



MINISTRY OF ECONOMY
DEPARTMENT OF STATISTICS MALAYSIA

EKONOMI DIGITAL MALAYSIA

MALAYSIA DIGITAL ECONOMY

2025

JABATAN PERANGKAAN MALAYSIA
DEPARTMENT OF STATISTICS MALAYSIA



KEMENTERIAN EKONOMI
JABATAN PERANGKAAN MALAYSIA

EKONOMI DIGITAL MALAYSIA

MALAYSIA DIGITAL ECONOMY

2025

Pemakluman

Malaysia buat julung kalinya telah berjaya menduduki tangga pertama (1) di peringkat global dalam laporan dwi-tahunan *Open Data Inventory* (ODIN) 2024/25 yang dikeluarkan oleh *Open Data Watch* (ODW), mengatasi 197 negara lain. Pencapaian ini merupakan lonjakan ketara daripada kedudukan ke-67 dalam penilaian ODIN 2022/23.

OpenDOSM NextGen adalah medium yang menyediakan katalog data dan visualisasi bagi memudahkan pengguna menganalisis pelbagai data dan boleh diakses melalui portal <https://open.dosm.gov.my>.

Announcement

Malaysia has, for the first time, ranked as number one (1) globally in the biennial Open Data Inventory (ODIN) 2024/25 report released by Open Data Watch (ODW), surpassing 197 other countries. This achievement marks a significant leap from its 67th position in the ODIN 2022/23 assessment.

OpenDOSM NextGen is a medium that provides data catalogue and visualisations to facilitate users' analysis and can be accessed through <https://open.dosm.gov.my>.

JABATAN PERANGKAAN MALAYSIA
DEPARTMENT OF STATISTIC MALAYSIA

Diterbitkan dan dicetak oleh / *Published and printed by:*

Jabatan Perangkaan Malaysia
Department of Statistics Malaysia

Blok C6 & C7, Kompleks C,
Pusat Pentadbiran Kerajaan Persekutuan,
62514 Putrajaya,
MALAYSIA

Tel.	:	03-8885 7000
Faks	:	03-8888 9248
Portal	:	https://www.dosm.gov.my
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Harga / <i>Price</i>	:	RM40.00

Diterbitkan pada November 2025 / *Published in November 2025*

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“Sumber: Jabatan Perangkaan Malaysia”

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ISSN 2710-5881

KATA PENGANTAR

Penerbitan Ekonomi Digital Malaysia 2025 ini merupakan gabungan statistik daripada laporan yang diterbitkan oleh Jabatan, iaitu Akaun Satelit Teknologi Maklumat dan Komunikasi (ASTMK) 2024, Perkhidmatan Maklumat dan Komunikasi Suku Tahunan 2025, Penggunaan ICT dan E-Dagang oleh Pertubuhan (ICTEC) 2024, Laporan Survei Penggunaan dan Capaian ICT oleh Individu dan Isi Rumah (ICTHS) 2024 dan Perangkaan Perkhidmatan Suku Tahunan (SPST) 2025.

Penerbitan ini menyediakan statistik ekonomi digital bagi memenuhi keperluan agensi kerajaan, ahli ekonomi, ahli akademik, pihak swasta serta individu dalam perancangan dan penggubalan dasar, analisis ekonomi, unjuran serta membantu dalam perancangan pembangunan perniagaan.

Ekonomi Digital Malaysia 2025 menggunakan garis panduan daripada *Manual for the Production of Statistics on the Digital Economy 2020 Revised Edition*, United Nations Conference on Trade and Development (UNCTAD), *Digital Economy Outlook 2024*, Organisation for Economic Co-operation and Development (OECD), *Digital Economy Report 2024* (UNCTAD), *Guide to Measuring the Information Society 2011* (OECD), *System of National Accounts 2008*, *Manual for Measuring ICT Access and Use by Households and Individuals 2020*, International Telecommunication Union (ITU) dan *Model Survey on ICT Usage by Business (2nd Revision) 2022* (OECD).

Sektor ekonomi di Malaysia diklasifikasikan di bawah Klasifikasi Piawai Industri Malaysia (MSIC) 2008 Ver. 1.0, selaras dengan *International Standard Industrial Classification of All Economic Activities* (ISIC), Revision 4, 2008. Penerbitan ini merangkumi Ringkasan Ekonomi Digital Malaysia dan diikuti oleh enam (6) bab yang berkaitan dengan Prestasi TMK, Sektor Perkhidmatan Maklumat dan Komunikasi, Sorotan E-Dagang, Akses dan Penggunaan ICT, Fakta Lain Ekonomi Digital Malaysia serta Rancangan Malaysia Ke-13 (RMK13) 2026-2030: Ekonomi Digital. Nota teknikal, jadual dan indikator lain turut disediakan di akhir penerbitan ini bagi membantu pengguna memahami statistik yang diterbitkan.

Jabatan ini merakamkan setinggi-tinggi penghargaan atas kerjasama semua pihak yang telah menyumbang secara langsung atau tidak langsung dalam menjayakan penerbitan ini. Setiap maklum balas dan cadangan untuk penambahbaikan penerbitan akan datang amat dihargai.

DATO' SRI DR. MOHD UZIR MAHIDIN

Ketua Perangkawan Malaysia

November 2025



PREFACE

This publication of Malaysia Digital Economy 2025 is a compilation of statistics from published reports by Department, namely the Information and Communication Technology Satellite Account (ICTSA) 2024, Quarterly Information and Communication Services 2025, the Usage of ICT and E-Commerce by Establishment (ICTEC) 2024, the ICT Use and Access by Individuals and Households Survey Report (ICTHS) 2024, and the Quarterly Services Statistics (QSS) 2025.

This publication aims to provide official digital economy statistics to meet the needs of government agencies, economic analysts, academics, the private sector, and individuals, serving as a fundamental resource for economic analysis and supporting the formulation of development planning.

Malaysia Digital Economy 2025 adheres to guidelines from the Manual for the Production of Statistics on the Digital Economy 2020 Revised Edition, United Nations Conference on Trade and Development (UNCTAD), Digital Economy Outlook 2024, Organisation for Economic Co-operation and Development (OECD), Digital Economy Report 2024 (UNCTAD), Guide to Measuring the Information Society 2011 (OECD), System of National Accounts 2008, Manual for Measuring ICT Access and Use by Households and Individuals 2020, International Telecommunication Union (ITU) and Model Survey on ICT Usage by Business (2nd Revision) 2022 (OECD).

Malaysia's economic sectors are classified under the Malaysian Standard Industrial Classification (MSIC) 2008 Ver. 1.0, which is consistent with the International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 4, 2008. The publication encompasses Overview of Malaysia's Digital Economy and six (6) chapters covering Performance of ICT, ICT Services Sector, Insights of E-Commerce, Access and Usage of ICT, Other Facts on Malaysia's Digital Economy and the Thirteenth Malaysia Plan (RMK13) 2026-2030: Digital Economy. Technical notes, tables and other indicators are also provided at the end of this publication to help readers understand the published statistics.

The Department extends its highest appreciation to all parties who have contributed, whether directly or indirectly, to the successful publication of this report. All feedback and suggestions for improving future editions are greatly appreciated.

DATO' SRI DR. MOHD UZIR MAHIDIN

Chief Statistician Malaysia

November 2025

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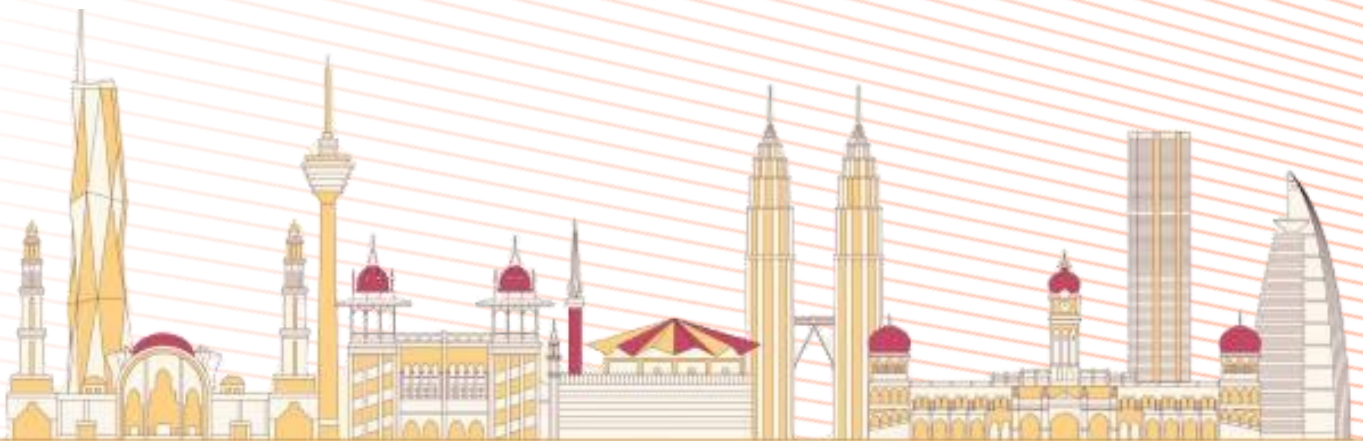
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PENEMUAN UTAMA EKONOMI DIGITAL MALAYSIA 2025

PRESTASI EKONOMI DIGITAL

1 SUMBANGAN TMK KEPADA KDNK PADA 2024



TMK KEPADA EKONOMI

RM451.3b 2024

RM429.3b 2023

5.1%

Sumbangan kepada
Ekonomi Negara **23.4%**

13.9%

Nilai tambah
kasar TMK

9.5%

E-Dagang bukan TMK

2 EKSPORT & IMPORT



Eksport bersih produk TMK
kekalkan lebihan dagangan
sebanyak **RM119.8 bilion**

2023: Lebihan dagangan sebanyak RM160.7b

3 GUNA TENAGA & PAMPASAN PEKERJA, 2024



2023 2024

➔ **1.25 juta** orang yang
bekerja dalam Industri
TMK menyumbang
7.6 peratus kepada
jumlah guna tenaga

1.24j orang | Sumbangan: 7.8%

Pampasan pekerja
sebanyak **RM90.1 bilion**
bersamaan **33.5 peratus**
daripada jumlah
pendapatan TMK



RM89.2b | Sumbangan: 34.9%

4 SUMBANGAN E-DAGANG KEPADA KDNK

Industri TMK

2024 **13.4%**

2023 **13.5%**

E-Dagang bagi
industri lain

2024: 3.9%
2023: 4.0%

2024: 9.5%
2023: 9.6%

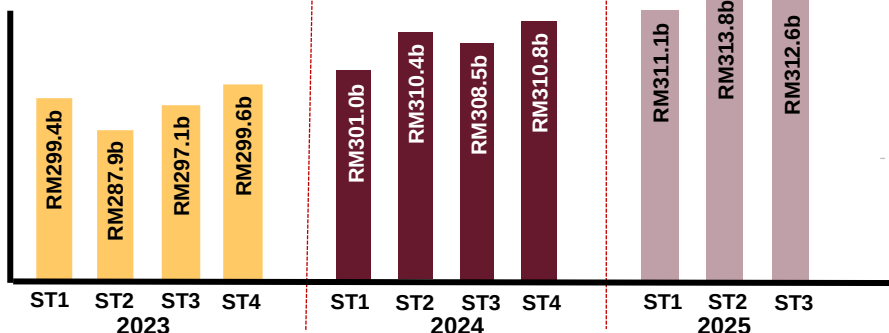
NILAI DITAMBAH E-DAGANG

RM258.2b 2024

RM246.6b 2023

4.7%

5 PENDAPATAN E-DAGANG SUKU TAHUNAN OLEH PERTUBUHAN



2024
RM1.23t
3.9%

2023
RM1.18t
4.9%

KDNK
b
t

Kadar Pertumbuhan Tahunan
Keluaran Dalam Negeri Kasar

J
TMK
ST
QoQ

Juta
Teknologi Maklumat & Komunikasi
Suku Tahun
Perubahan Peratusan Suku Tahun ke Suku Tahun

Sumber: Ekonomi Digital Malaysia, 2025
Jabatan Perangkaan Malaysia



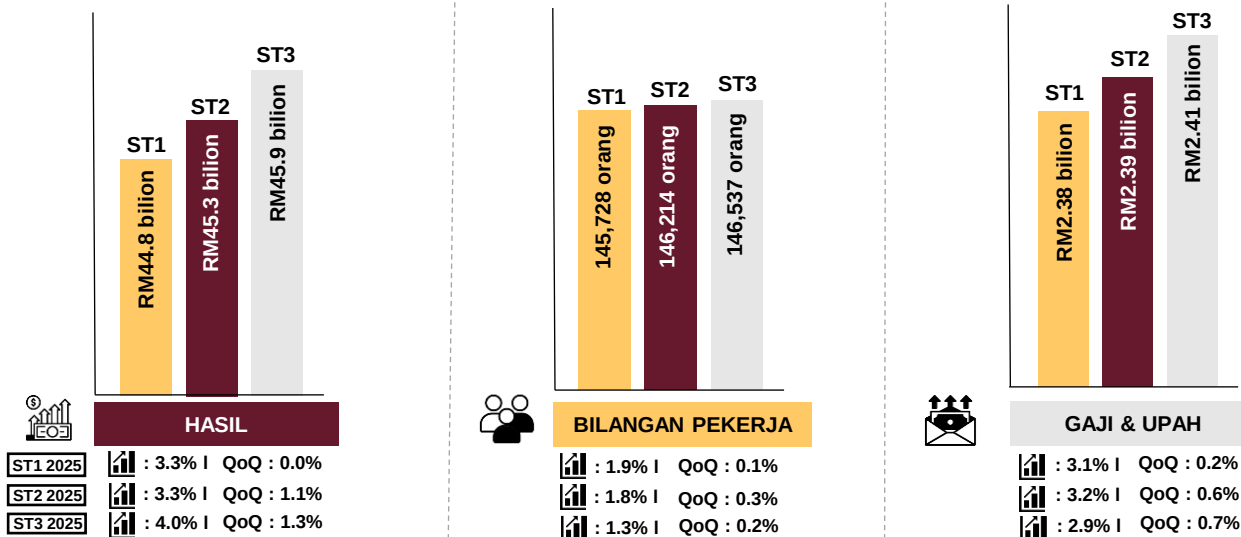
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PENEMUAN UTAMA EKONOMI DIGITAL MALAYSIA 2025

