business community[69]. Around 62% of Malaysian business firms are connected to the Internet, but only 18% of them have websites[70]. Hence, various efforts need to be taken in order to encourage enterprises and the business community to adopt relevant digital technology.

Moreover, apart from encouraging companies to use digital technology in business applications, consumer awareness and trust on the use of digital technology such as Internet banking also needs to be enhanced. Findings from VMware Banking Consumer 2020 Study indicated that 46% of Malaysian consumers felt insecure about security measures related to digital technology such as e-wallets and online payment applications, while 53% doubt the security of smart devices with payment capabilities[71].

[69] World Bank, Malaysia's Digital Economy: A New Driver of Development, September 2018.
[70] Ibid.
[71] The Star, Nearly half of Malaysians polled insecure about online banking security: study, November 2018.

This Page Intentionally Left Blank

MODULE 7: POSTAL AND COURIER

Postal and Courier Services Industry Performance 2018

In an intensifying digital environment, the postal and courier services continue its important role in connecting everyone. For instance, its physical and extended virtual network over the Internet, online shopping and fulfilment is more integrated into our daily lives.

Postal Services Act 2012

As a regulated service essentially to ensure universal postal service nationwide, the Postal Services Act 2012 was expanded with provisions to enable competitive growth. Regulatory aspects in terms of economic and technical development as well as social and consumer protection are included. The Act also provides additional regulatory provisions to ensure postal services are available at expected quality of service in line with changing competitive landscape.

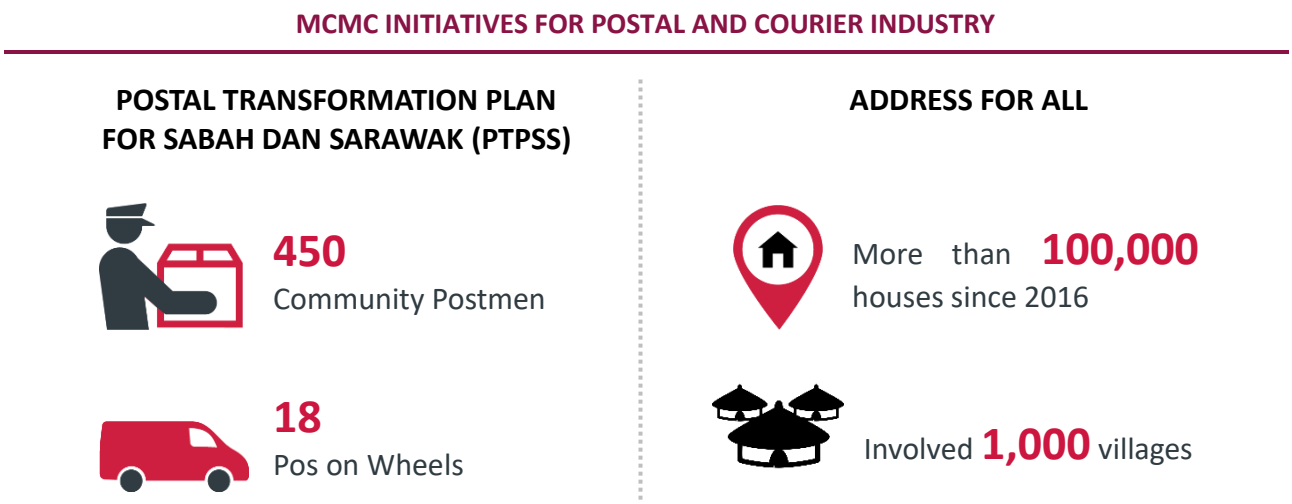
The postal services licensing regulations outline the provisions, which includes licences for universal and non-universal service in more detail. Meanwhile, the universal service regulations were developed to ensure sustainability and quality of service for postal system in each state.

The other regulations under the Postal Services Act 2012 being developed in line with the National Policy Objectives. MCMC supervises four main components of postal regulations namely economic regulations, technical regulations, social and consumer protection. The regulations also include management of postal service money order and improvement of postcode system and addressing in Malaysia.

Notably, through these instruments, postal services is expected to be in tandem with rapid growth of digital economy.

Postal Services

Pos Malaysia Bhd provides basic postal services, which forms the universal service obligation, covering provisions of basic and registered domestic as well as international mail and parcel services. This includes five days a week collection and delivery service with exception in rural areas[72].



Note: PTPSS (Pelan Transformasi Pos Sabah Dan Sarawak) was initiated by MCMC and Pos Malaysia in 2011 whilst Address for All started in 2016.

Source: MCMC

Figure 7.1 MCMC Initiatives for Postal and Courier Industry

In 2018, MCMC continued its postal services initiatives in rural development namely PTPSS Phase 4 and Address for All Project. The programme has strengthened the integration of postal services between Peninsular Malaysia and East Malaysia.

Under the PTPSS, a total of 450 Community Postmen were appointed with 225 each in Sabah and Sarawak respectively. From the core work activities of delivering mail, their function was further up-scaled to deliver parcels to enable e-commerce activities for the rural community. Also, a total of 18 Pos on Wheels continues to operate to support postal services for communities in these rural areas.

Meanwhile, Address for All project, a national address initiative to mitigate and reduce the number of premises with incomplete address, has created more than 100,000 premises with new addresses since 2016.

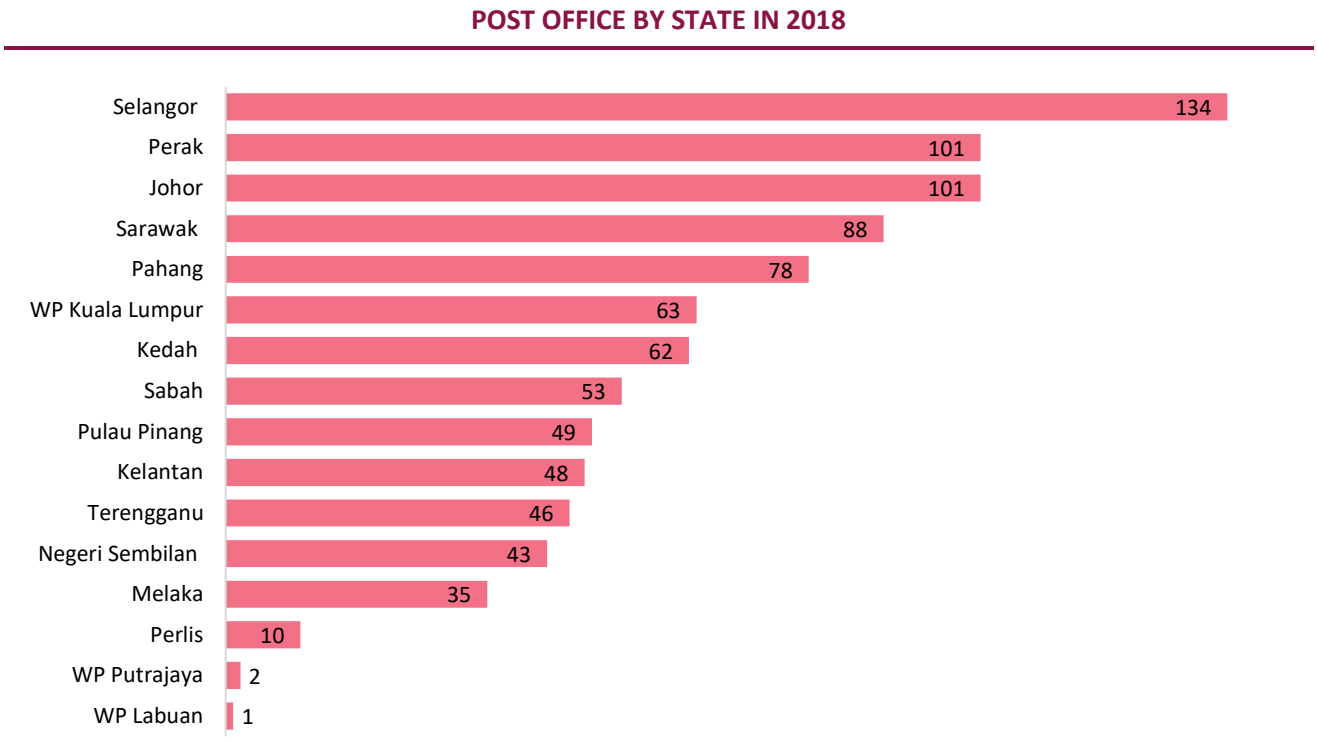
[72] Rural areas are depending on reasonable frequency.

Postal Services Access

Basic postal services as defined under the Postal Services (Universal Service) Regulation 2015, covers the following:

- Provision of basic and registered domestic and international mail and parcel service;
- Provision of 5-day a week collection and delivery service with exception in rural areas and;
- Provision of a minimum 1,000 postal outlets nationwide.

Figure 7.2 shows the total number of post office by state in 2018. There are 914 post offices in Malaysia including mini post office. Selangor has the highest number of post office establishment, with 134 offices in 2018. This is followed by Perak (101) and Johor (101). Pos Malaysia also provides 10 PosLaju EziDrive-Thru, 60 PosLaju EziBox, 40 PosLaju Prepaid Ezidrop and 21 PosLaju kiosk in 2018.



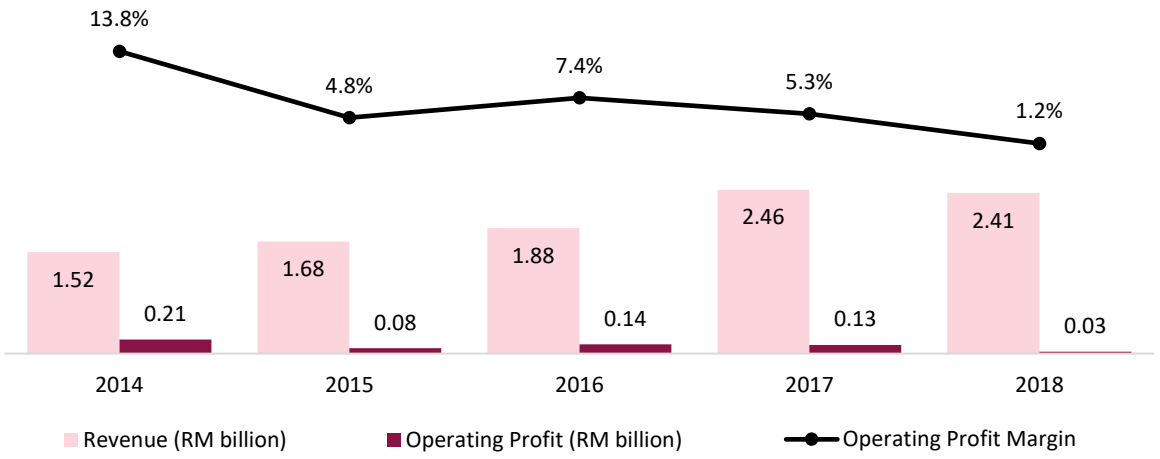
Source: Industry, MCMC

Figure 7.2 Pos Office by State in 2018

Pos Malaysia Revenue

Pos Malaysia revenue declined by 2% to RM2.41 billion in 2018, while operating profit margin at 1.2% is equivalent to RM30 million (2017: 5.3%). Over the past five years, Pos Malaysia revenue on increasing trend, mainly driven by its courier business on the back of rising e-commerce trend. Meanwhile, Pos Malaysia operating profit continued to be pressured by high operating cost.

POS MALAYSIA REVENUE AND OPERATING PROFIT 2014 – 2018

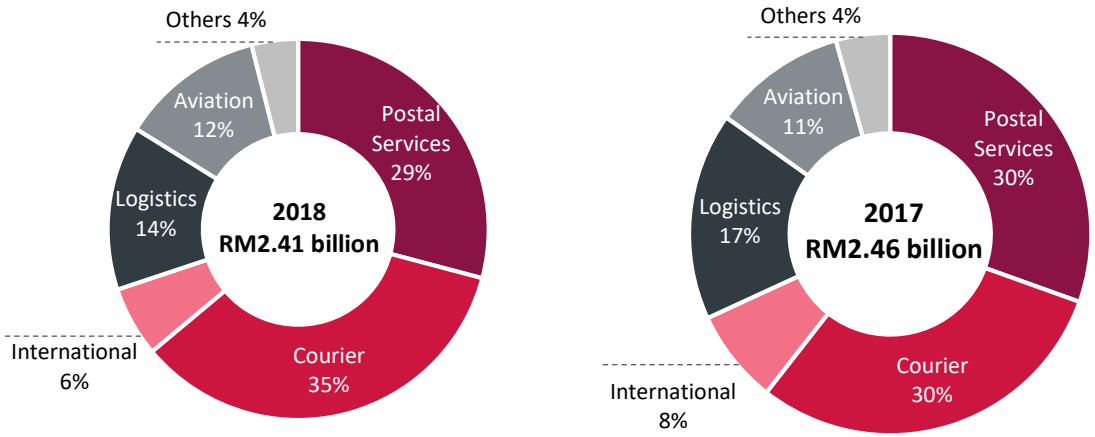


Note: Pos Malaysia revenue and operating profit adjusted by calendar year

Source: Industry, MCMC

Figure 7.3 Pos Malaysia Revenue and Operating Profit 2014 – 2018

POS MALAYSIA REVENUE BY BUSINESS SEGMENT 2017 – 2018



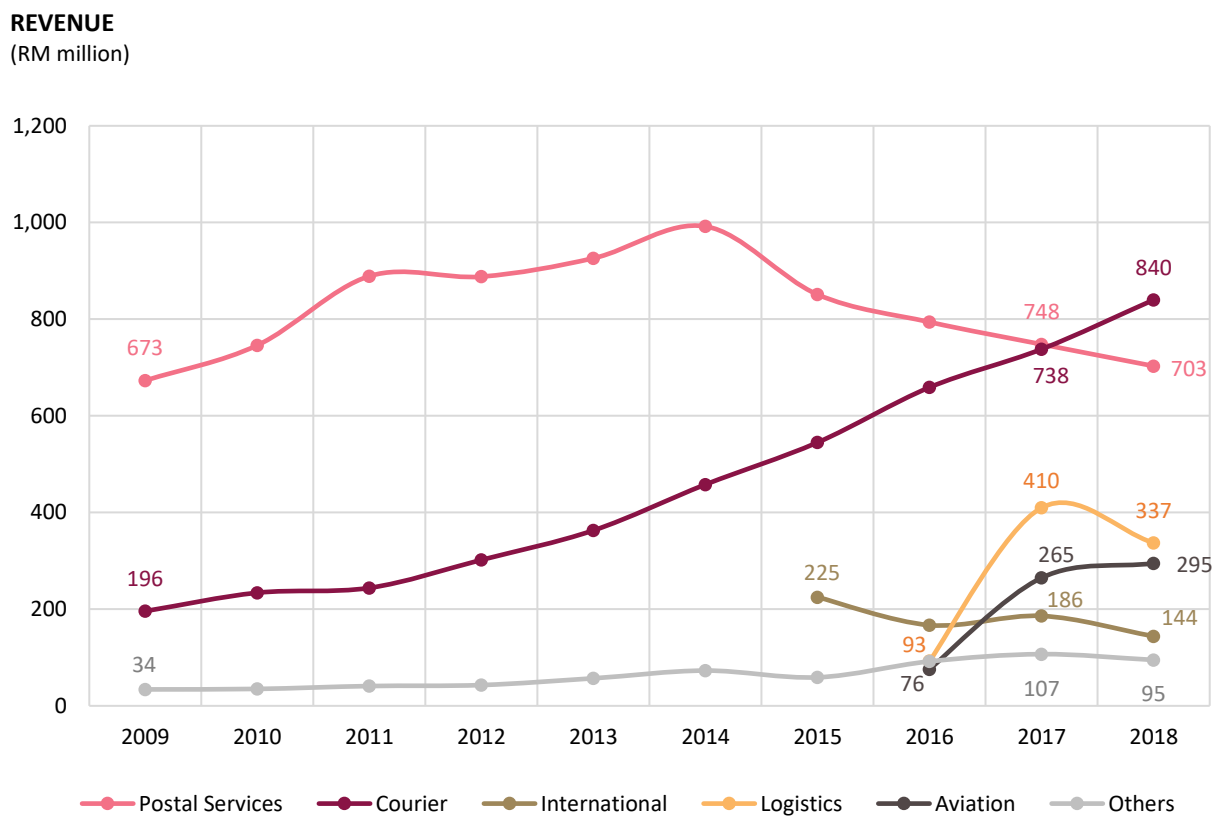
Source: Industry, MCMC

Figure 7.4 Pos Malaysia Revenue by Business Segment 2017 – 2018

Courier business segment is the key growth driver contributing 35% to Pos Malaysia revenue in 2018 (Figure 7.4). The postal services business segment is the second largest revenue contributor at 29% of Pos Malaysia revenue.

Postal services business segment remains challenging due to continuous decline in mail volume and lower retail transaction volumes at post offices. However, postal services business continues to soften as consumers opt for online payment, remittance services and others.

POS MALAYSIA REVENUE BY BUSINESS SEGMENT 2009 – 2018



Note: Pos Malaysia revenue adjusted by calendar year

Source: Industry, MCMC

Figure 7.5 Pos Malaysia Revenue by Business Segment 2009 – 2018

In the past, Pos Malaysia revenue source was mainly from postal and courier services (Figure 7.5). Seeing weakening postal services revenue, Pos Malaysia has diversified its revenue to include international from 2015, logistics and aviation from 2016 respectively. This has partly offset lower postal services revenue.

For the first time, courier services revenue has surpassed postal services in 2018. This is mainly due to changing lifestyle arising from proliferation of mobile and online marketplaces.

Pos Malaysia diversification will eventually provide end-to-end e-commerce fulfilment for better quality of service through cost optimisation and hence, reap opportunities from growing e-commerce market.

Postal Services Traffic

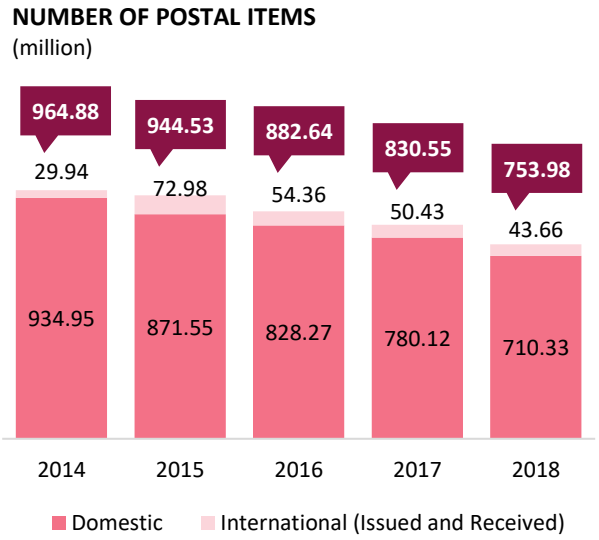
There were 753.98 million postal items delivered in 2018. The postal items consist of letter post, registered mail, ordinary parcel and advertising item (Figure 7.9).

By letter post items for domestic services in 2018, a total of 672.34 million items were handled (2017: 738.14 million). There was a decline of 8.9% or 65.80 million in 2018. Five years ago, 913.01 million letter post items were handled by domestic postal services (Figure 7.7).

By letter post items for international services, 36.85 million items were handled with 27.43 million issued and 9.42 million items received respectively. There has been a significant decrease in international letter post items since the spike in 2015 (Figure 7.8).

The decrease in demand for letter post is due to pervasive Internet access as mobile broadband enabled alternative communications such as email, social networking and OTT messaging.