PRESTASI EKONOMI DIGITAL

6 STATISTIK UTAMA PERKHIDMATAN TMK

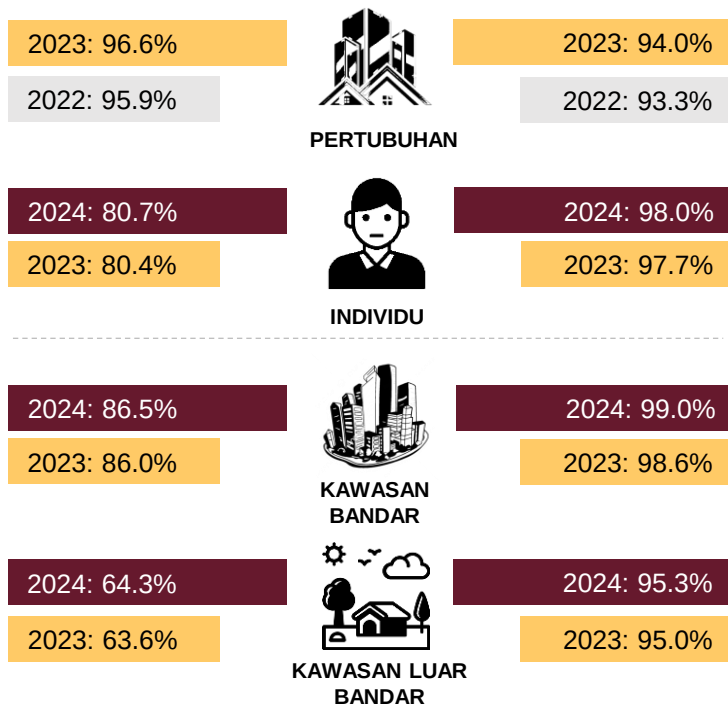


PENGGUNAAN UTAMA PERKHIDMATAN ICT

7 PENGGUNAAN KOMPUTER

8 PENGGUNAAN INTERNET

9 LIPUTAN 4G DAN 5G



2025: 98.8%

2024: 98.4%

Peratusan penduduk yang diliputi oleh sekurang-kurangnya LTE / WIMAX mudah alih

2025: 82.4%

2024: 82.0%

Peratusan penduduk yang diliputi oleh sekurang-kurangnya rangkaian mudah alih 5G

MAIN FINDINGS MALAYSIA DIGITAL ECONOMY 2025

PERFORMANCE OF DIGITAL ECONOMY

1 CONTRIBUTION OF ICT TO GDP IN 2024



ICT TO ECONOMY

RM451.3b 2024

RM429.3b 2023

5.1%

Share to National Economy

23.4%

13.9%

Gross value added ICT

9.5%

E-Commerce of non ICT industries

2 EXPORT & IMPORT



Net Exports of ICT products remain surplus of **RM119.8 billion**

2023: Trade surplus of RM160.7 billion

3 EMPLOYMENT & COMPENSATION OF EMPLOYEES, 2024



2023 2024

➔ **1.25 million** persons employed in ICT industry contributed **7.6 percent** to the total employment

1.24m persons | Share: 7.8%

Compensation of employees **RM90.1 billion** share of **33.5 percent** from the ICT income



RM89.2b | Share: 34.9%

4 CONTRIBUTION OF E-COMMERCE TO GDP

ICT Industry

2024

13.4%

2023

13.5%

E-Commerce for other industries

2024: 3.9%
2023: 4.0%

2024: 9.5%
2023: 9.6%

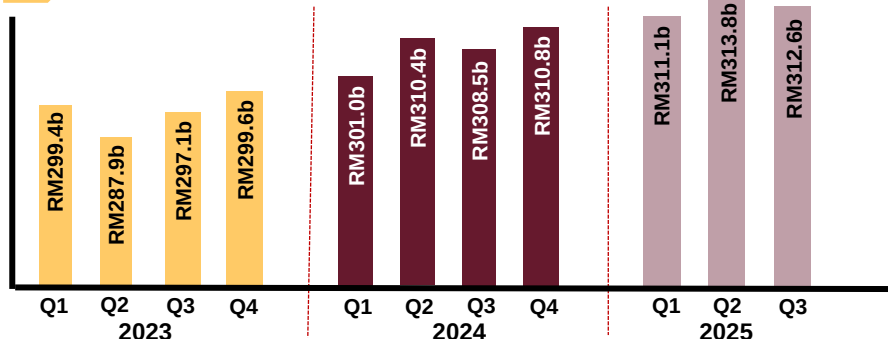
GROSS VALUE ADDED E-COMMERCE

RM258.2b 2024

RM246.6b 2023

4.7%

5 QUARTERLY E-COMMERCE INCOME BY ESTABLISHMENT



2024
RM1.23t
3.9%

2023
RM1.18t
4.9%

GDP
b
t

Annual Growth Rate
Gross Domestic Product
Billion
Trillion

m
ICT
Q
QoQ
Million
Information & Communication Technology
Quarter
Percentage change quarter-on-quarter

Source : Malaysia Digital Economy, 2025
Department of Statistics Malaysia



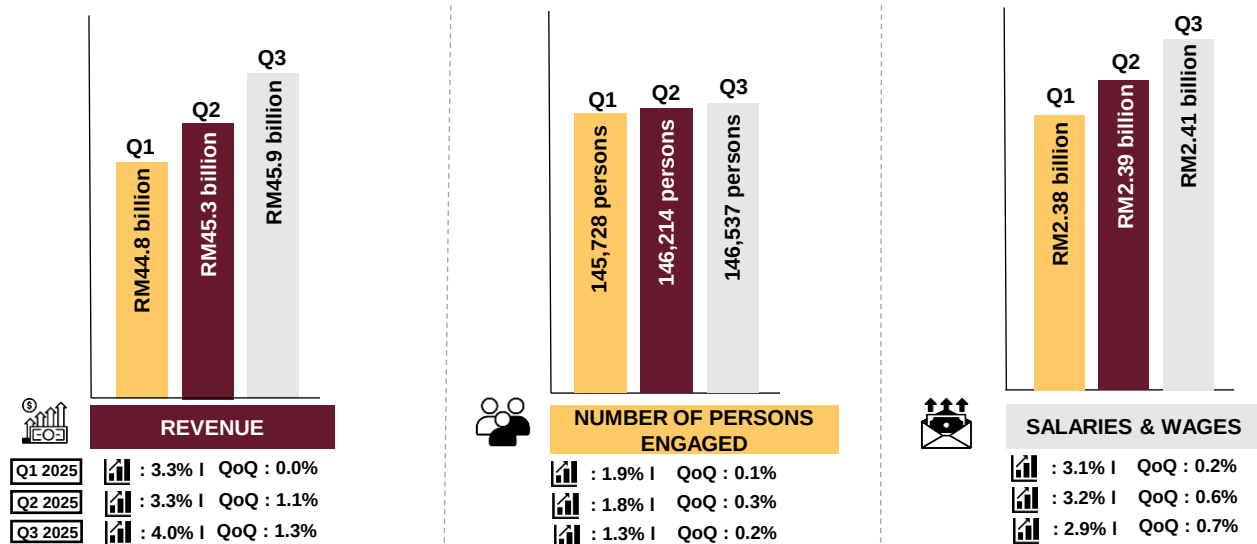
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MAIN FINDINGS MALAYSIA DIGITAL ECONOMY 2025

PERFORMANCE OF DIGITAL ECONOMY

6 PRINCIPAL STATISTICS OF ICT SERVICES

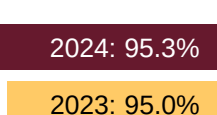
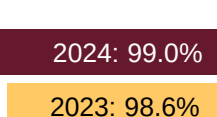
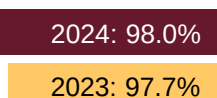
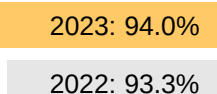


USAGE BY ESTABLISHMENT & INDIVIDUAL

7 COMPUTER USAGE



8 INTERNET USAGE



9 4G AND 5G COVERAGE

2025: 98.8%

2024: 98.4%

Percentage of population covered by at least LTE/WIMAX mobile

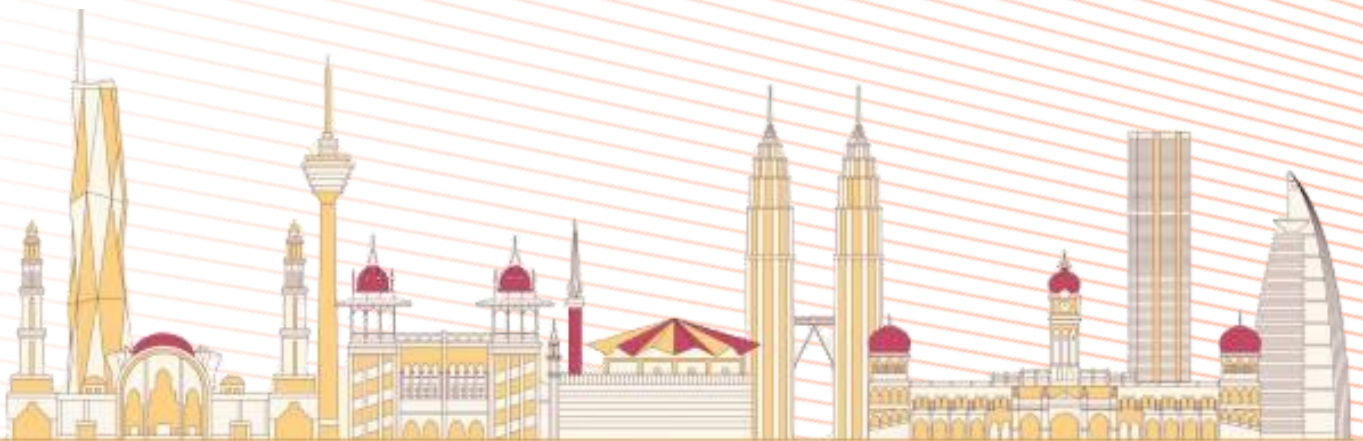
2025: 82.4%

2024: 82.0%

Percentage of population covered by at least 5G mobile networks

RINGKASAN EKONOMI DIGITAL MALAYSIA

OVERVIEW OF THE MALAYSIA'S DIGITAL ECONOMY



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1. PENGENALAN

Transformasi digital telah menjadi agenda utama pembangunan ekonomi Malaysia dalam era Revolusi Perindustrian Keempat (4IR) yang menyasarkan sumbangan ekonomi digital sebanyak 25.5 peratus kepada Keluaran Dalam Negeri Kasar (KDNK) menjelang tahun 2025. Pendigitalan industri merupakan keperluan kritikal dan bukan sekadar penggunaan teknologi baharu tetapi mengadaptasikan integrasi teknologi canggih seperti Kecerdasan Buatan (AI), *Internet of Things* (IoT), Automasi, *Big Data Analytics* dan Pengkomputeran Awam ke dalam operasi pembuatan dan perkhidmatan industri bagi memastikan daya saing, kecekapan operasi serta kemampanan pertumbuhan dalam landskap perniagaan global yang semakin kompleks dan dinamik.

Pandemik COVID-19 yang melanda dunia semasa tahun 2020 turut menjadi pemangkin utama yang mempercepatkan agenda transformasi digital apabila pertubuhan di seluruh dunia mula menyedari kepentingan teknologi digital dalam menjamin kelangsungan dan daya tahan perniagaan ketika berada di era ketidaktentuan ekonomi.

Menjelang tahun 2025, program pendigitalan di Malaysia telah mencapai momentum yang signifikan selaras dengan hasrat negara untuk mencapai status negara maju berpendapatan tinggi menjelang 2023. Pelaksanaan program pendigitalan diperkukuhkan melalui pelbagai dasar nasional dan inisiatif utama seperti Pelan Induk Digital Ekonomi Malaysia (*MyDIGITAL*), Dasar 4IR Malaysia 2021, Dasar Sains, Teknologi dan Inovasi Negara (DSTIN 2021-2030), Pelan Induk Perindustrian Baharu (NIMP 2030), Rangka Tindakan Ekonomi Digital Malaysia (DEB 2021-2030), Pelan Tindakan Ekonomi Digital dan Teknologi (DE-T 2021), *National E-Commerce Strategic Roadmap* (NESR) 2.0, Pelan Jalinan Digital Negara (JENDELA 2020-2025), Dasar Keselamatan Siber Negara (DKSN 2020) dan *Industry4WRD*.

Rajah 1: Dasar dan Inisiatif Nasional Digital Ekonomi Malaysia



Dasar / Pelan Induk

	Pelan Induk Digital Ekonomi Malaysia (MyDIGITAL)	Menetapkan visi dan hala tuju strategik untuk menjadikan Malaysia peneraju ekonomi digital serantau menjelang 2030.
	Dasar 4IR Malaysia	Menggariskan strategi negara dalam memanfaatkan teknologi Revolusi Perindustrian Keempat untuk pembangunan sosioekonomi.
	Dasar Sains, Teknologi & Inovasi Negara (DSTIN 2021-2030)	Merangkumi hala tuju strategik bagi memperkukuh ekosistem sains, teknologi dan inovasi negara.
	Pelan Induk Perindustrian Baharu (NIMP 2030)	Menyusun semula strategi perindustrian Malaysia bagi mencapai pertumbuhan inklusif dan mampan berasaskan teknologi.
	Dasar Keselamatan Siber Negara (DKSN 2020)	Menetapkan kerangka keselamatan siber nasional bagi melindungi aset dan infrastruktur digital negara.
	Industry4WRD	Merupakan dasar transformasi sektor pembuatan Malaysia ke arah penggunaan teknologi pintar berasaskan 4IR.



Rangka / Pelan Tindakan / Program

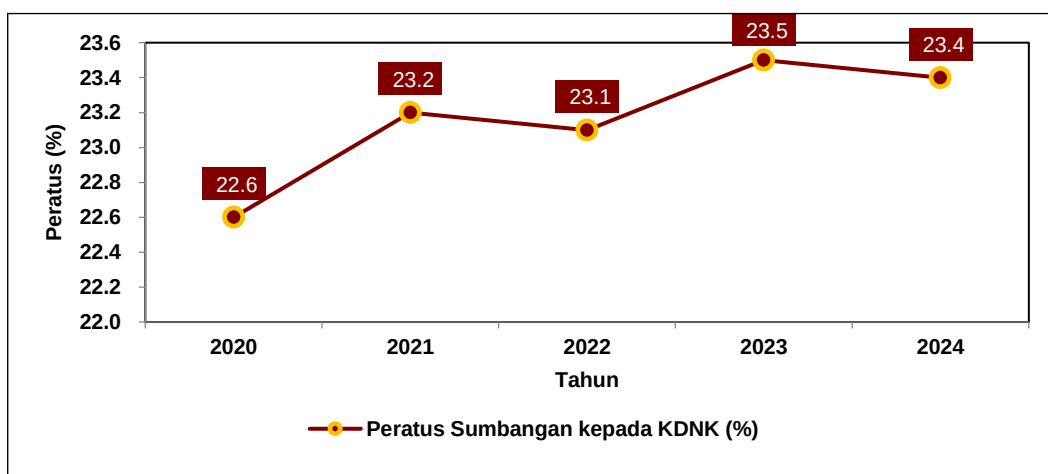
- Rangka Tindakan Ekonomi Digital Malaysia (DEB 2021-2030)**
 Merupakan *blueprint* pelaksanaan MyDIGITAL yang memperincikan strategi dan inisiatif bagi mempercepat pertumbuhan ekonomi digital negara.
- National E-Commerce Strategic Roadmap (NESR) 2.0**
 Menggariskan tindakan strategik untuk memperkukuh pembangunan dan daya saing sektor e-dagang negara.
- Pelan Jalinan Digital Negara (JENDELA 2020-2025)**
 Bertujuan memperluas liputan, meningkatkan kualiti serta mempercepat sambungan infrastruktur digital di seluruh negara.