POS MALAYSIA: POSTAL SERVICES TRAFFIC 2014 – 2018 (OVERALL)



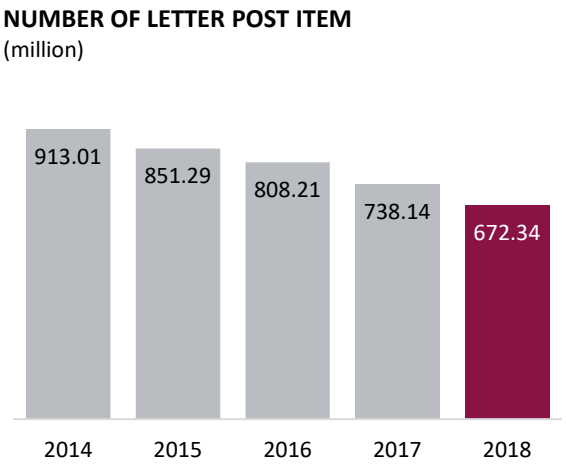
Note:

1. *Items handled by postal segment only. PosLaju items is classified as courier traffic*
2. *Excluding post free items for domestic about 2 million in 2018*
3. *For 2017 and 2018, there were 19 million and 17 million advertising items (domestic) respectively*

Source: Industry, MCMC

Figure 7.6 Pos Malaysia: Postal Items 2014 – 2018 (International Services)

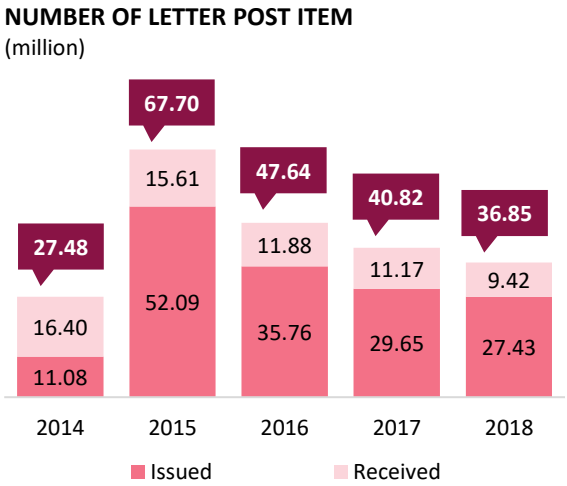
POS MALAYSIA: LETTER POST 2014 – 2018 (DOMESTIC SERVICES)



Source: MCMC

Figure 7.7 Pos Malaysia: Letter Post 2014 – 2018 (Domestic Services)

POS MALAYSIA: LETTER POST 2014 – 2018 (INTERNATIONAL SERVICES)

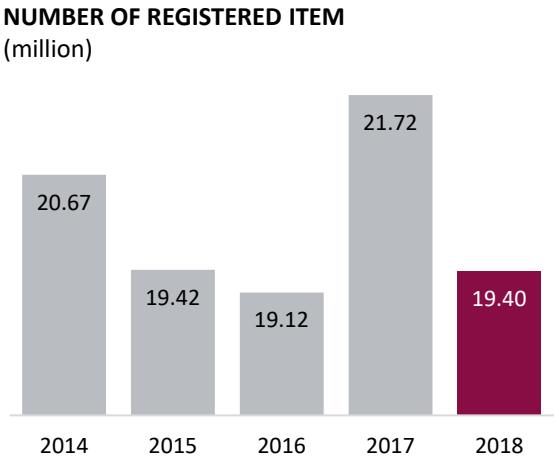


Source: MCMC

Figure 7.8 Pos Malaysia: Letter Post 2014 – 2018 (International Services)

By registered items, domestic services in 2018 was about 20 million (Figure 7.9). For international services, there were 6.47 million registered items with 5.6 million issued and 0.82 million items received respectively (Figure 7.10).

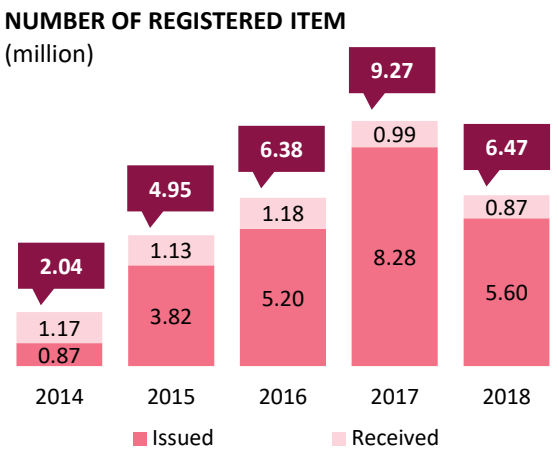
POS MALAYSIA: REGISTERED ITEM 2014 – 2018 (DOMESTIC SERVICES)



Source: MCMC

Figure 7.9 Pos Malaysia: Registered Item 2014 – 2018 (Domestic Services)

POS MALAYSIA: REGISTERED ITEM 2014 – 2018 (INTERNATIONAL SERVICES)

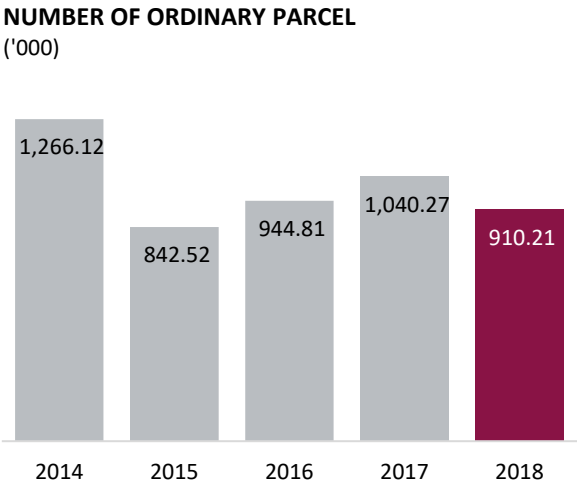


Source: MCMC

Figure 7.10 Pos Malaysia: Registered Item 2014 – 2018 (International Services)

By ordinary parcels for domestic services, there were 910,213 parcels handled in 2018, a decrease of 130,060 parcels or 12.5% compared with 1,040,273 items in 2017. However, ordinary parcel for international services rose 1% to 342,829 items in 2018 compared with 340,075 items in 2017.

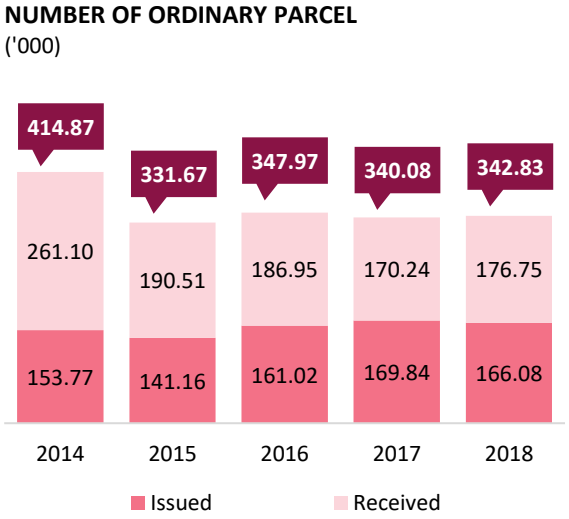
POS MALAYSIA: PARCEL 2014 – 2018 (DOMESTIC SERVICES)



Source: MCMC

Figure 7.11 Pos Malaysia: Parcel 2014 – 2018 (Domestic Services)

POS MALAYSIA: PARCEL 2014 – 2018 (INTERNATIONAL SERVICES)



Source: MCMC

Figure 7.12 Pos Malaysia: Parcel 2014 – 2018 (International Services)

Sustainable Development in Postal and Courier Services

Sustainability in postal and courier services, is exemplified in the professionalism of its employees. They need to have high proficiency in their delivery processes to customers.

Road Safety Championship 2018

UN Sustainable Development Goals is to reduce 50% accident fatalities. In tandem, the government's objective is to reduce 50% road accident fatalities by 2020[73].

Road Safety Championship was conducted for a fifth consecutive year since 2014. It is aimed to reduce road accidents and inculcate safe driving.

WINNERS OF ROAD SAFETY CHAMPIONSHIP 2018

Source: MCMC

Figure 7.13 Winners of Road Safety Championship 2018

In 2018, a total of 53 drivers and riders from 16 courier companies participated in the competition, marking the highest involvement by service providers since its inception. Interestingly, for the first time, this tournament recognised women motorcycle riders' contribution. The new category with title of the first Malaysian Best Female Motorcyclist was created.

[73] Road Safety Department (Malaysia), Road Safety Plan of Malaysia 2014-2020.

World Post and E-Philately Day Celebrations

MCMC in collaboration with Pos Malaysia and Stamp and Philatelic Society of Malaysia (PSM) hosted World Post Day 2018, with the theme of The Post: Delivering Good to the World.

WORLD POST DAY POSTCARD

Source: MCMC

Figure 7.14 World Post Day Postcard

World Post Day is celebrated on 9 October every year, aims to recognise the role of post and create awareness about postal contributions worldwide.

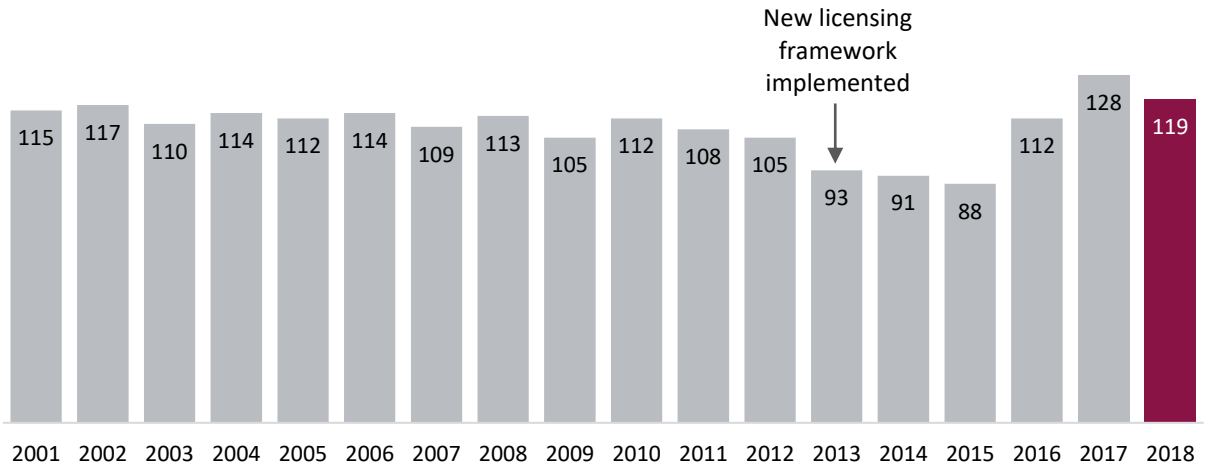
In conjunction with the event, a World Post Day Stamp series 2018 was launched, featuring a postman's life; past and present. In addition, e-Philately website was also launched (www.ephilately.my).

e-Philately is online centre for philatelists and stamp collectors whereby they can further enhance interest in stamp collecting as well as knowledge sharing. The online philatelic centre incorporates marketplace, virtual gallery and auction.

Courier Services

The courier services in Malaysia is highly competitive. In 2018, there are 119 courier licences.

TOTAL NUMBER OF COURIER LICENCES 2001 – 2018



Source: Industry, MCMC

Figure 7.15 Total Number of Courier Licences 2001– 2018

The licensing framework classifies three types of licence to efficiently regulate courier industry in Malaysia. In March 2013, courier service providers were issued with the new licences based on their business models according to class A, B and C as shown in Figure 7.16.

COURIER SERVICE LICENCE: SPECIAL CONDITION

CLASS A

- Licensee may perform services as follows:
  i) international courier services; and
  ii) domestic courier services nationwide
- Provide track and trace system within a year
- Provide at least five outlets locally within two years
- Provide customer service appropriate to the courier business

CLASS B

- Licensee may perform service as follows:
  i) international inbound service only; and
  ii) domestic courier services nationwide
- Provide track and trace system within a year
- Provide at least five outlets locally within two years
- Provide customer service appropriate to the courier business

CLASS C
• Licensee services area limited within one state as preferred by the licensee to operate • Due to the geographical reasons, these areas are considered as one: i) Selangor, Kuala Lumpur and Putrajaya ii) Sabah and Labuan

Source: MCMC
Figure 7.16 Courier Service Licence: Special Condition

Most of the new players in 2018 offer e-hailing courier and crowd sourcing couriers to enable same day delivery in order to respond to customer demand and create new job opportunities. The e-hailing courier service providers will potentially support rising demand by larger players such as Lazada and Shopee for efficient delivery.

NEW COURIER LICENCES 2018

Type of Licence	Company
A	Gagah Satria (M) Sdn Bhd LBC Mabuhay (M) Sdn Bhd J&T Express (Malaysia) Sdn Bhd La Calisto Sdn Bhd Thai Lee Chan Logistics Sdn Bhd Yunda Express Sdn Bhd
B	MTR Services Sdn Bhd Trans American Sdn Bhd Mula Parcel (M) Sdn Bhd Worldgate Express Services Sdn Bhd
C	Contactus Sdn Bhd

Source: MCMC
Figure 7.17 New Courier Licences 2018

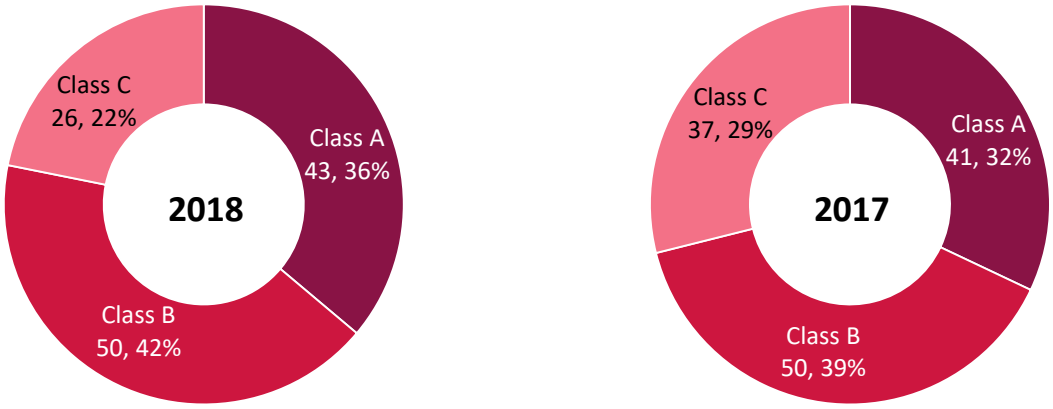
The courier services market in Malaysia continues to attract international and domestic investment. Notably, entrance of new companies into Class A would intensify the courier market to compete at both local and international level. For instance, FMX (M) Sdn Bhd, a Class B licensee upgraded its licence to Class A in 2017. FMX (M) Sdn Bhd owns a network in strategic locations in Peninsular Malaysia, Sabah, Sarawak and Brunei. Class A licence allows a company to extend their courier services outside Malaysia such as Brunei and Thailand.

In 2016, two courier companies have upgraded their licences from Class C to Class B namely Centurion Freight Express Sdn Bhd and MLH Services Sdn Bhd. These two companies have expanded their courier services footprint, beyond their existing operation within Klang Valley.

Courier Licences

Courier licences consist of 43 Class A, 50 Class B and 26 Class C (Figure 7.15).

COURIER LICENCES BY CLASS 2017 – 2018



Source: MCMC

Figure 7.18 Courier Licences by Class 2017 – 2018

Quality of Service

MCMC has undertaken survey to measure customer service (counter and call centre) and delivery services for speed and reliability based on 10 major courier service providers.

Customer service average waiting time for counter service was 3 minutes and each service took 5 to 10 minutes. As for call centre, on average customer service was rated as "Good".

Based on the survey, 70% of service providers met with the designated period of next day delivery (D+1) for major cities of Peninsular Malaysia and two-day delivery (D+2) for Sabah and Sarawak.

For reliability testing, 90% met with 3 days of delivery standard (D+3) (Figure 7.19).

DELIVERY STANDARD

Category		Peninsular Malaysia	Sabah and Sarawak
Local delivery		Up to D+3	Up to D+3
National Delivery	Intra-state	Up to D+4	Up to D+5
	Inter-state	Up to D+5	Up to D+7

Note 1. "D" means the day when the act of posting takes places before the posting Cut Off Time on the working day;

2. The numeral after "D" refers to the number of working day after the posting day to complete the delivery; and

3. Remote areas are not subject to the delivery standards shown in the table.

Source: MCMC

Figure 7.19 Delivery Standard

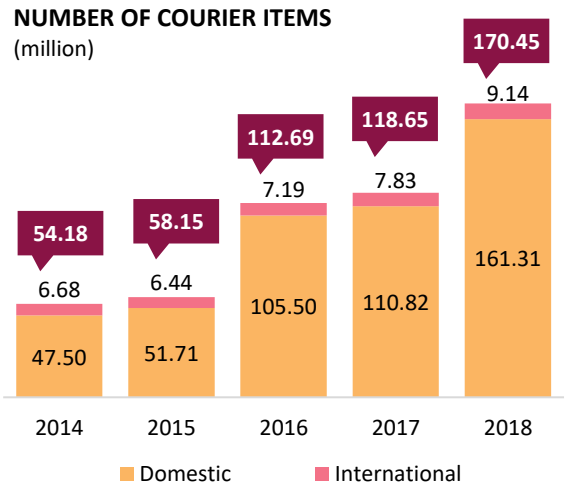
Courier Services Traffic

In 2018, the volume of courier items handled rose by 44% to 170.45 million (2017: 118.65 million). These courier items consist of documents, parcels and others.

Figure 7.20 shows the increase in overall courier services traffic for the past five years.

Indeed, the growth of e-commerce is an important factor spurring the development of courier services. This is in line with ASEAN-Japan Centre findings indicating e-commerce as one of the major drivers of domestic and international courier services traffic[74].

COURIER SERVICES TRAFFIC 2014 – 2018 (OVERALL)



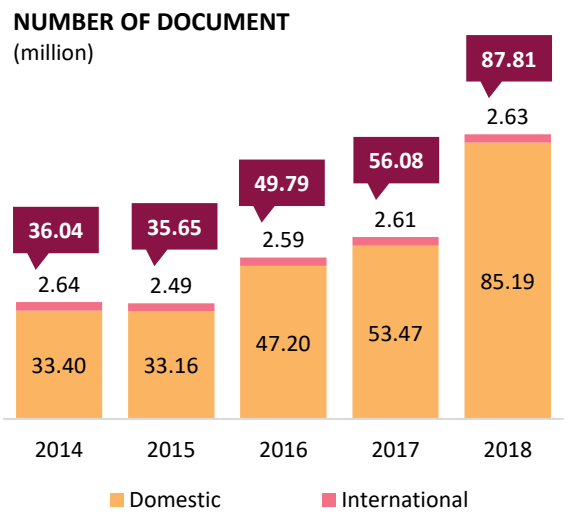
Note: For 2018, courier traffic was collated from 14 courier companies including Pos Laju. Prior to that, it was based on top 10 courier companies

Source: MCMC

Figure 7.20 Courier Services Traffic 2014 – 2018 (Overall)

In 2018, total volume for document in domestic services rose by 60% to 85.19 million from 53.47 million in 2017. International services has increased marginally 0.8% to 2.63 million from 2.61 million.