2. PENCAPAIAN DAN MOMENTUM TRANSFORMASI DIGITAL 2025

2.1 PRESTASI SUMBANGAN EKONOMI DIGITAL KEPADA KELUARAN DALAM NEGERI KASAR (KDNK)

Menjelang tahun 2025, transformasi digital Malaysia menunjukkan kemajuan yang signifikan dengan pencapaian memberangsangkan merentasi pelbagai sektor ekonomi utama. Sumbangan ekonomi digital kepada KDNK negara yang merangkumi industri Teknologi Maklumat & Komunikasi (TMK) serta e-dagang telah meningkat secara konsisten dalam tempoh 2020 hingga 2024 meningkat daripada 18.7 peratus pada tahun 2020 kepada 19.2 peratus pada 2021 sebelum melonjak dengan ketara kepada 22.6 peratus pada 2022. Sumbangan ini kemudiannya mencapai sumbangan tertinggi pada 2023 dengan 23.5 peratus dan kekal stabil pada 23.4 peratus pada 2024.

Carta 1: Sumbangan TMK kepada Ekonomi, 2020 - 2024



2.2 PELAN JALINAN DIGITAL NEGARA (JENDELA)

JENDELA merupakan inisiatif kerajaan Malaysia yang dilancarkan pada 2020 untuk penyediaan infrastruktur digital yang komprehensif bertujuan untuk memberi Perkhidmatan internet tetap dan mudah alih yang berkualiti kepada pengguna. JENDELA dilaksanakan mengikut fasa iaitu fasa pertama menumpu kepada penambahan menara dan liputan asas 4G, manakala fasa kedua menyediakan liputan yang lebih inklusif dan menyeluruh di kawasan luar bandar dan pedalaman (*reaching the unreached*), serta menyiapkan infrastruktur untuk rangkaian 5G.



Rajah 2: Prestasi utama JENDELA 2025

Petunjuk Prestasi Utama	Sasaran JENDELA (Fasa 2 - 2025)	Status Pencapaian
Liputan 4G di Kawasan Berpenduduk	98.5%	Mencapai atau melebihi sasaran (dilaporkan 98.82% setakat Julai 2025).
Capaian Gentian Optik ke Premis	9.0 Juta Premis	Dilaporkan setinggi 9.48 juta premis tersedia gentian optik setakat Julai 2025.
Kelajuan Jalur Lebar Mudah Alih (Median)	100 Mbps	Melebihi sasaran (mencapai sekitar 150.10 Mbps setakat Julai 2025).
Liputan 5G di Kawasan Berpenduduk	Diuruskan oleh DNB (Pelaksanaan JENDELA menyokong infrastruktur)	Mencapai sekitar 82.4% liputan 5G di kawasan berpenduduk setakat Julai-Ogos 2025.
Point of Presence (PoP) Fasa 2	3,693 PoP	1,560 PoP (daripada 3,693 sasaran) telah siap di seluruh negara setakat Ogos 2025.

2.3 NATIONAL E-COMMERCE STRATEGIC ROADMAP (NESR)

NESR merupakan rangka tindakan nasional bagi menggerakkan pertumbuhan e-dagang sebagai pemangkin utama peniagaan di Malaysia yang diluluskan oleh Majlis Ekonomi Digital dan Revolusi Perindustrian 4.0 (MED4IRN).

NESR dibahagikan kepada dua (2) fasa di mana NESR 1.0 menumpukan kepada pembinaan asas ekosistem e-dagang nasional. Fasa kedua, NESR 2.0, meneruskan momentum dengan menekankan pertumbuhan inklusif dan perdagangan rentas sempadan.

Rajah 3: Rangka Pelaksanaan NESR



Pelaksanaan NESR juga bertujuan memperkukuh daya saing digital negara dan meningkatkan penglibatan perusahaan terutama Perusahaan Mikro, Kecil dan Sederhana (PMKS) dalam ekonomi digital.

Rajah 4: Prestasi NESR mengikut Sasaran Utama

Sasaran Utama	Sasaran Tahun 2025	Pencapaian Terkini sehingga 2024
Saiz Pasaran E-Dagang	RM1.65 trilion	2023: RM1.18 trilion
Bilangan PMKS yang Menggunakan E-Dagang	1,148,000 pertubuhan	2,425,874 pertubuhan
Bilangan Perniagaan yang Menggunakan E-Dagang untuk Eksport	84,000 pertubuhan	277,233 pertubuhan

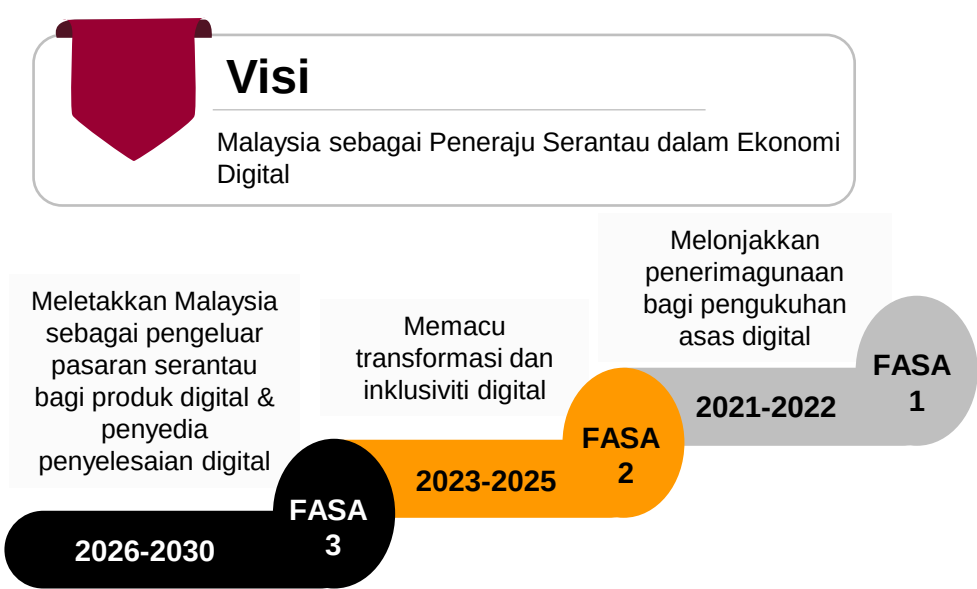
Nota:
Sumber: Dashboard NESR

2.4 RANGKA TINDAKAN EKONOMI DIGITAL MALAYSIA (DEB 2021-2030)

Rangka Tindakan Ekonomi Digital Malaysia atau dikenali *MyDIGITAL* telah dirangka bagi mempercepatkan transformasi digital negara disamping merangsang pertumbuhan ekonomi digital dan meningkatkan daya saing perniagaan Malaysia di peringkat antarabangsa.

Blueprint ini menggunakan pendekatan *Whole-of-Nation* yang membawa maksud penyertaan semua pihak berkepentingan bukan sahaja kerajaan tetapi sektor swasta, sektor awam dan rakyat bagi memastikan inisiatif digital, pembangunan infrastruktur, pemeraksanaan bakat digital dan pertumbuhan ekonomi digital dilaksanakan secara sinergi di seluruh negara.

Rajah 5: Visi dan Fasa DEB 2021-2030



Rajah 6: Visi DEB 2021-2030

Teras Strategik	Antara Pencapaian Terkini
T1: Memacu Transformasi Digital Sektor Awam	Kerajaan Malaysia menubuhkan Pejabat AI Kebangsaan (NAIO) pada 12 Disember 2024 untuk menerajui agenda AI negara <i>MyDIGITAL ID</i> Pembayaran tanpa tunai Perkhidmatan Kerajaan <i>End-to-End (E2E)</i>
T2: Meningkatkan Daya Saing Ekonomi melalui Pendigitalan	2,425,874 pertubuhan PMKS menggunakan e-dagang Pelaburan digital yang diluluskan di bawah inisiatif Malaysia Digital ialah RM16.2 bilion (Jan-April 2025)
T3: Membina Infrastruktur Digital yang Menyokong	Mencapai sekitar 82.4% liputan 5G di kawasan berpenduduk setakat Julai-Ogos 2025
T4: Membangunkan Bakat Digital yang Tangkas dan Kompeten	<i>MyDIGITALMaker</i> melibatkan 1.6 juta pelajar sekolah
T5: Mewujudkan Masyarakat Digital yang Inklusif	Peratusan individu menggunakan internet sebanyak 98.0% (2024)
T6: Membina Persekitaran Digital yang Dipercayai, Selamat dan Beretika	<i>National Cyber Security Committee (NCSC)</i> ditubuhkan melalui Cyber Security Act 2024 Kajian semula Akta Perlindungan Data Peribadi (PDPA) 2010

Nota:

Sumber:

<https://www.komunikasi.gov.my/awam/berita/27627-capaian-jalur-lebar-lebih-meluas-mampu-milik-dan-stabil>

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https://www.mydigital.gov.my/one-million-malaysians-successfully-complete-ai-untuk-rakyat-self-learning-online-programme-in-record-time/?utm_source

1. INTRODUCTION

Digital transformation has become a key agenda in Malaysia's economic development within the era of Fourth Industrial Revolution (4IR), targeting a 25.5 per cent contribution of the digital economy to the Gross Domestic Product (GDP) by 2025. Digitalisation across industries is a critical necessity and not merely the adoption of new technologies, but the integration of advanced technologies such as Artificial Intelligence (AI), Internet of Things (IoT), Automation, Big Data Analytics, and Cloud Computing into manufacturing and service operation to enhance competitiveness, operational efficiency, and sustainable growth within an increasingly complex and dynamic global business landscape.

The COVID-19 pandemic in 2020 accelerated the digital transformation agenda, as organisations worldwide recognised the importance of digital technology in ensuring business continuity and resilience amidst economic uncertainty.

By 2025, Malaysia's digitalisation programmes have gained significant momentum, aligning with the nation's aspiration to achieve high-income and developed nation status. The implementation is reinforced through various national policies and key initiatives, including Malaysia Digital Economy Blueprint (MyDIGITAL), Malaysia 4IR Policy 2021, National Science, Technology and Innovation Policy (NSTIP 2021-2030), New Industrial Master Plan (NIMP 2030), Malaysia Digital Economy Framework (DEB 2021-2030), Digital Economy and Technology Action Plan (DE-T 2021), National E-Commerce Strategic Roadmap (NESR) 2.0, National Digital Network Plan (JENDELA 2020-2025), National Cyber Security Policy (NCSP 2020) and Industry4WRD Policy.

Figure 1: Policy and National Malaysia Digital Economy Initiatives

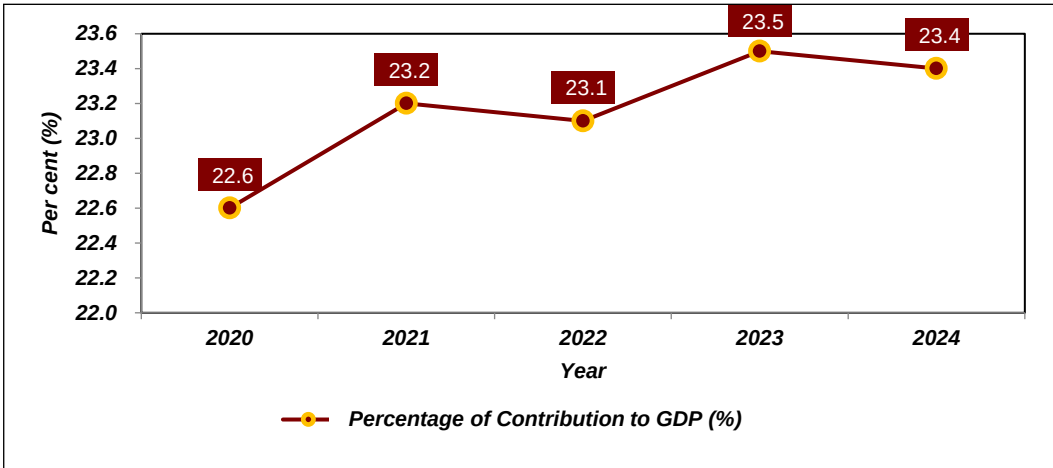
 Policy / Blueprint		
	Malaysia Digital Economy Blueprint (MyDIGITAL)	Outlines the strategic direction to position Malaysia as a regional digital economy leader by 2030.
	Malaysia 4IR Policy	Defines the nation's strategy to harness 4IR technologies for socioeconomic development.
	National Science, Technology & Innovation Policy (NSTIP 2021-2030)	Outlines the strategic direction to strengthen the national science, technology, and innovation ecosystem.
	New Industrial Master Plan (NIMP 2030)	Restructures Malaysia's industrial strategies to achieve inclusive and sustainable, technology-driven growth.
	National Cyber Security Policy (NCSP 2020)	Establishes the national cybersecurity framework to safeguard the country's digital assets and infrastructure.
	Industry4WRD	Serves as the national policy to transform Malaysia's manufacturing sector towards the adoption of smart technologies based on the Fourth Industrial Revolution (4IR).
 Framework / Action Plan / Programmes		
Malaysia Digital Economy Framework (DEB 2021-2030) Serves as the implementation blueprint for MyDIGITAL, detailing strategies and initiatives to accelerate digital economy growth. National E-Commerce Strategic Roadmap (NESR) 2.0 Outlines strategic actions to strengthen the development and competitiveness of the national e-commerce sector. National Digital Network Plan (JENDELA 2020-2025) Aims to expand coverage, enhance quality, and accelerate digital infrastructure connectivity nationwide.		

2. DIGITAL TRANSFORMATION ACHIEVEMENTS AND MOMENTUM (2025)

2.1 PERFORMANCE OF DIGITAL ECONOMY CONTRIBUTION TO GROSS DOMESTIC PRODUCT (GDP)

By 2025, Malaysia's digital transformation has shown significant progress, with encouraging achievements across key economic sectors. The contribution of the digital economy to the national GDP, which includes the Information and Communication Technology (ICT) industry and e-commerce has increased steadily between 2020 and 2024, rising from 18.7 per cent in 2020 to 19.2 per cent in 2021, before climbing sharply to 22.6 per cent in 2022. This contribution reached its peak at 23.5 per cent in 2023 and remained stable at 23.4 per cent in 2024.

Chart 1: Contribution of ICT to the Economy, 2020 - 2024



2.2 NATIONAL DIGITAL NETWORK (JENDELA)

JENDELA is a Malaysian Government initiative launched in 2020 to establish a comprehensive digital infrastructure aimed at delivering high-quality fixed and mobile internet services to users. Implemented in phases, the first phase focuses on expanding the number of towers and strengthening basic 4G coverage, while the second phase provides broader and more inclusive coverage in rural and remote areas (reaching the unreached) and prepares the infrastructure for 5G network deployment.



Figure 2: JENDELA 2025 Key Performance

Key Performance Indicator	JENDELA Target (Phase 2 - 2025)	Achievement Status
4G Coverage in Populated Areas	98.5%	Target met or exceeded (reported as 98.82% as of July 2025).
Fibre Optic Premises Passed	9.0 Million Premises	Exceeding expectations with 9.48 million premises passed with fibre optic as of July 2025.
Mobile Broadband Speed (Median)	100 Mbps	Exceeded target (reached approximately 150.10 Mbps as of July 2025).
5G Coverage in Populated Areas	Managed by DNB (JENDELA implementation supports infrastructure)	Reached approximately 82.4% 5G coverage in populated areas as of July-August 2025.
Point of Presence (PoP) Phase 2	3,693 PoP	1,560 PoP (out of 3,693 targets) were completed nationwide as of August 2025.

2.3 NATIONAL E-COMMERCE STRATEGIC ROADMAP (NESR)

NESR is a national action framework designed to support the growth of e-commerce as a main accelerator to Malaysia's national agenda, which is driven by MyDIGITAL and the Digital Economy Action Framework, along with the Fourth Industrial Revolution (IR4.0).

NESR is divided into two (2) phases. NESR 1.0 focused on establishing the foundational framework of the national e-commerce ecosystem. The second phase, NESR 2.0, continues this momentum by emphasizing inclusive growth and cross-border trade.

Figure 3: NESR Implementation Framework



The implementation of the NESR also aims to strengthen the nation's digital competitiveness and increase the participation of businesses, particularly Micro, Small, and Medium Enterprises (MSMEs), in the digital economy.

Figure 4: NESR Performance by Key Objective

Main Targets	2025 Target	Current Achievement as of 2024
E-Commerce Market Size	RM1.65 trillion	2023: RM1.18 trillion
Number of MSMEs Adopting E-Commerce	1,148,000 establishments	2,425,874 establishments
Number of Businesses Using E-Commerce for Export	84,000 establishments	277,233 establishments

Note:
Source Dashboard NESR

2.4 MALAYSIA DIGITAL ECONOMY ACTION FRAMEWORK (DEB 2021-2030)

The Malaysia Digital Economy Action Framework, also known as MyDIGITAL, is an agenda designed to accelerate digital transformation across all sectors, drive digital economic growth, and enhance Malaysia's regional and international competitiveness.

This Blueprint employs a 'Whole-of-Nation' approach, requiring the committed involvement of all relevant stakeholders, including the public sector, private sector, and civil society, to ensure digital economic development and transformation is implemented comprehensively nationwide.

Figure 5: Vision and Phase DEB 2021-2030

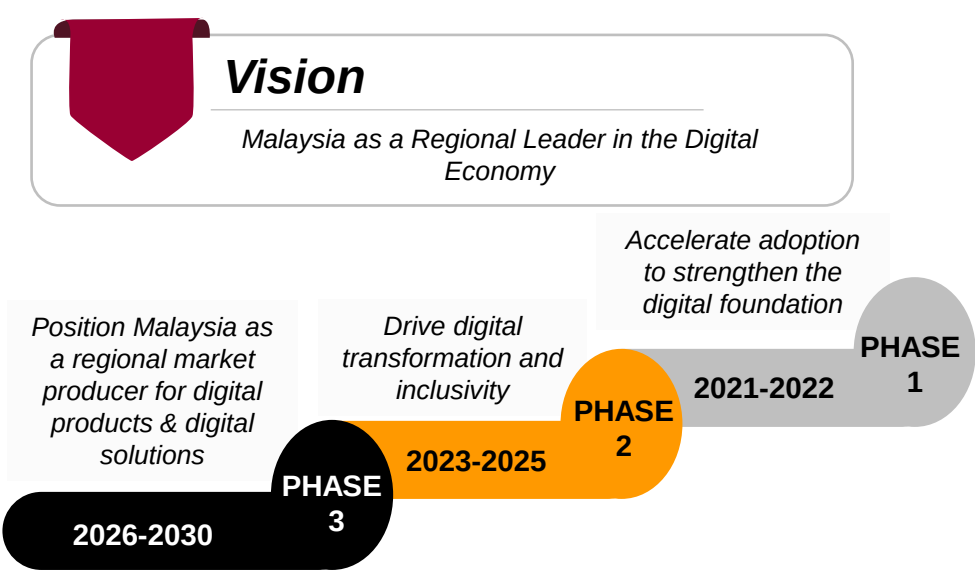


Figure 6: Vision DEB 2021-2030

Strategic Thrust	Recent Achievements
T1: Driving Digital Transformation of the Public Sector	The Government of Malaysia established the National AI Office (NAIO) on 12 December 2024 to spearhead the country's AI agenda MyDIGITAL ID Cashless Payments End-to-End (E2E) Government Services
T2: Enhancing Economic Competitiveness Through Digitalisation	2,425,874 MSME entities are using e-commerce (Micro, Small, and Medium Enterprises) Digital investments approved under the Malaysia Digital initiative reached RM16.2 billion (Jan–April 2025)
T3: Building a Supportive Digital Infrastructure	Achieved approximately 82.4% 5G coverage in populated areas as of July–August 2025
T4: Developing Agile and Competent Digital Talent	MyDIGITALMaker benefited 1.6 million school students
T5: Creating an Inclusive Digital Society	98.0% of individuals are using the internet data (2024)
T6: Building a Trustworthy, Secure, and Ethical Digital Environment	The National Cyber Security Committee (NCSC) was established through the Cyber Security Act 2024. Review of the Personal Data Protection Act (PDPA) 2010.

Notes:

Source:

<https://www.komunikasi.gov.my/awam/berita/27627-capaian-jalur-lebar-lebih-meluas-mampu-milik-dan-stabil>

<https://www.mydigital.gov.my/mydigital-progress-report-2021-building-a-dynamic-digital-economy-by-2030/?utm>

<https://mdec.my/media-release/news-press-release/388/malaysia-attracts-rm16.2-billion-in-digital-investments-%E2%80%94-solidifying-position-as-asean%E2%80%99s-tech-hub?utm>

<https://www.digitalnewsasia.com/digital-economy/mdec-pledges-unequivocal-support-ensure-success-mydigital-malaysias-digital-economy?utm>

<https://www.dosm.gov.my/portal-main/release-content/ict-use-and-access-by-individuals-and-households-survey-report-2024>

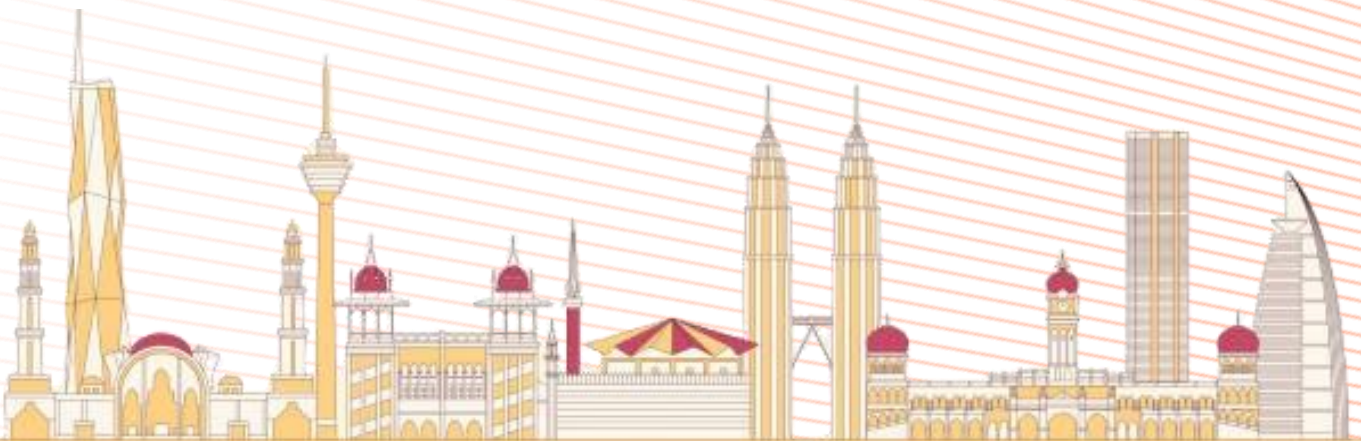
https://mdec.my/media-release/news-press-release/377/digital-economy-set-to-further-strengthen-national-competitiveness-in-wake-of-5.1-gdp-growth?utm_source

https://www.mydigital.gov.my/one-million-malaysians-successfully-complete-ai-untuk-rakyat-self-learning-online-programme-in-record-time/?utm_source

BAB 1 **CHAPTER**

PRESTASI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI (TMK)

PERFORMANCE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)



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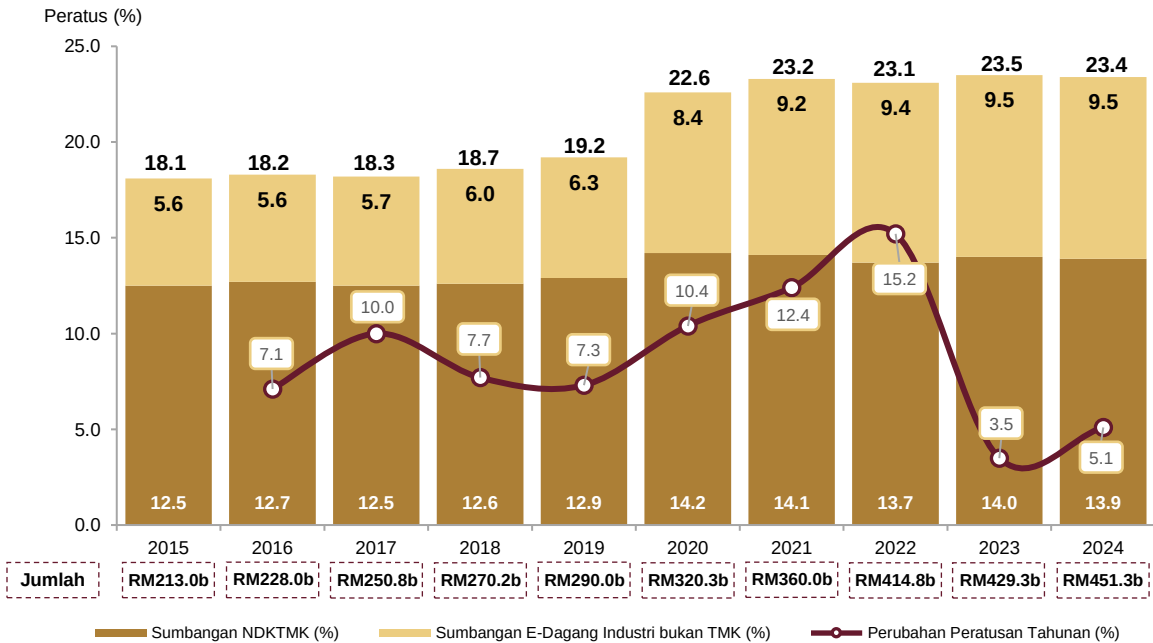
1. PRESTASI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI (TMK)

Akaun Satelit Teknologi Maklumat dan Komunikasi (ASTMK) menyediakan statistik mengenai industri Teknologi Maklumat dan Komunikasi (TMK) dan industri bukan TMK yang mengeluarkan produk TMK, penawaran dan penggunaan produk TMK, eksport & import produk TMK, komponen pendapatan dan guna tenaga dalam industri TMK. Manakala, Nilai Ditambah Kasar Industri TMK (NDKTMK), e-dagang dan sumbangan TMK kepada ekonomi yang merupakan antara komponen ekonomi digital juga turut disertakan dalam penerbitan ini. Statistik ini dibentangkan mengikut industri dan produk berkaitan TMK pada harga semasa.

1.1 SUMBANGAN TMK KEPADA EKONOMI

TMK kepada ekonomi adalah meliputi industri TMK dan e-dagang. TMK menyumbang 23.4 peratus atau RM451.3 bilion kepada ekonomi Malaysia pada tahun 2024. Nilai Ditambah Kasar Industri TMK (NDKTMK) mencatatkan 13.9 peratus, manakala e-dagang industri bukan TMK menyumbang 9.5 peratus. Dari segi pertumbuhan, TMK dan e-dagang bertumbuh sebanyak 5.1 peratus berbanding 3.5 peratus pada tahun sebelumnya seperti **Carta 1.1**.

**Carta 1.1: Sumbangan TMK kepada Ekonomi:
Nilai, Perubahan Peratusan Tahunan dan Peratus Sumbangan**

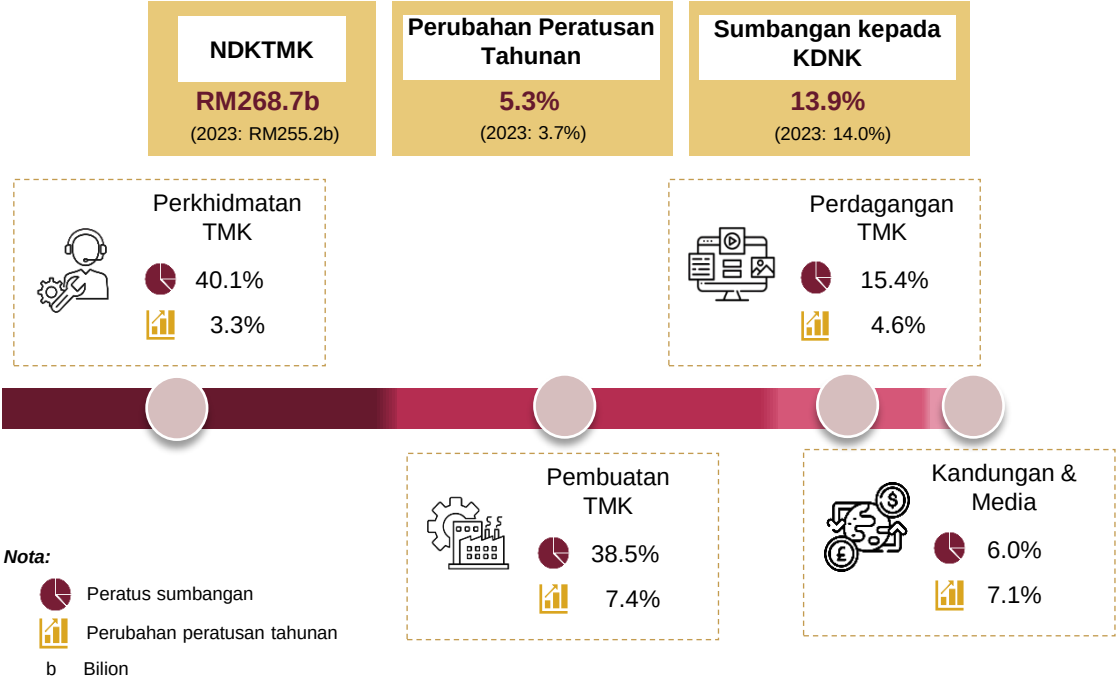


Nota:
b Bilion

1.2 PRESTASI INDUSTRI TMK

Nilai Ditambah Kasar Industri TMK (NDKTMK) mencatatkan RM268.7 bilion dengan pertumbuhan 5.3 peratus pada tahun 2024 (2023: 3.7%). Pertumbuhan ini disokong oleh industri pembuatan TMK yang berkembang sebanyak 7.4 peratus berbanding 2.4 peratus pada tahun sebelumnya. Industri perkhidmatan TMK dan pembuatan TMK merupakan penyumbang utama kepada NDKTMK dengan masing-masing mencatatkan 40.1 peratus dan 38.5 peratus seperti yang ditunjukkan dalam **Rajah 1.1**.