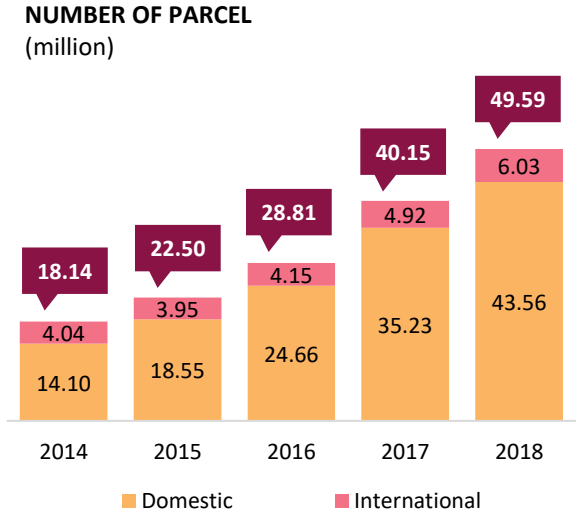
COURIER SERVICES TRAFFIC 2014 – 2018 (DOCUMENT)



Source: MCMC

Figure 7.21 Courier Services Traffic 2014 – 2018 (Document)

COURIER SERVICES TRAFFIC 2014 – 2018 (PARCEL)



Source: MCMC

Figure 7.22 Courier Services Traffic 2014 – 2018 (Parcel)

[74] ASEAN-Japan Centre, Promoting Services Trade in ASEAN, Trade in courier services, January 2018

In 2018, the number of parcels has increased by 23.51% to 49.59 million from 40.15 million in 2017, in which domestic and international parcels comprise 43.56 million and 6.03 million.

Based on industry feedback[75], the most popular products delivered in 2018 were electronic devices, healthcare and beauty products. In contrast, home décor and furniture, household and groceries, health and supplements were most purchased and delivered in 2017.

Pos Malaysia with their existing IPC in Shah Alam, Selangor and another that is being constructed at the Kuala Lumpur International Airport (KLIA) to be completed in May 2019, will have a total capacity to manage 500,000 parcels per day.[76].

In efforts to expand its nationwide handling capacity of e-commerce items, Pos Malaysia plans to set up two new integrated parcel centres (IPCs) by 2020. The estimated cost to build an IPC is RM50 million to RM60 million.

In order to encourage customer confidence and trust, courier companies are looking at faster delivery services. For instance, integration of DHL's logistic e-commerce services onto Shopee Thailand platform. DHL is extending their partnership with Shopee Malaysia to offer domestic delivery for Shopee sellers and buyers. Consumers will enjoy the next day delivery to most destinations across Malaysia and two or three day to remote locations. As a start, they are offering free shipping promotion with a minimum spend of RM35.

In addition, Lalamove, a Hong Kong-based company, has entered Malaysian market in June 2018, offering on-demand delivery service under an hour in Klang Valley (subject to traffic conditions and distance). Lalamove business model is similar to Uber and Grab, but instead of assigning nearby registered driver to take you where you want to go, Lalamove accommodates package delivery via crowdsourced drivers.

Crowdsourced delivery business model is gaining popularity. This model leverages local, non-professional couriers to pick-up and deliver packages to customers' doors. This method of fulfilment allows companies to satisfy consumers' growing demand for faster delivery. Like Lalamove, other such service providers ZeptoExpress and GoGet are also offering crowdsourced delivery services in Malaysia.

Courier Establishments

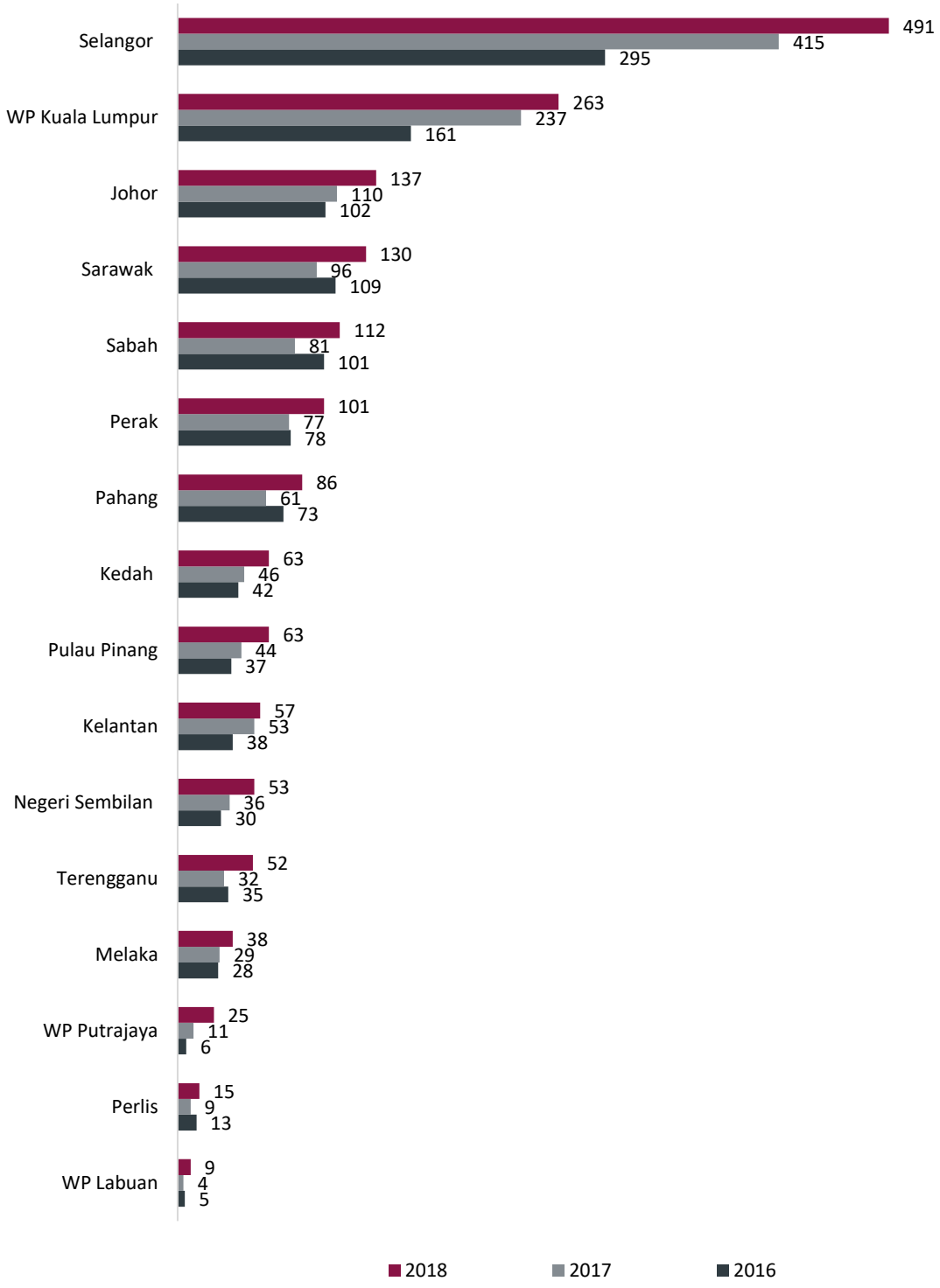
There are 1,695 courier establishments in 2018 (2017: 1,341), consisting of hubs, branches, gateways, franchises, agents, drop-in centre and others. The number of branches has increased to 416 in 2018 (2017: 322) and agents to 527 (2017: 322). However, the number of drop-in centres has dropped to 340 centres in 2018 (2017: 454).

By state, Selangor has the highest number of courier establishments at 491 in 2018. Wilayah Persekutuan Kuala Lumpur courier establishments have increased to 263 (2017: 237).

[75] Responses received from IPR 2018 questionnaire.

[76] The Malaysian Reserve, Pos Malaysia eyes 2 new IPCs by 2020, July 2018.

COURIER ESTABLISHMENTS BY STATE



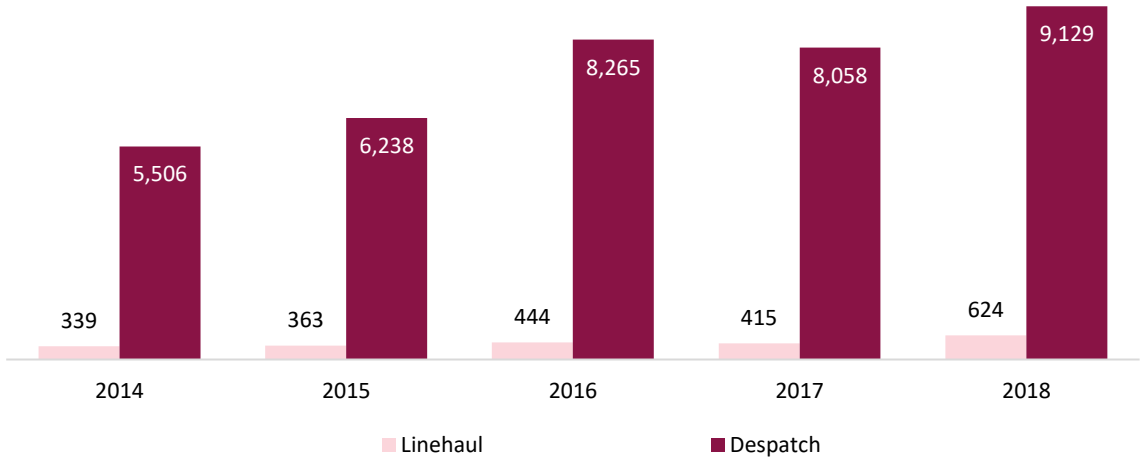
Source: Industry

Figure 7.23 Courier Establishments

Generally, the total number of courier establishments has increased in all states from 2016 to 2018. This is due to online shopping as well as an indication that Malaysia's e-commerce transactions are growing at a relatively fast pace. In line with this, the courier companies have increased their number of courier vehicles.

In 2018, total number of vehicles for linehaul increased by 50% to 624 from 415 in 2017. As for despatch, the number of vehicles increased by 13% to 9,129 from 8,058 in 2017. This is partly due to aggressive promotions and marketing online as well as home shopping.