**Rajah 1.1: Nilai Ditambah Kasar Industri TMK (NDKTMK):
Nilai, Perubahan Peratusan Tahunan dan Peratus Sumbangan**

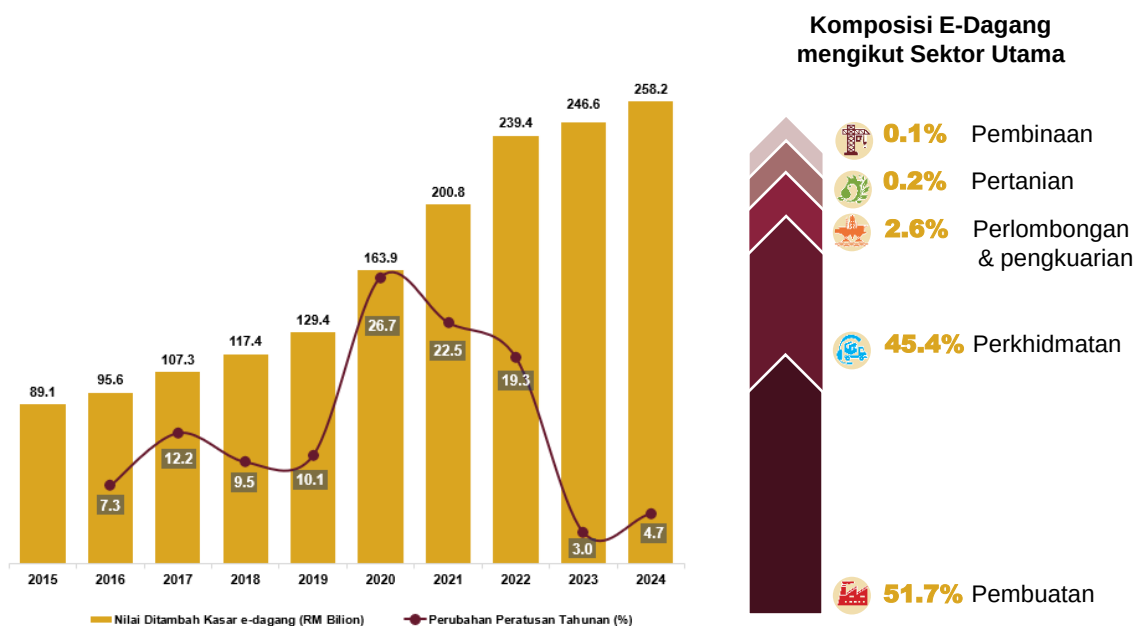


1.3 NILAI DITAMBAH KASAR E-DAGANG

Nilai Ditambah Kasar e-dagang merekodkan RM258.2 bilion bertumbuh 4.7 peratus pada tahun 2024 berbanding 3.0 peratus pada tahun sebelumnya. Oleh itu, e-dagang mencatatkan 13.4 peratus daripada keseluruhan ekonomi, merangkumi 3.9 peratus bagi industri TMK dan 9.5 peratus daripada industri bukan TMK.

Sektor Pembuatan kekal sebagai penyumbang terbesar kepada Nilai Ditambah Kasar e-dagang dengan komposisi sebanyak 51.7 peratus (RM133.5 bilion), diikuti oleh sektor Perkhidmatan sebanyak 45.4 peratus seperti yang ditunjukkan dalam **Carta 1.2**.

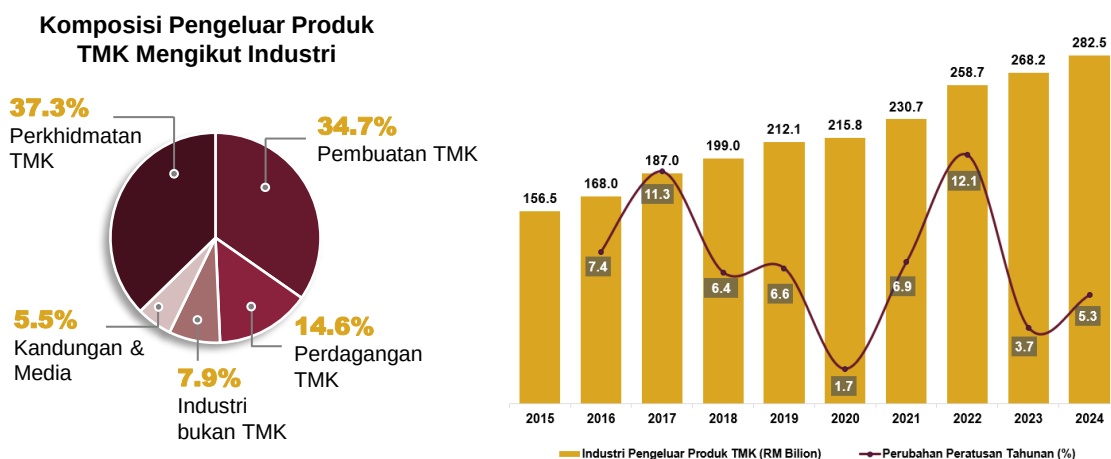
**Carta 1.2: Nilai Ditambah Kasar E-Dagang:
Nilai, Perubahan Peratusan Tahunan dan Peratus Sumbangan**



1.4 PENGELUARAN PRODUK TMK MENGIKUT INDUSTRI

Industri yang mengeluarkan produk TMK bertumbuh 5.3 peratus pada tahun 2024 (2023: 3.7%) dengan nilai RM282.5 bilion. Pertumbuhan ini didorong oleh prestasi yang lebih baik dalam industri pembuatan TMK iaitu 7.5 peratus (2023: 2.4%) dan perdagangan TMK 4.6 peratus (2023: 3.5%). Perkhidmatan TMK dan pembuatan TMK mendominasi keseluruhan pengeluaran produk TMK, masing-masing menyumbang sebanyak 37.3 peratus dan 34.7 peratus seperti di **Carta 1.3**.

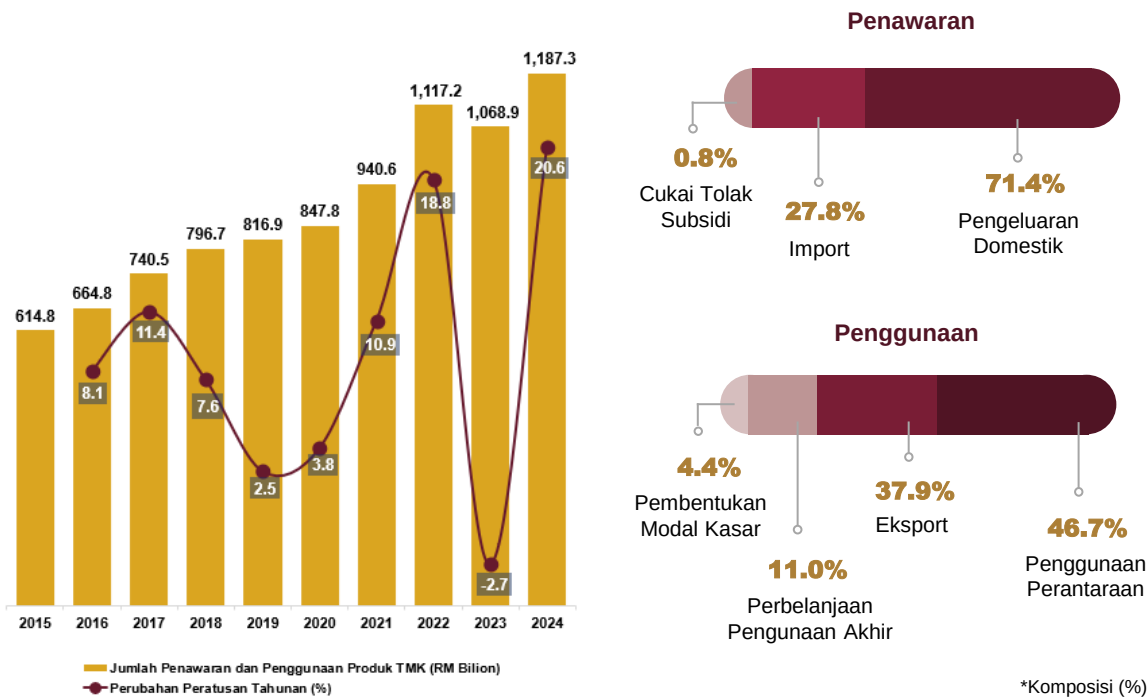
**Carta 1.3: Industri TMK dan Industri Bukan TMK yang Mengeluarkan Produk TMK:
Nilai, Perubahan Peratusan Tahunan dan Peratus Sumbangan**



1.5 PENAWARAN DAN PENGGUNAAN PRODUK TMK

Penawaran dan penggunaan produk TMK mencatatkan pertumbuhan dua digit 20.6 peratus menjana nilai RM1.2 trilion pada tahun 2024. Penawaran produk TMK diterajui oleh pengeluaran domestik dengan sumbangan 71.4 peratus, diikuti oleh import produk TMK 27.8 peratus. Pada masa yang sama, penggunaan perantaraan produk TMK mencatatkan sumbangan 46.7 peratus, manakala eksport produk TMK menyumbang 37.9 peratus kepada jumlah penggunaan TMK seperti di dalam **Carta 1.4**.

**Carta 1.4: Penawaran dan Penggunaan Produk TMK:
Nilai, Perubahan Peratusan Tahunan dan Peratus Sumbangan**



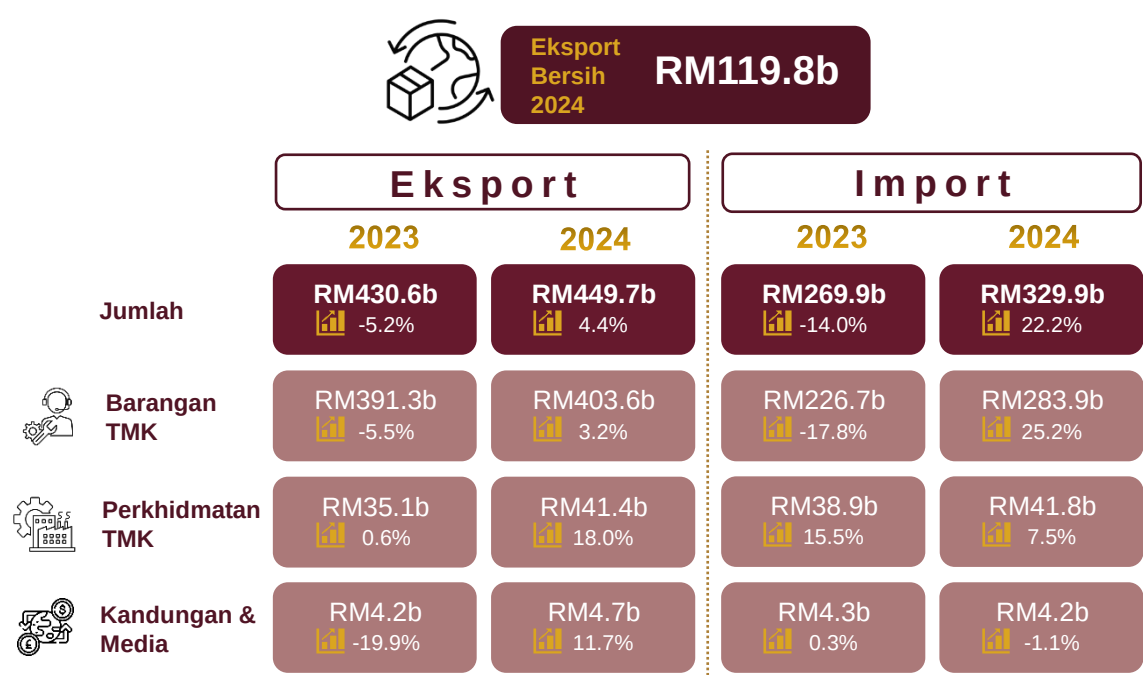
1.6 EKSPORT DAN IMPORT PRODUK TMK

Eksport produk TMK memulih kepada 4.4 peratus pada tahun 2024 berbanding penurunan 5.2 peratus pada tahun sebelumnya dengan merekodkan nilai RM449.7 bilion. Peningkatan ini disumbang oleh eksport barangan TMK yang mencatatkan pertumbuhan 3.2 peratus berbanding penguncupan 5.5 peratus pada tahun 2023. Eksport TMK menyumbang 32.6 peratus kepada jumlah keseluruhan eksport Malaysia.

Walaupun bagaimanapun, import produk TMK merekodkan peningkatan ketara sebanyak 22.2 peratus kepada RM329.9 bilion berbanding penyusutan 14.0 peratus pada tahun sebelumnya dengan nilai RM269.9 bilion. Pertumbuhan dua digit ini dipengaruhi oleh peningkatan barangan TMK sebanyak 25.2 peratus (2023: -17.8%). Import TMK menyumbang 25.9 peratus kepada jumlah keseluruhan import pada tahun 2024.

Secara keseluruhan, eksport bersih produk TMK mencatatkan lebih dengan nilai RM119.8 bilion pada tahun 2024 seperti yang digambarkan dalam **Rajah 1.2**.

**Rajah 1.2: Eksport dan Import Produk TMK:
Nilai dan Perubahan Peratusan Tahunan**



Nota:

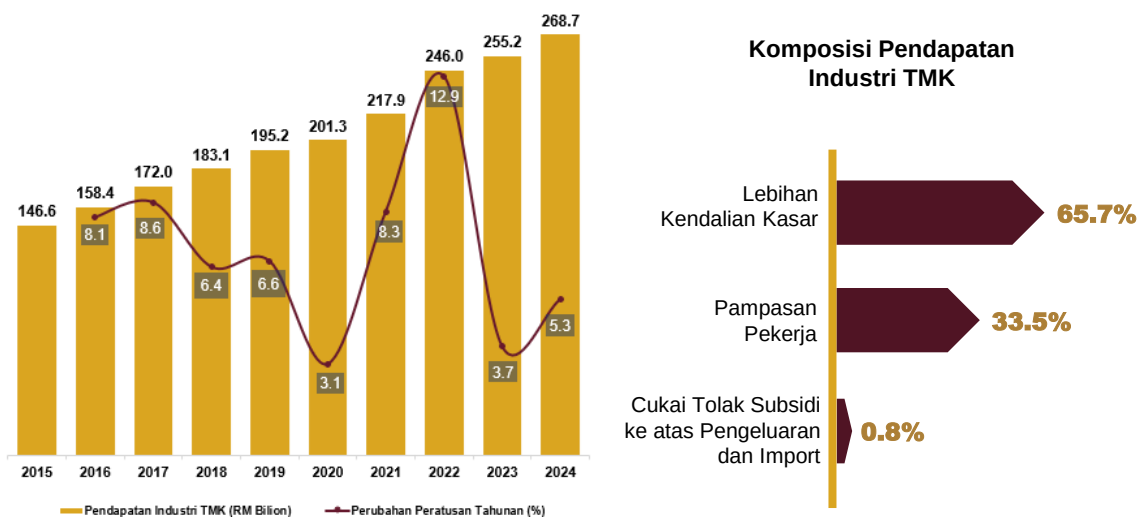
Perubahan peratusan tahunan

b Bilion

1.7 KOMPONEN PENDAPATAN INDUSTRI TMK

Jumlah pendapatan industri TMK merekodkan RM268.7 bilion dengan pertumbuhan 5.3 peratus pada tahun 2024 (2023: 3.7%). Pampasan pekerja mencatatkan nilai sebanyak RM90.1 bilion atau 33.5 peratus kepada jumlah pendapatan industri TMK. Sementara itu, lebih kendalian kasar menyumbang sebanyak 65.7 peratus, manakala cukai tolak subsidi ke atas pengeluaran dan import sebanyak 0.8 peratus seperti yang ditunjukkan dalam **Carta 1.5**.