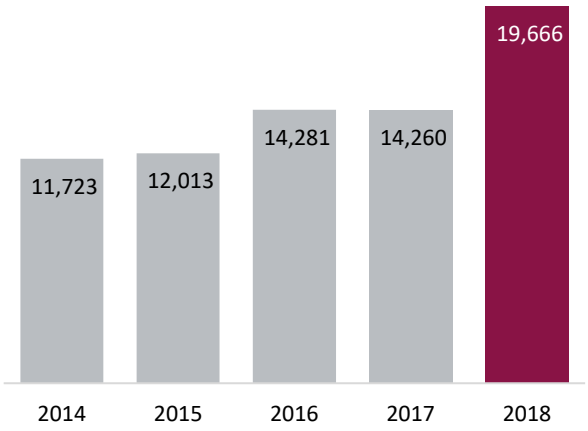
COURIER VEHICLES 2014 – 2018



Source: Industry, MCMC

Figure 7.24 Courier Vehicles in 2014 – 2018

EMPLOYEES IN COURIER SERVICES INDUSTRY 2014 – 2018

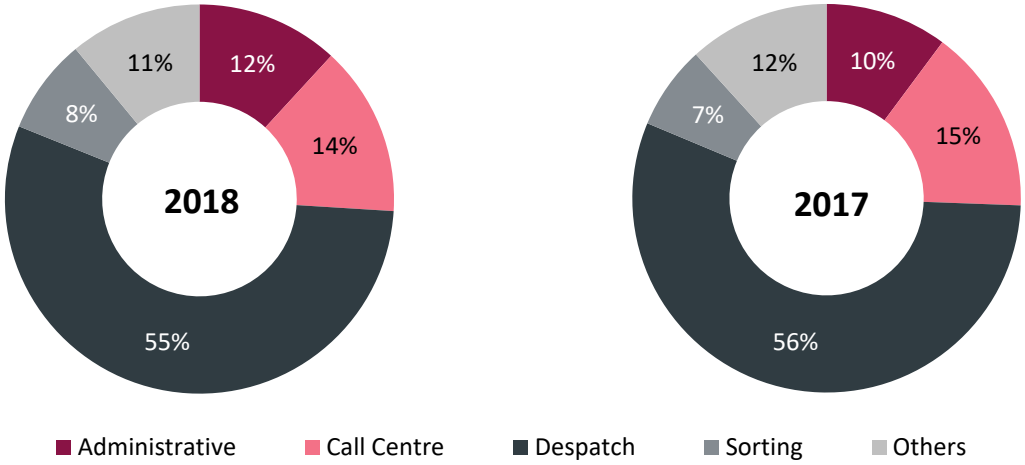


In 2018, total number of employees in courier services industry increased by 38% to 19,666 from 14,260 in the previous year due to delivery standard to be met and customer expectations.

Source: MCMC

Figure 7.25 Employees in Courier Services Industry 2014 – 2018

COURIER SERVICE EMPLOYEES BY JOB FUNCTION



Note: Others consisting of operation centre, sales, financial and customer service

Source: MCMC

Figure 7.26 Courier Service Employees by Job Function

With the rise of e-commerce, faster and speedy delivery is becoming a major competitive advantage. Based on PwC Global Consumer Insight Survey 2018, 88% of consumers are willing to pay for the same-day or faster delivery.

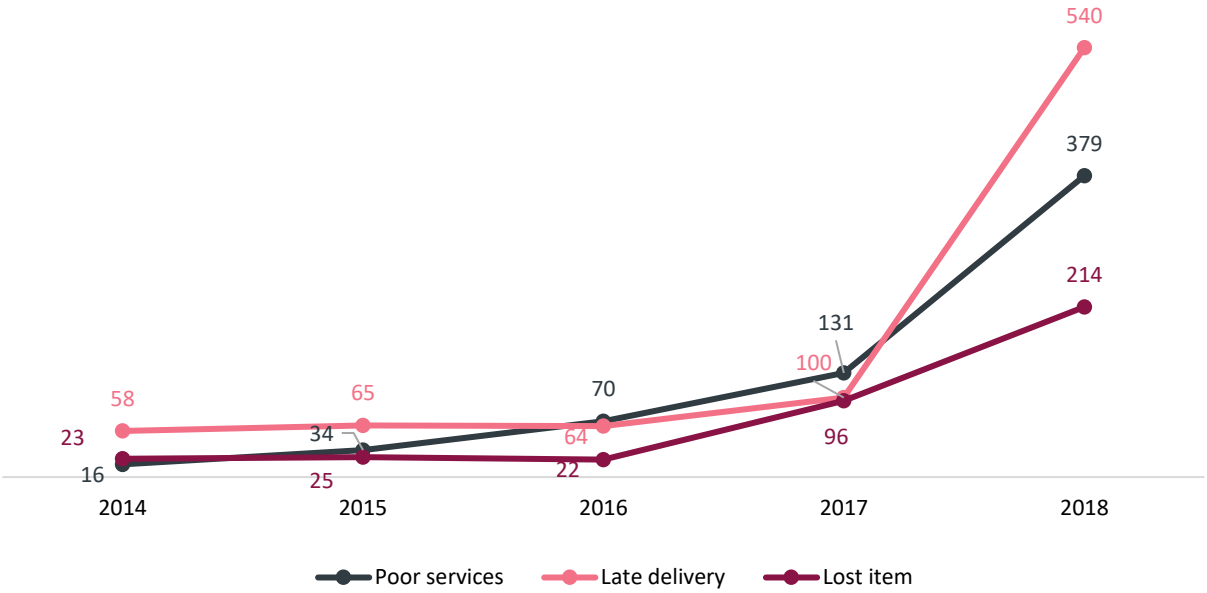
The trend is similar in Malaysia whereby 83% of Malaysians are willing to pay more for same-day or faster delivery. In line with that, courier service industry has employed more despatch staff for fast delivery purpose. Thus, in 2018, despatch staff increased by 36.4% to 10,837 (2017: 7,945), constituted 55% of total courier employees.

Call centre constitutes 14% or 2,784 staff in 2018 compared with 2,199 in 2017. Sorting staff increased by 57% to 1,558 in 2018 from 992 in 2017, partly due to increase in parcel volume.

Consumer Complaints

In 2018, MCMC received a total of 1,370 complaints on postal and courier services. The number tripled compared with 414 complaints in the previous year. The top three complaints are late delivery (39%), poor service (28%) and lost items (16%), which constitutes 83% of all complaints received in 2018. In 2018, 96% of complaints on postal and courier services received were resolved.

TOP THREE COMPLAINTS TREND 2014 – 2018



Source: MCMC

Figure 7.27 Top Three Complaints Trend 2014 – 2018

The surge in complaints on late delivery to 540 complaints in 2018 (2017:100 complaints) was due to high volume of items need to be handled during peak seasons, leading to non-compliance with delivery service standard. Late delivery is one of the most challenging issues to manage.

The ratio on number of complaints to items handled by courier service providers is relatively small, that is, 1,370 complaints to 137.41 million items handled in 2018 (2017: 414 complaints to 96.23 million items handled).

The types of complaint received are as follows.

TYPES OF COMPLAINT RECEIVED BY MCMC 2014 – 2018

Type	2018		2017		2016		2015		2014	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Late delivery	540	39.42	100	24.20	64	32.00	65	45.50	58	51.30
Poor service	379	27.66	131	31.60	70	35.00	34	23.78	16	16.20
Lost item	214	15.62	96	23.20	22	11.00	25	17.50	23	20.40
Not satisfied with customer service	67	4.89	28	6.80	17	8.50	10	7.00	11	9.70
Others	71	5.18	29	7.00	14	7.00	5	3.50	2	1.80
Not satisfied with price and refund	42	3.07	9	2.20	10	5.00	1	0.70	1	0.90
Behaviour of delivery personnel	16	1.17	8	1.90	3	1.50	4	2.80	2	1.80
No postal service	41	2.99	13	3.10	-	-	-	-	-	-
TOTAL	**1,370**	**100**	**414**	**100**	**200**	**100**	**143**	**100**	**113**	**100**

Source: MCMC

Figure 7.28 Types of Complaint Received by MCMC 2014 – 2018

Courier service providers provide platforms for customer feedback such as social media, email and live chat. These concerns are later channelled to various teams to resolve the complaints. Apart from this, courier service providers also obtain feedback through customer satisfaction survey[77].

Going forward, the service providers are modernising their shipment hubs, expanding vehicle fleet, opening new distribution networks and investing in technological advancements. This is to improve quality of service and cater for future demand.

[77] Responses received from IPR 2018 questionnaire.

MODULE 8: OUTLOOK 2019

C&M Industry Outlook

For 2019, revenue is expected to remain stable. With the nation poised for accelerated digitalisation in several economic sectors, the outlook is positive as C&M industry continues to support seamless connectivity.

After almost a decade of national broadband implementation, the government is taking the next step in driving broadband for all in various aspects. This is in terms of increase coverage, quality and affordability which can be derived from advanced network infrastructure and technology.

After almost a decade of national broadband implementation, the Government is taking the next step in driving digital connectivity for the people and the country. The NFCP is the part of this approach, which involves intensifying efforts in providing world-class high speed broadband infrastructure and services to the people and enabling everyone to benefit from opportunities afforded by new technologies and the digital economy.

In order to achieve this, there has to be strategic investment by service providers to ensure end-to-end services through network transformation and new business models. Collaboration of all stakeholders is critical, in particular ensuring right of way for faster roll out, which will contribute to lower cost.

5G

YB Minister of Communications and Multimedia Malaysia announced in October 2018 that Putrajaya and Cyberjaya will be testbeds for 5G from November 2018 until October 2019. The aim is to explore the practical uses and modes of implementation of 5G as well as to learn and iron out policies, regulations and spectrum planning for 5G.

In parallel with the 5G testbed, MCMC has formed a 5G Task Force in November 2018 to study and recommend a holistic strategy for 5G deployment in Malaysia. It is a collaborative effort with relevant stakeholders. The Task Force comprises members from the demand and supply side of the ecosystem. They include business associations, academia, ministries and agencies from the demand side, while service providers and communications equipment vendors represent the supply side.

Service providers are preparing their networks for 5G deployment. They are working with vendors to adopt next generation platform to maximise network utilisation and capacity. In short, this will spur digitalisation in many economic sectors and accelerate development of Industry 4.0.