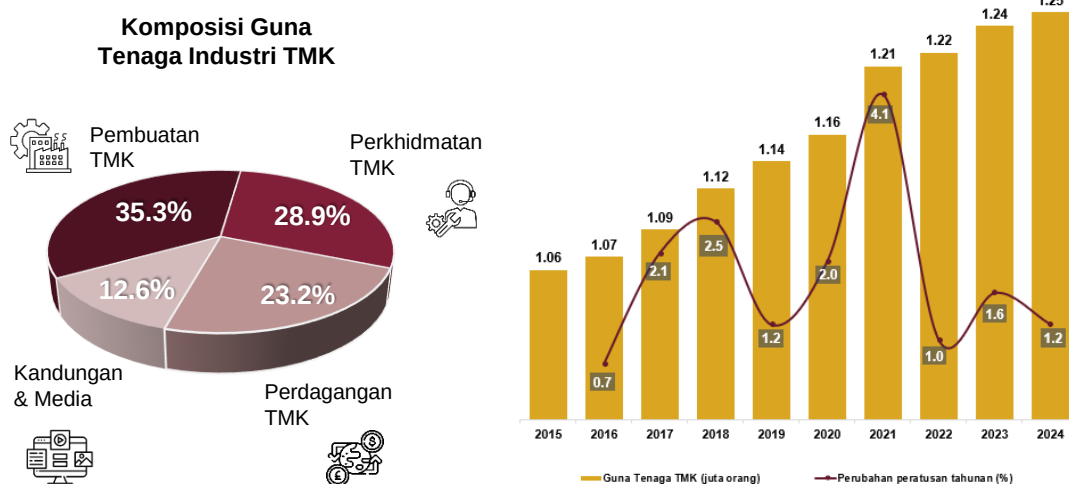
**Carta 1.5: Komponen Pendapatan Industri TMK:
Nilai, Perubahan Peratusan Tahunan dan Peratus Sumbangan**



1.8 GUNA TENAGA DALAM INDUSTRI TMK

Guna tenaga dalam industri TMK merekodkan 1.25 juta orang dengan sumbangan 7.6 peratus kepada keseluruhan guna tenaga di Malaysia. Industri pembuatan TMK merupakan penyumbang terbesar sebanyak 35.3 peratus diikuti oleh perkhidmatan TMK (28.9%) dan perdagangan TMK (23.2%) seperti yang dipaparkan dalam **Carta 1.6**.

**Carta 1.6: Guna Tenaga dalam Industri TMK:
Nilai, Perubahan Peratusan Tahunan dan Peratus Sumbangan**



Nota:

Sumber: Akaun Satelit Teknologi Maklumat dan Komunikasi, 2024

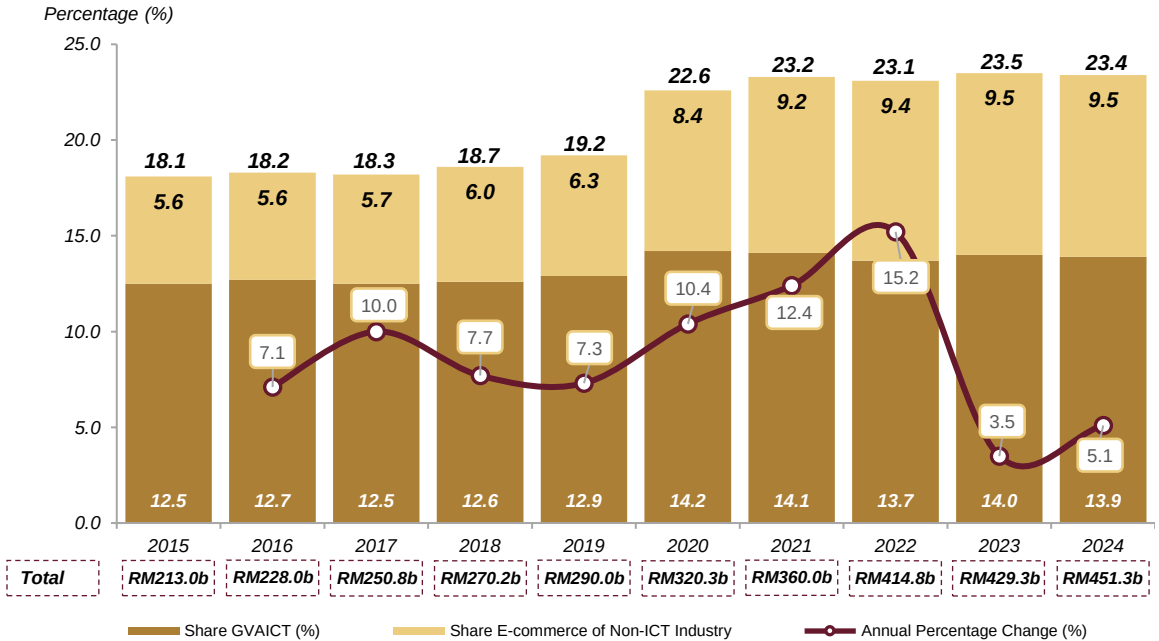
1. PERFORMANCE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

The Information and Communication Technology Satellite Account (ICTSA) provides statistics of the Information and Communication Technology (ICT) industry and non-ICT industries producing ICT products, the supply and use of ICT products, exports & imports of ICT products, income components and employment in the ICT industry. Meanwhile, the Gross Value Added of the ICT Industry (GVAICT), e-commerce and the contribution of ICT to the economy which are among of the components of the digital economy are also included in this publication. These statistics are presented by industries and products related to ICT at current prices.

1.1 CONTRIBUTION OF ICT TO THE ECONOMY

The ICT of economy consists of ICT industry and e-commerce. The ICT contributed 23.4 per cent or RM451.3 billion to the Malaysia’s economy in 2024. The GVAICT accounted for 13.9 per cent while e-commerce of non-ICT industries contributed 9.5 per cent. In terms of growth, ICT and e-commerce grew by 5.1 per cent compared to 3.5 per cent in the preceding year, as in **Chart 1.1**.

Chart 1.1: ICT Contribution to the Economy: Value, Annual Percentage Change and Percentage Share

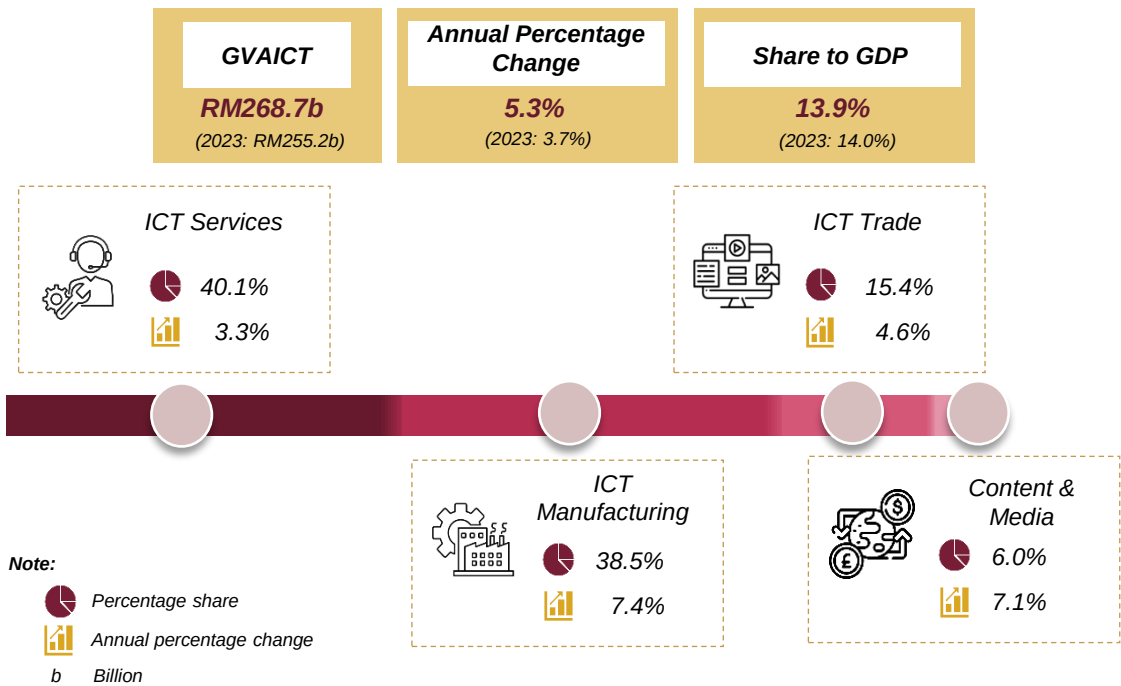


Note:
b Billion

1.2 PERFORMANCE OF ICT INDUSTRY

The GVAICT recorded RM268.7 billion with a growth of 5.3 per cent in 2024 (2023: 3.7%). The growth was supported by the ICT manufacturing industry which expanded by 7.4 per cent compared to 2.4 per cent in the preceding year. The ICT services and ICT manufacturing industries were the main contributors to GVAICT, accounting for 40.1 per cent and 38.5 per cent, respectively as shown in **Figure 1.1**

Figure 1.1: Gross Value Added of ICT Industry (GVAICT): Value, Annual Percentage Change and Percentage Share

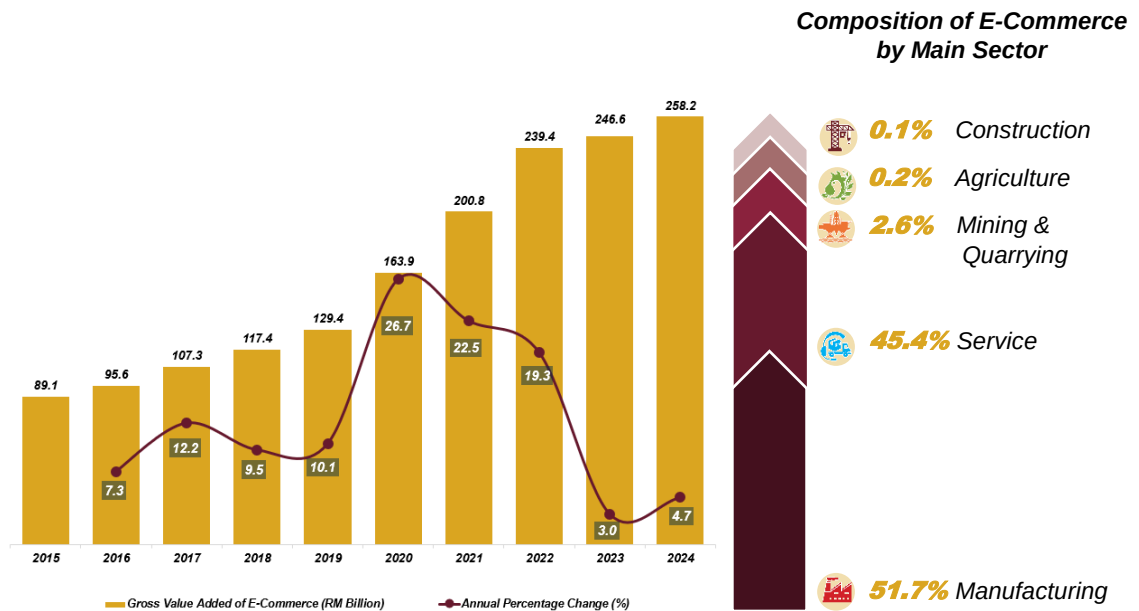


1.3 GROSS VALUE ADDED OF E-COMMERCE

The Gross Value Added of e-commerce recorded RM258.2 billion grew by 4.7 per cent in 2024 compared to 3.0 per cent in the previous year. Hence, e-commerce stood at 13.4 per cent of economy, comprising of 3.9 per cent from ICT industries and 9.5 per cent from non-ICT industries.

The Manufacturing sector remained the largest contributor to the Gross Value Added of e-commerce with a composition of 51.7 per cent (RM133.5 billion), followed by the Services sector at 45.4 per cent, as shown in **Chart 1.2**

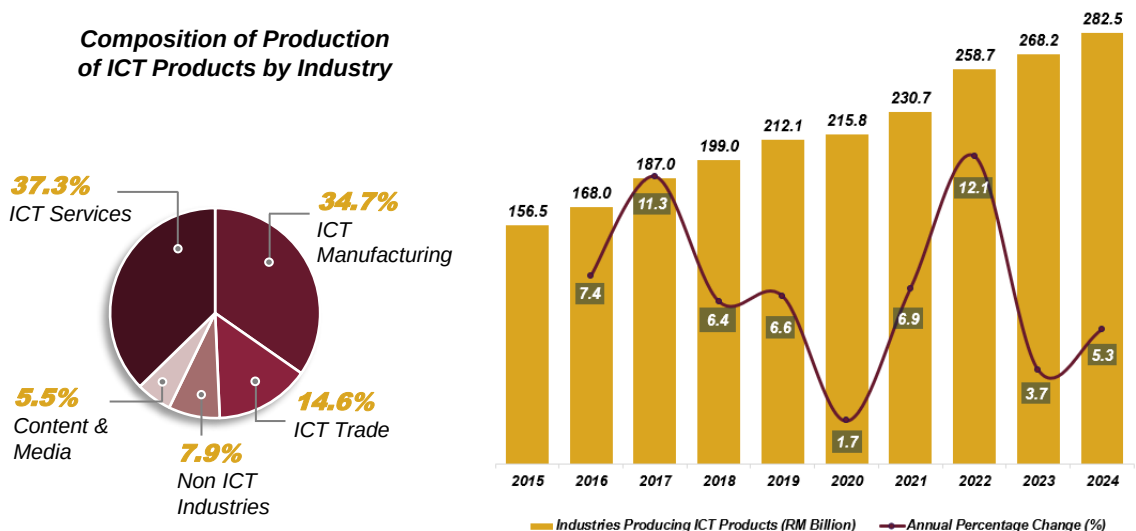
**Chart 1.2: Gross Value Added of E-Commerce:
Value, Annual Percentage Change and Percentage Share**



1.4 PRODUCTION OF ICT PRODUCTS BY INDUSTRY

The production of ICT products increased by 5.3 per cent (2023: 3.7%) reaching a value of RM282.5 billion. The growth was driven by better performance in the ICT manufacturing industry which was 7.5 per cent (2023: 2.4%) and ICT trade, 4.6 per cent (2023: 3.5%). ICT services and ICT manufacturing dominated overall ICT products, contributed 37.3 per cent and 34.7 per cent, respectively as shown in **Chart 1.3**.