LIST OF FIGURES

Figure 1.1 Local and Global Markets Indices 2016 – 2018 26
Figure 1.2 C&M Companies Market Capitalisation 2016 – 2018 27
Figure 1.3 Bursa Malaysia Market Capitalisation by Sector 27
Figure 1.4 C&M Companies Contribution to Bursa Malaysia 2018 28
Figure 1.5 Contribution of C&M Industry to Bursa Malaysia Market Capitalisation 2016 – 2018 28
Figure 1.6 C&M Industry Market Capitalisation by Sector 2016 – 2018 28
Figure 1.7 Trend of Top 10 Market Capitalisation 2016 – 2018 29
Figure 1.8 Domestic C&M Industry Revenue 2016 – 2018 30
Figure 1.9 Domestic C&M Industry Revenue 1999 – 2018 31
Figure 1.10 Domestic C&M Industry Revenue by Sector 1999 – 2018 31
Figure 1.11 Telecommunications Sector Revenue 2018 vis-à-vis 2017 33
Figure 1.12 Blended Mobile ARPU 2014 – 2018 34
Figure 1.13 Blended Mobile ARPU by Service Providers 34
Figure 1.14 Telecommunications Companies EBITDA Margin vis-à-vis Operating Profit Margin 2016 – 2018 35
Figure 1.15 Capex Trend 2014 – 2018 36
Figure 1.16 Mobile vis-à-vis Fixed Capex 2014 – 2018 36
Figure 1.17 Mobile vis-à-vis Fixed Capital Intensity 2014 – 2018 37
Figure 1.18 Malaysia vis-à-vis Global Capital Intensity 2014 – 2018 37
Figure 1.19 Broadcasting Sector Revenue 2018 vis-à-vis 2017 38
Figure 1.20 Broadcasting Sector Revenue by Segment 2018 vis-à-vis 2017 38
Figure 1.21 Licensees on ACE Market 2018 40
Figure 1.22 Licensees on ACE Market: Market Capitalisation 2016 – 2018 41
Figure 1.23 Licensees on ACE Market: Revenue 2016 – 2018 41
Figure 2.1 Communications Services Developments 1999 – 2018 44
Figure 2.2 Broadband Developments 2003 – 2018 44
Figure 2.3 Broadband Subscriptions and Penetration Rate 2016 – 2018 45
Figure 2.4 ADSL and Fibre Subscriptions 2014 – 2018 46
Figure 2.5 Fixed Broadband Initiatives 46
Figure 2.6 Domestic Submarine Cable Network 47
Figure 2.7 MyIX Bandwidth Utilisation and Peering Trend 2014 – 2018 49
Figure 2.8 Mobile Broadband Subscriptions and Penetration Rate 2016 – 2018 50
Figure 2.9 3G and 4G LTE Population Coverage 2016 – 2018 50
Figure 2.10 Global Mobile Phone Shipments 2008 – 2018 51
Figure 2.11 Global Smartphone Shipments Market Share: Top Five Companies 51
Figure 2.12 Global Smartphone Average Selling Price by Vendor 2012 – 2018 52
Figure 2.13 Percentage of Internet Users 2014 – 2018 53
Figure 2.14 Device to access Internet 53
Figure 2.15 Place to access Internet 54
Figure 2.16 Online Activities by Internet Users (%) 54
Figure 2.17 DEL Subscriptions and Penetration Rate 2016 – 2018 56
Figure 2.18 Mobile Cellular Subscriptions and Penetration Rate 2016 – 2018 56
Figure 2.19 Prepaid and Postpaid Subscriptions 2016 – 2018 56
Figure 2.20 Mobile Cellular Subscriptions Market Share by Service Providers 2009 – 2018 57
Figure 2.21 Mobile Market Share by Subscriptions and Revenue 57
Figure 2.22 List of MVNOs 2018 59
Figure 3.1 Media Consumption 2014 – 2018: Global 62

Figure 3.2 Mobile Phone Internet User Penetration Worldwide 2014 – 2018 62
Figure 3.3 Media Consumption 2014 – 2018: Malaysia 63
Figure 3.4 Media Consumption 2014 – 2018: Selected Countries 63
Figure 3.5 Media Consumption 2014 – 2018: Selected Countries (Cont'd) 64
Figure 3.6 Trend in Content Services 65
Figure 3.7 Key Development in TV Broadcasting – 20 Years 66
Figure 3.8 Major TV Offerings in Malaysia 2018 67
Figure 3.9 Media Prima and YouTube Collaboration 69
Figure 3.10 Pay TV Subscription 2014 – 2018 70
Figure 3.11 ASTRO Customer Value Proposition 70
Figure 3.12 Pay TV Key Football Broadcasting Rights 2018 72
Figure 3.13 OTT Services in Malaysia 74
Figure 3.14 Digital TV Transmitter Sites Deployed 75
Figure 3.15 Digital Multimedia Receivers 76
Figure 3.16 EA Campaign 77
Figure 3.17 TV and radio channels on myFreeview platform 78
Figure 3.18 Guide to Access myFreeview 78
Figure 3.19 Radio Listenership by State 79
Figure 3.20 Commercial Radio Stations 81
Figure 3.21 Digital Brands under Ripple 82
Figure 3.22 Traditional and Digital Listenership 2013 – 2018 83
Figure 3.23 Radio Listenership by Medium 2018 83
Figure 3.24 Selected Podcast Offered by Radio Broadcasters 84
Figure 3.25 Radio Stations in Malaysia 85
Figure 3.26 Global TV and Internet ADEX 2010 – 2018 86
Figure 3.27 Malaysia Advertising by Selected Medium 2014 – 2018 87
Figure 3.28 Global Digital Advertising by Category 2017 – 2018 88
Figure 3.29 AI in Digital Marketing 89
Figure 4.1 DLM Proof of Concept Projects 96
Figure 4.2 Mobile Services Coverage in Smart Communities 97
Figure 4.3 Smart Community Common Flagship Programmes 98
Figure 4.4 Community Empowerment Through Internet Centres 99
Figure 5.1 Consumer Complaints Received by MCMC 2014 – 2018 102
Figure 5.2 Type of Complaints 2018 102
Figure 5.3 Complaints Status 2018 103
Figure 5.4 Complaints by Services 2016 – 2018 103
Figure 5.5 Top Five Complaints 2016 – 2018 104
Figure 5.6 Type of Complaints on New Media 2016 – 2018 105
Figure 5.7 Top Three Complaints on New Media 2016 – 2018 105
Figure 5.8 Complaints Under MCMC Purview 2016 – 2018 106
Figure 5.9 Complaints Not Under MCMC Jurisdiction 2016 – 2018 107
Figure 5.10 Prepaid Registration Guidelines 108
Figure 5.11 Registration Using OCR 109
Figure 5.12 Summary of Ground Survey (Northern Region) 109
Figure 5.13 Compound Issued 110
Figure 5.14 Example of Mobile Content Services 110
Figure 5.15 Top SMS Related Complaints 2018 111
Figure 5.16 Mobile Numbers Terminated: Illegal Ads 112
Figure 5.17 Complaints on Broadcast Content 114
Figure 5.18 Complaints on Broadcast Content by Category 2017 – 2018 114
Figure 5.19 Live and Rehearsal Programmes Attended 115

Figure 5.20 Overall Result of Market Surveillance 2018 116
Figure 5.21 Actions Taken against Non-Compliances 117
Figure 5.22 Network Performance for Wireless Broadband – Average DL Speed 119
Figure 5.23 Network Performance for Wireless Broadband – Network Latency 120
Figure 5.24 Wireless Broadband Performance Result 2018 120
Figure 5.25 Wired Broadband Performance Result for 2018 121
Figure 5.26 Public Cellular Service Performance Result 2018 121
Figure 5.27 Resolved RFI Cases 2018 122
Figure 5.28 Source of Interferences 2018 122
Figure 5.29 Example of Cellular Boosters Found during Interference Investigation 2018 123
Figure 5.30 2.6GHz Spectrum Allocation 123
Figure 5.31 2.6GHz Spectrum Occupancy in Central Region 124
Figure 5.32 Locations with DTT Coverage Issue 125
Figure 5.33 Antennas for DTT Signal Measurement 125
Figure 5.34 EMF Measurement Result on Selected Sites 127
Figure 5.35 Mobile Phones and Accessories Collection 2018 129
Figure 5.36 Mobile e-Waste Partners by Categories 2018 129
Figure 6.1 Certification Authority 132
Figure 6.2 Digital Certificate Issuance 1997 – 2018 133
Figure 6.3 Trusted Time Stamp Process Flow 134
Figure 6.4 Internet Banking Transactions 2010 – 2018 135
Figure 7.1 MCMC Initiatives for Postal and Courier Industry 139
Figure 7.2 Pos Office by State in 2018 140
Figure 7.3 Pos Malaysia Revenue and Operating Profit 2014 – 2018 141
Figure 7.4 Pos Malaysia Revenue by Business Segment 2017 – 2018 141
Figure 7.5 Pos Malaysia Revenue by Business Segment 2009 – 2018 142
Figure 7.6 Pos Malaysia: Postal Items 2014 – 2018 (International Services) 143
Figure 7.7 Pos Malaysia: Letter Post 2014 – 2018 (Domestic Services) 143
Figure 7.8 Pos Malaysia: Letter Post 2014 – 2018 (International Services) 143
Figure 7.9 Pos Malaysia: Registered Item 2014 – 2018 (Domestic Services) 144
Figure 7.10 Pos Malaysia: Registered Item 2014 – 2018 (International Services) 144
Figure 7.11 Pos Malaysia: Parcel 2014 – 2018 (Domestic Services) 144
Figure 7.12 Pos Malaysia: Parcel 2014 – 2018 (International Services) 144
Figure 7.13 Winners of Road Safety Championship 2018 145
Figure 7.14 World Post Day Postcard 146
Figure 7.15 Total Number of Courier Licences 2001– 2018 147
Figure 7.16 Courier Service Licence: Special Condition 148
Figure 7.17 New Courier Licences 2018 148
Figure 7.18 Courier Licences by Class 2017 – 2018 149
Figure 7.19 Delivery Standard 149
Figure 7.20 Courier Services Traffic 2014 – 2018 (Overall) 150
Figure 7.21 Courier Services Traffic 2014 – 2018 (Document) 150
Figure 7.22 Courier Services Traffic 2014 – 2018 (Parcel) 150
Figure 7.23 Courier Establishments 152
Figure 7.24 Courier Vehicles in 2014 – 2018 153
Figure 7.25 Employees in Courier Services Industry 2014 – 2018 153
Figure 7.26 Courier Service Employees by Job Function 154
Figure 7.27 Top Three Complaints Trend 2014 – 2018 155
Figure 7.28 Types of Complaint Received by MCMC 2014 – 2018 156

This Page Intentionally Left Blank

LIST OF ABBREVIATIONS

3G	3rd Generation
4G LTE	4th Generation Long Term Evolution
5G	5th Generation
	A
AAE-1	Asia-Africa-Europe-1
ACE	"Access", "Certainty", "Efficiency"
ADEX	Advertising Expenditure
ADSL	Asymmetric Digital Subscriber Line
AI	Artificial Intelligence
APG	Asia Pacific Gateway
ARPU	Average Revenue Per User
ASO	Analogue Switch Off
ASP	Applications Service Provider
ASEAN	Association of Southeast Asian Nations
	B
B2B	Business to Business
BBG	Bay of Bengal
	C
C&M	Communications and Multimedia
CA	Certification Authority
CATI	Computer Assisted Telephone Interview
CASP	Content Applications Service Provider
CFM	Communications and Multimedia Consumer Forum of Malaysia
CMA	Communications and Multimedia Act 1998
CSSR	Call Setup Success Rate
	D
DCR	Dropped Call Rate
DEL	Direct Exchange Line
DL	Download
DLM	Digital Lifestyle Malaysia
DTH	Direct-to-Home
DTS	Date Time Stamp Services
DTTB	Digital Terrestrial Television Broadcasting
	E
EA	Education and Awareness
EMF	Electronic Magnetic Fields
	F
FAMA	Federal Agricultural Marketing Authority
FTA	Free-to-Air
FYE	Fiscal Year End
	G
GA	Government Agency
GCC	General Consumer Code of Practice for the Communications and Multimedia Industry Malaysia
GLC	Government-linked Company
GLIC	Government-linked Investment Company
GPRS	General Packet Radio Services
	H
HSBB	High Speed Broadband
	I
iDTV	Integrated Digital TV
ICMS	Integrated Complaint Management System
ICT	Information and Communications Technology

IoT	Internet of Things
IP	Internet Protocol
IPC	Integrated Parcel Centre
ISP	Internet Service Provider
ITU	International Telecommunication Union
	K
KLIA	Kuala Lumpur International Airport
	L
LBC	Labuan-Brunei Cable
LTE	Long Term Evolution
	M
Mbps	Megabits Per Second
MNC	Multi-National Companies
MNO	Mobile Network Operator
MRT	Mass Rapid Transit
MSAP	The Commission Determination on the Mandatory Standard on Access Pricing, Determination No. 1 of 2017
MSEMF	The Commission Determination on the Mandatory Standard for Electromagnetic Field Emission from Radiocommunications Infrastructure, Determination No. 1 of 2010
MSMCS	Mandatory Standards for the Provision of Mobile Content Services, Determination No. 4 of 2009
MVN	Mobile Virtual Network
MyIX	Malaysia Internet Exchange
	N
NFCP	National Fiberisation and Connectivity Plan
NFP	Network Facilities Provider
NSP	Network Services Provider
	O
OCR	Optical Character Recognition
OTT	Over-the-Top
	P
PCS	Public Cellular Service
PKI	Public Key Infrastructure
POS	Point-of-sale
PoP	Points-of-Presence
PSM	Philatelic Society of Malaysia
PTPSS	Postal Transformation Plan for Sabah and Sarawak Phase 4
	Q
QoS	Quality of Service
QR Code	Quick Response Code
	R
R&D	Research and Development
RAN	Radio Access Network
RBB	Rural Broadband
RFID	Radio Frequency Identification
RTT	Round-Trip Time
	S
SB	Statutory Bodies
SEA-ME-WE 5	Southeast Asia – Middle East – Western Europe 5
SGOV	State Government
SIM	Subscriber Identity Module
SME	Small and Medium Enterprises
SMS	Short Messaging Service
STB	Set Top Box
STEM	Science, Technology, Engineering and Mathematics
SUBB	Suburban Broadband
	T
TAC	Transaction Authorisation Code

U	
UHD	Ultra High Definition
UHF	Ultra High Frequency
UPU	Universal Postal Union
USD	United States Dollar
USP	Universal Service Provision
V	
VAS	Value-Added Services
Y	
YoY	Year on Year

CONTACT US

HEAD OFFICE

MALAYSIAN COMMUNICATIONS AND MULTIMEDIA COMMISSION
MCMC Tower 1
Jalan Impact
Cyber 6
63000 Cyberjaya,
Selangor Darul Ehsan

Tel: +60 3 8688 8000
Fax: +60 3 8688 1000
Email: scd@cmc.gov.my
Website: www.mcmc.gov.my
Aduan MCMC: 1-800-188-030
Aduan MCMC SMS: 15888
Aduan MCMC Fax: +60 3 8688 1880

REGIONAL OFFICES

NORTHERN REGIONAL OFFICE
Level 1, Bangunan Tabung Haji
Jalan Bagan Luar
12000 Butterworth
Pulau Pinang
Tel: +60 4 320 1000
Fax: +60 4 320 1100

KEDAH BRANCH OF THE NORTHERN REGIONAL OFFICE
Level 6, Wisma PKNK
Jalan Sultan Badlishah
05000 Alor Setar
Kedah Darul Aman
Tel: +60 4 739 0500
Fax: +60 4 739 0600

PERAK BRANCH OF THE NORTHERN REGIONAL OFFICE
No.21, 21A & 21B
Jalan Meru Bistari A14
Medan Meru Bistari
30020 Ipoh
Perak Darul Ridzuan
Tel: +60 5 501 4000
Fax: +60 5 501 4100

CENTRAL REGIONAL OFFICE
Malaysian Communications and Multimedia Commission (MCMC) (Old Building)
Off Persiaran Multimedia
63000 Cyberjaya
Selangor
Tel: +60 3 8688 7800
Fax: +60 3 8688 1001

EASTERN REGIONAL OFFICE
B8004 Level 1
Sri Kuantan Square
Jalan Telok Sisek
25200 Kuantan
Pahang Darul Makmur
Tel: +60 9 515 4800
Fax: +60 9 515 4900

KELANTAN BRANCH OF THE EASTERN REGIONAL OFFICE
PT400, Bandar Baru Tunjong
Jalan Kuala Krai
15100 Kota Bharu
Kelantan Darul Naim
Tel: +60 9 745 4800
Fax: +60 9 745 4900

TERENGGANU BRANCH OF THE EASTERN REGIONAL OFFICE
PT 4023, Perkedaian Ladang Tok Pelam
Jalan Sultan Zainal Abidin
20000 Kuala Terengganu
Terengganu Darul Iman
Tel: +60 9 628 5803
Fax: +60 9 628 5804

MELAKA BRANCH OF THE SOUTHERN REGIONAL OFFICE
No. 26-3, Level 3,
Bangunan Kota Cemerlang
Hang Tuah Jaya
75450 Lebuh Ayer Keroh
Melaka
Tel: +60 6 235 9200
Fax: +60 6 235 9300

KENINGAU BRANCH OF THE SABAH REGIONAL OFFICE
Lot 42, GF, 1st and 2nd Floor
Datun Commercial Centre
89008 Keningau
Sabah
Tel: +60 87 340 000
Fax: +60 87 340 100

TAWAU BRANCH OF THE SABAH REGIONAL OFFICE
Level 2, Wisma Great Eastern
No. 163 & 164, Jalan Belian
91000 Tawau
Sabah
Tel: +60 89 984 000
Fax: +60 89 984 100

MIRI BRANCH OF THE SARAWAK REGIONAL OFFICE
Lot 1385 (1st Floor), Block 10
Centre Point Commercial Centre Phase II
98000 Miri
Sarawak
Tel: +60 85 461 800
Fax: +60 85 461 900

SOUTHERN REGIONAL OFFICE
Suite 7A, Level 7
Menara Ansar
Jalan Trus
80000 Johor Bahru
Johor Darul Takzim
Tel: +60 7 208 7600
Fax: +60 7 208 7700

SABAH REGIONAL OFFICE
6-10-10, 10th Floor
No. 6 Menara MAA
Lorong Api-Api 1, Api Api Centre
88000 Kota Kinabalu
Sabah
Tel: +60 88 355 000
Fax: +60 88 355 100

SANDAKAN BRANCH OF THE SABAH REGIONAL OFFICE
Level 3, Menara Rickoh Indah
Commercial Complex
Bandar Indah, Batu 4, Jalan Utara
90000 Sandakan
Sabah
Tel: +60 89 241 400
Fax: +60 89 241 500

SARAWAK REGIONAL OFFICE
Block D, i-Com Square
Jalan Pending
93450 Kuching
Sarawak
Tel: +60 82 388 000
Fax: +60 82 388 100

SIBU BRANCH OF THE SARAWAK REGIONAL OFFICE
GF, 1st & 2nd Floor
No. 2 Lorong Kwong Ann 8
Brooke Drive
96000 Sibu
Sarawak
Tel: +60 84 365 600
Fax: +60 84 365 700

BINTULU BRANCH OF THE
SARAWAK REGIONAL OFFICE
Level 7, Bintulu Town Square Office Block
Private Lot 37
Survey Lot 8489, Lot 31
Kemena Land District
97000 Bintulu
Sarawak
Tel: +60 82 388 050
Fax: +60 82 388 051

Numbers and percentages may not add up due to rounding practices. Information is correct at the time of printing.

This Page Intentionally Left Blank


ADS
01010011
01001011
01000011
01001000