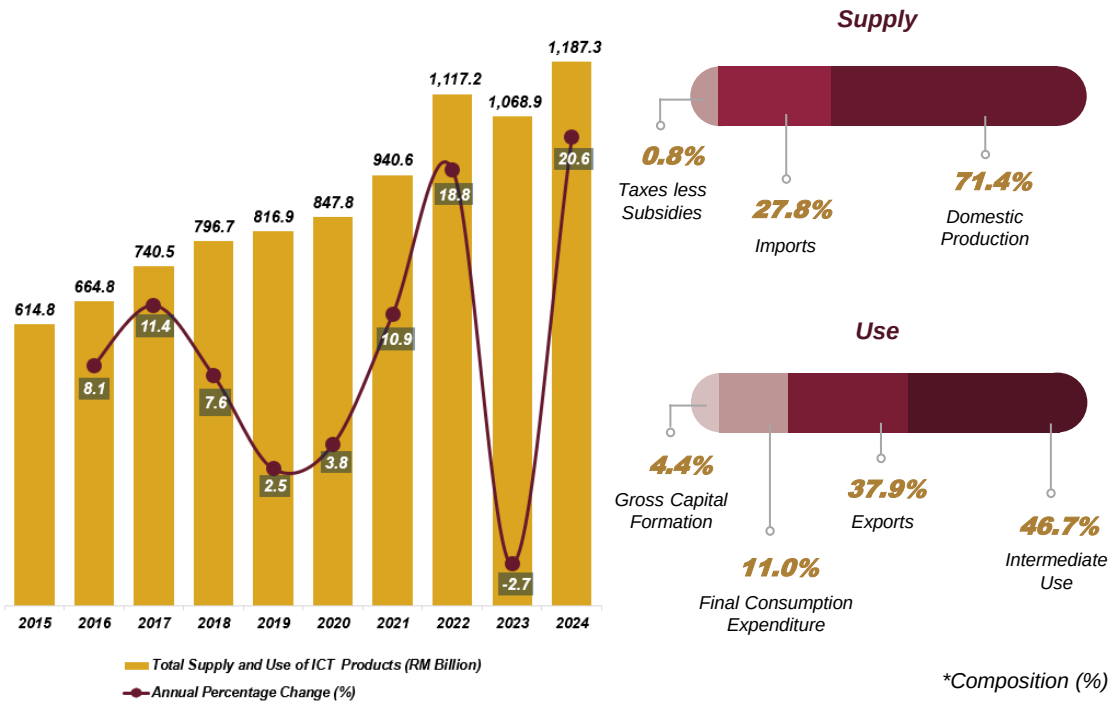
**Chart 1.3: ICT Industry and Non ICT Industries that Produce ICT Products:
Value, Annual Percentage Change and Percentage Share**



1.5 SUPPLY AND USE OF ICT PRODUCTS

The supply and use of ICT products registered a double-digit growth of 20.6 per cent, generating a value of RM1.2 trillion in 2024. Supply of ICT products was led by domestic production with a share of 71.4 per cent, followed by imports of ICT products at 27.8 per cent. Concurrently, the intermediate use of ICT products accounted for 46.7 per cent, while exports of ICT products contributed 37.9 per cent to the total use of ICT as shown in **Chart 1.4**.

**Chart 1.4: Supply and Use of ICT Products:
Value, Annual Percentage Change and Percentage Share**



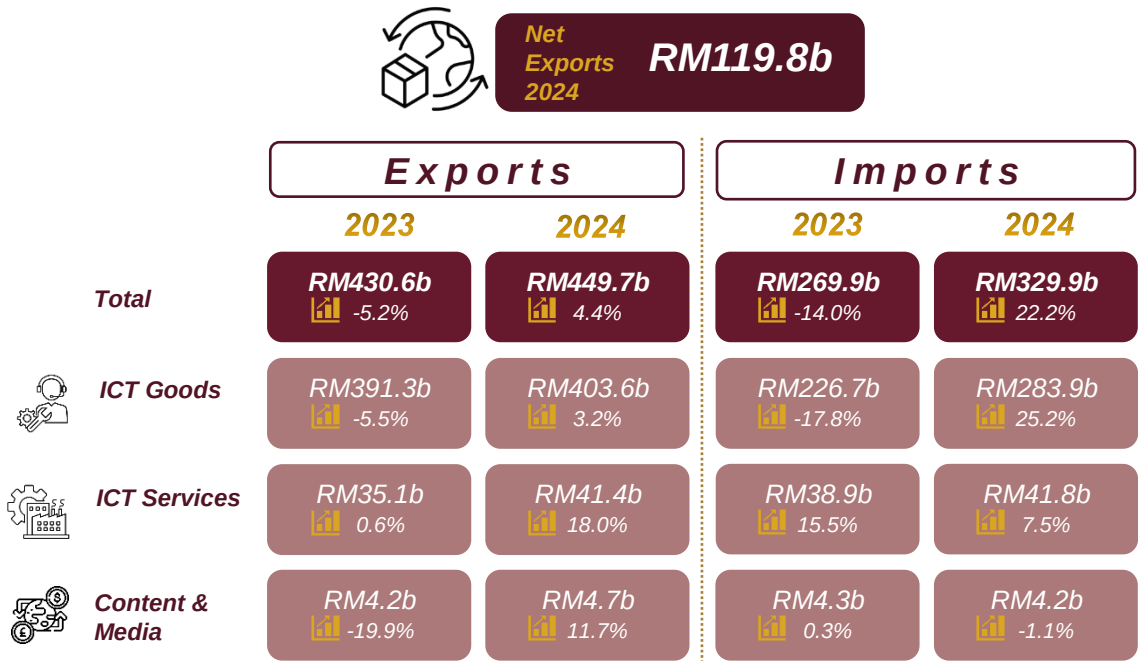
1.6 EXPORTS AND IMPORTS OF ICT PRODUCTS

Exports of ICT products rebounded 4.4 per cent in 2024 compared to a decline of 5.2 per cent in the previous year, recording a value of RM449.7 billion. The improvement was attributed to exports of ICT goods, which registered a growth of 3.2 per cent compared to a contraction of 5.5 per cent in 2023. ICT exports accounted for 32.6 per cent of Malaysia's total exports.

Nevertheless, imports of ICT products recorded a sharp increase of 22.2 per cent, against to a decline of 14.0 per cent in the preceding year, with a total value of RM329.9 billion (2023: RM269.9 billion). This double-digit growth was driven by a 25.2 per cent increase in ICT goods (2023: -17.8%). ICT imports accounted for 25.9 per cent of the total imports in 2024.

Overall, net exports of ICT products posted a surplus with a value of RM119.8 billion in 2024 as illustrated in **Figure 1.2** .

**Figure 1.2: Exports and Imports of ICT Products:
Value and Annual Percentage Change**



Note:

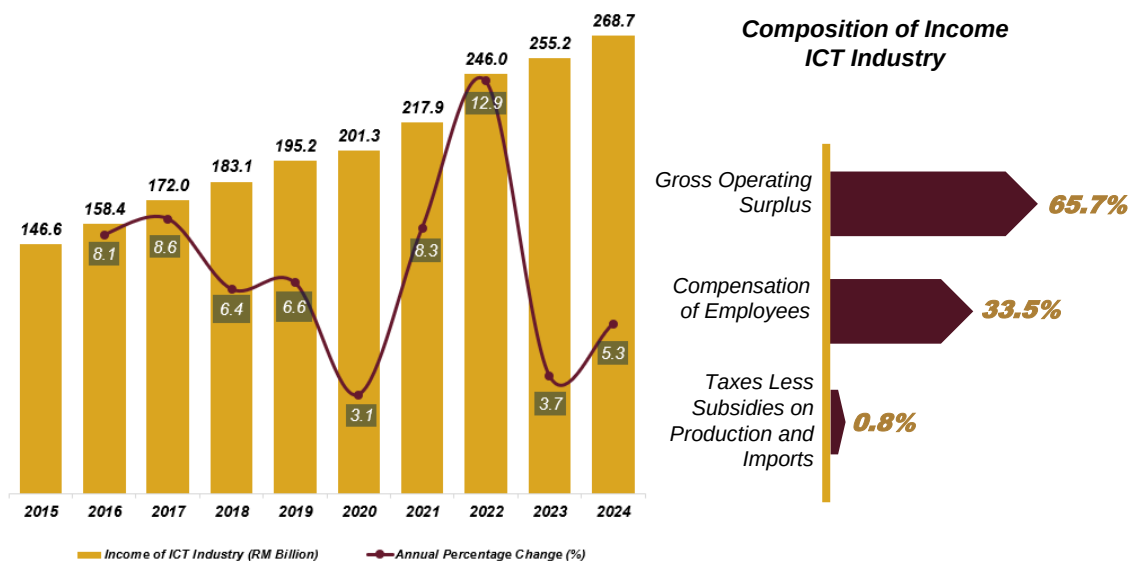
 Annual percentage change

b Billion

1.7 INCOME COMPONENTS OF ICT INDUSTRY

The total income of ICT industry registered RM268.7 billion with a growth of 5.3 per cent in 2024 (2023: 3.7%). Compensation of employees amounted to RM90.1 billion or 33.5 per cent to the total income of the ICT industry. In addition, gross operating surplus accounted for 65.7 per cent while taxes less subsidies on production and imports, 0.8 per cent as shown in **Chart 1.5**.

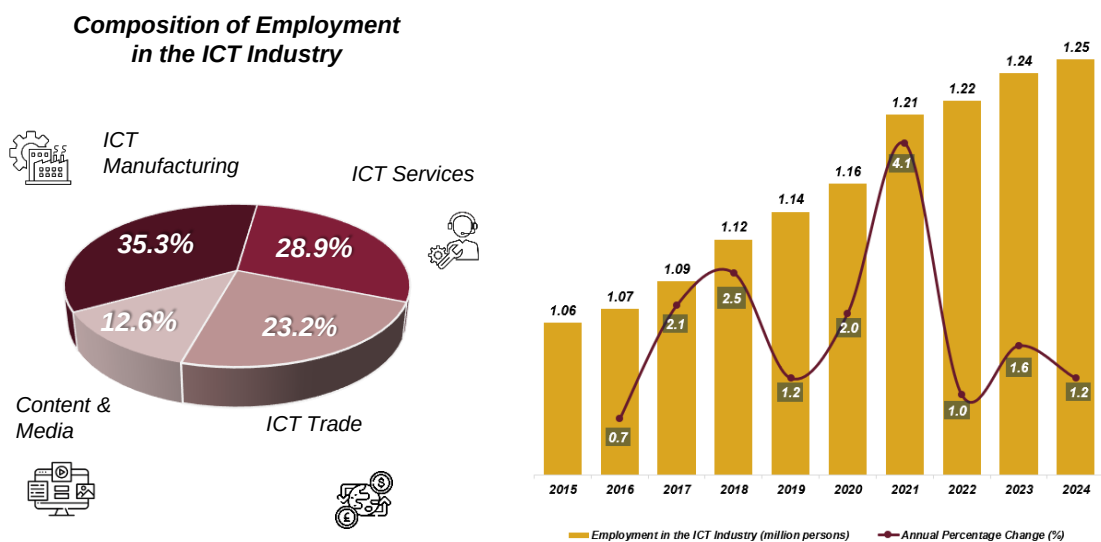
**Chart 1.5: Income Components of ICT Industry:
Value, Annual Percentage Change and Percentage Share**



1.8 EMPLOYMENT IN THE ICT INDUSTRY

Employment in the ICT industry recorded 1.25 million persons contributing 7.6 per cent to Malaysia's total employment. The ICT manufacturing industry was the largest contributor with a share of 35.3 per cent, followed by ICT services (28.9%) and ICT trade (23.2%), as presented in **Chart 1.6**.

**Chart 1.6: Employment in the ICT Industry:
Value, Annual Percentage Change and Percentage Share**



Note:

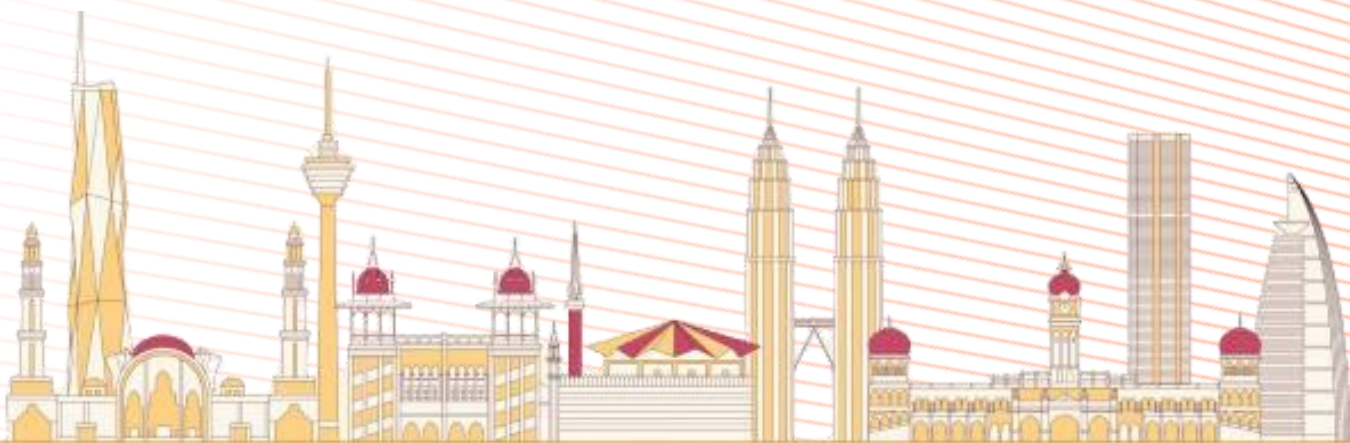
Source: Information and Communication Technology Satellite Account, 2024

BAB 2

CHAPTER

SEKTOR PERKHIDMATAN MAKLUMAT & KOMUNIKASI

INFORMATION & COMMUNICATION SERVICES SECTOR



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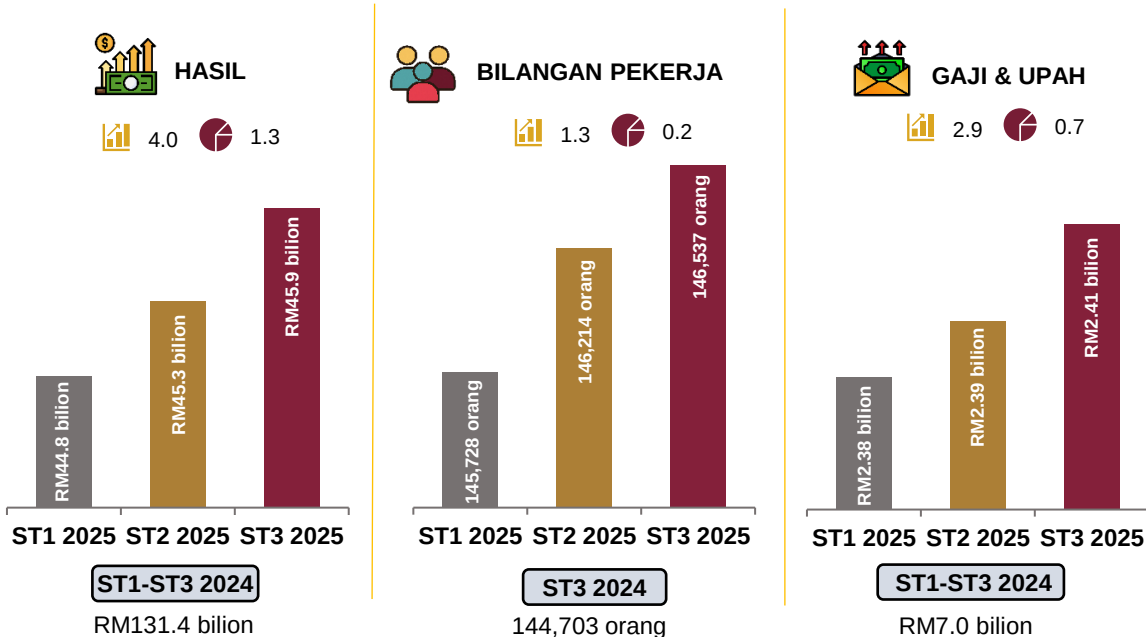
2. SEKTOR PERKHIDMATAN MAKLUMAT & KOMUNIKASI

Jumlah hasil suku tahun ketiga 2025 bagi subsektor Maklumat & Komunikasi merekodkan RM45.9 bilion, meningkat 4.0 peratus daripada RM44.2 bilion pada suku tahun ketiga 2024. Bagi perbandingan suku tahunan, jumlah hasil subsektor ini mencatatkan pertumbuhan 1.3 peratus berbanding 1.1 peratus pada suku tahun kedua 2025. Sementara itu, pada tahun 2024, hasil subsektor Maklumat & Komunikasi mencapai RM131.4 bilion, meningkat 3.4 peratus berbanding tahun 2023.

Bilangan pekerja pula mencatatkan 146,537 orang, meningkat 1.3 peratus berbanding suku tahun ketiga 2024 (144,703 orang). Perubahan suku tahun ke suku tahun menunjukkan pertumbuhan 0.2 peratus pada suku tahun ketiga 2025. Dari segi perbandingan tahunan, bilangan pekerja subsektor Maklumat & Komunikasi meningkat 1.9 peratus pada tahun 2024 berbanding tahun sebelumnya.

Gaji & upah yang dibayar turut meningkat kepada RM2.41 bilion, menunjukkan pertumbuhan sebanyak 2.9 peratus daripada RM2.34 bilion. Selain itu, jumlah gaji & upah bagi subsektor ini juga berkembang dengan peratus pertumbuhan suku tahunan sebanyak 0.7 peratus. Pada tahun 2024, gaji & upah dalam subsektor ini juga meningkat sebanyak RM7.0 bilion, bersamaan pertumbuhan 2.3 peratus berbanding tahun 2023.

Rajah 2.1: Perangkaan Utama Maklumat & Komunikasi, 2024 dan ST1-ST3 2025



Nota:



Kadar pertumbuhan tahunan



Perubahan peratusan: suku tahun ke suku tahun



ST Suku Tahun

Sumber: Perangkaan Perkhidmatan Suku Tahun Ketiga, 2025

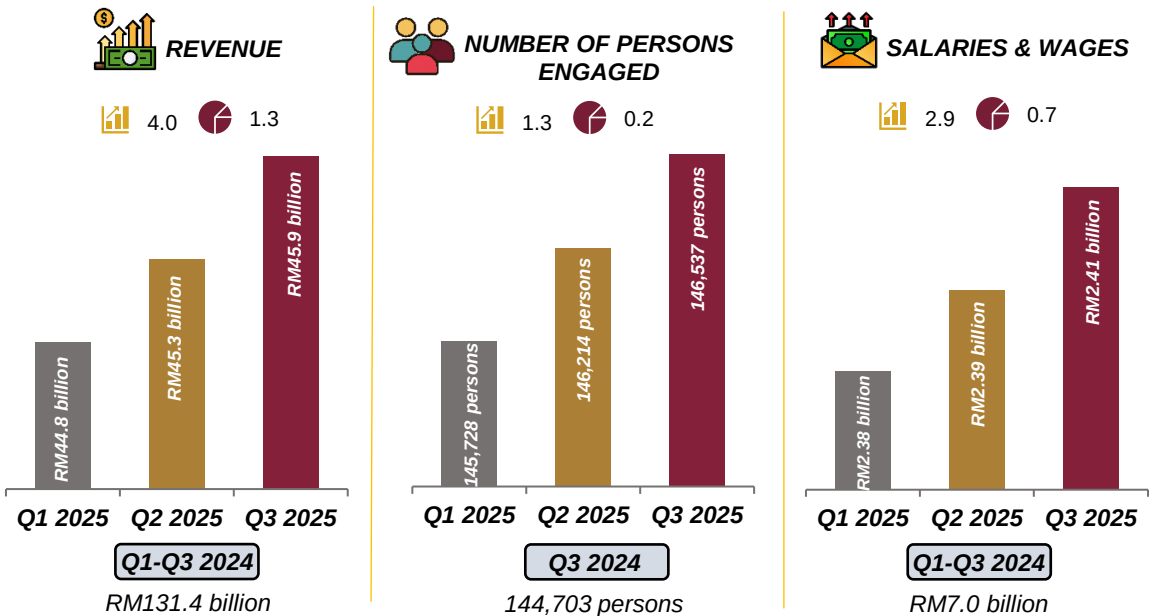
2. INFORMATION & COMMUNICATION SERVICES SECTOR

Total revenue of the Information & Communication subsector in the third quarter of 2025 recorded RM45.9 billion, an increase of 4.0 per cent from RM44.2 billion in the third quarter of 2024. On a quarterly basis, the subsector's revenue registered a growth of 1.3 per cent compared with 1.1 per cent in the second quarter of 2025. Meanwhile, in 2024, the Information & Communication subsector posted RM131.4 billion in revenue, an increase of 3.4 per cent compared to 2023.

Number of persons engaged recorded 146,537 persons, an increase of 1.3 per cent as compared with the third quarter of 2024 (144,703 persons). Quarter-on-quarter, the number of persons engaged grew by 0.2 per cent in the third quarter of 2025. In terms of annual comparison, persons engaged in the Information & Communication subsector rose by 1.9 per cent in 2024 compared with the previous year.

Salaries & wages also increased to RM2.41 billion, representing a growth of 2.9 per cent from RM2.34 billion. In addition, total salaries & wages in this subsector expanded by 0.7 per cent on a quarter-on-quarter basis. In 2024, salaries & wages in this subsector increased by RM7.0 billion, equivalent to a growth of 2.3 per cent compared with 2023.

Figure 2.1: Principal Statistics Information & Communication, 2024 and Q1-Q3 2025



Note:



Annual growth rate



Percentage change quarter-on-quarter



Quarter

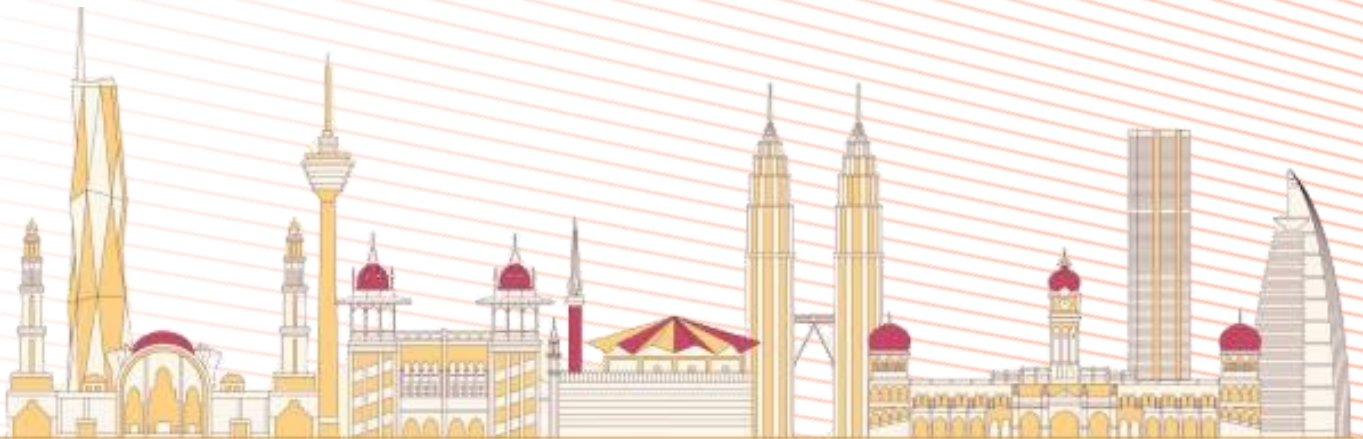
Source: Quarterly Services Statistics Third Quarter, 2025

BAB 3

CHAPTER

SOROTAN E-DAGANG

INSIGHTS OF E-COMMERCE



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3. SOROTAN E-DAGANG

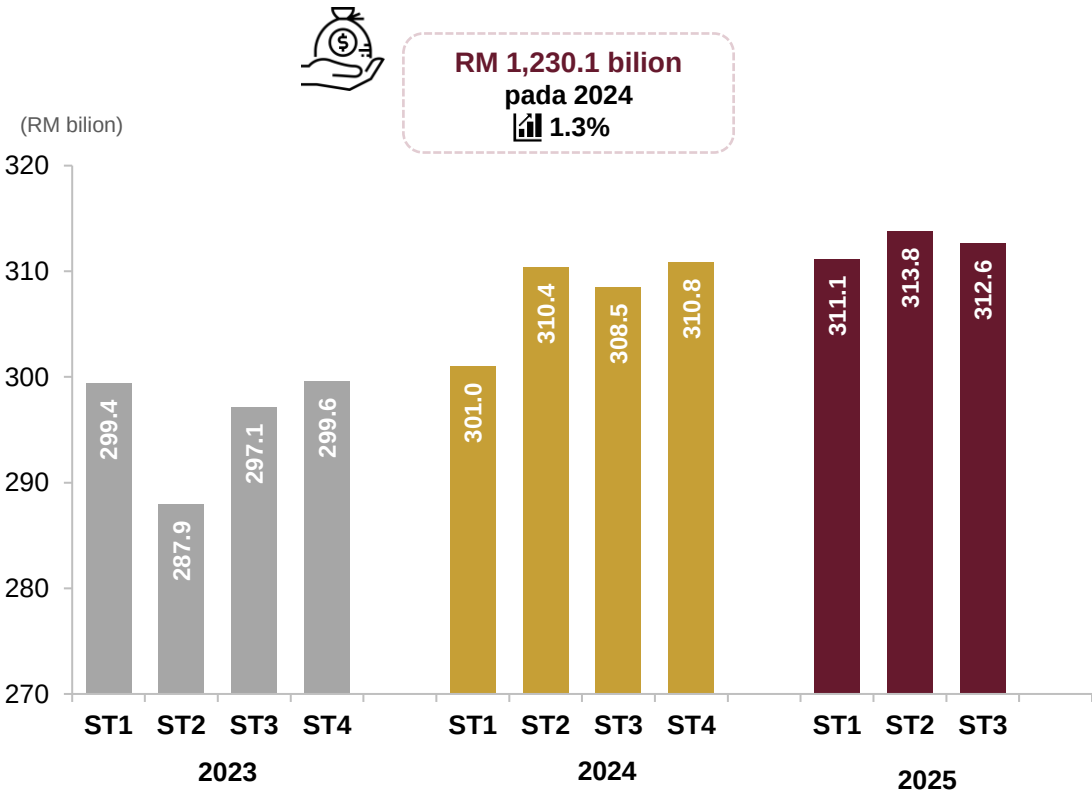
Laporan Penggunaan ICT dan E-Dagang oleh Pertubuhan (ICTEC) 2024 memaparkan statistik mengenai penggunaan ICT dan e-dagang oleh pertubuhan di Malaysia bagi tahun rujukan 2023. Penerbitan ini merangkumi lima (5) sektor utama ekonomi iaitu Pertanian, Perlombongan & Pengkuarian, Pembuatan, Pembinaan serta Perkhidmatan.

3.1 PRESTASI SUKU TAHUNAN PENDAPATAN E-DAGANG OLEH PERTUBUHAN

Pendapatan e-dagang oleh pertubuhan di Malaysia mencatatkan kadar pertumbuhan tahunan sebanyak 1.3 peratus pada suku tahun ketiga 2025. Pada tahun sebelumnya, pendapatan e-dagang berjumlah RM1,230.1 bilion, meningkat 3.9 peratus berbanding tahun sebelumnya.

Dari segi perkembangan suku tahunan, pendapatan e-dagang merekodkan RM311.1 bilion pada suku pertama 2025, sebelum meningkat kepada RM313.8 bilion pada suku kedua. Namun, sedikit penurunan direkodkan pada suku ketiga apabila pendapatan e-dagang mencatatkan nilai RM312.6 bilion, seperti ditunjukkan dalam **Rajah 3.1**.

Rajah 3.1: Prestasi Suku Tahunan Pendapatan E-Dagang oleh Pertubuhan, ST1 2023-ST3 2025



Nota:



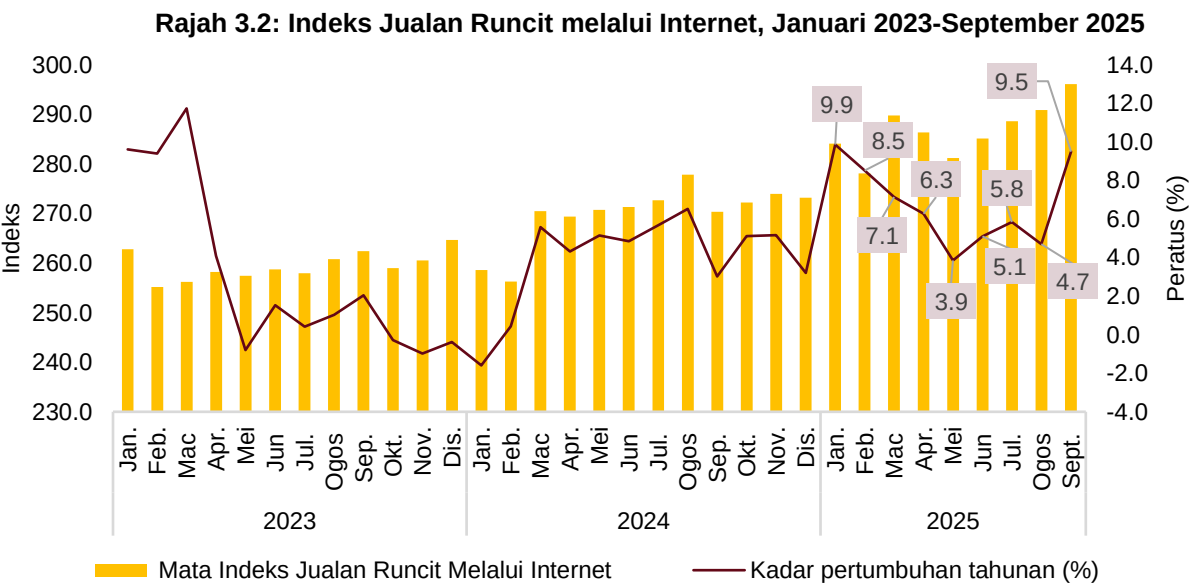
Kadar Pertumbuhan Tahunan
ST Suku Tahun

3.2 INDEKS JUALAN RUNCIT MELALUI INTERNET

Penggunaan internet telah memperluas skop perdagangan borong dan runcit apabila semakin banyak urus niaga dijalankan secara dalam talian melalui platform e-dagang. Melalui kemudahan ini, pemborong dapat berhubung secara langsung dengan peruncit dan pelanggan di pelbagai lokasi, manakala pengguna pula dapat membeli barangan dengan lebih mudah tanpa perlu mengunjungi premis fizikal.

Indeks Jualan Runcit melalui Internet menunjukkan pertumbuhan pada September 2025, dengan kadar pertumbuhan tahunan 9.5 peratus meningkat berbanding 4.7 peratus pada bulan Ogos 2025, seperti digambarkan dalam **Rajah 3.2**.

Peningkatan ini sebahagiannya didorong oleh acara jualan dalam talian 9.9 (contoh: Shopee 9.9 dan Lazada 9.9 Mega Sale), yang merangsang permintaan pengguna dan menyumbang kepada jumlah transaksi yang lebih tinggi di platform e-dagang utama.



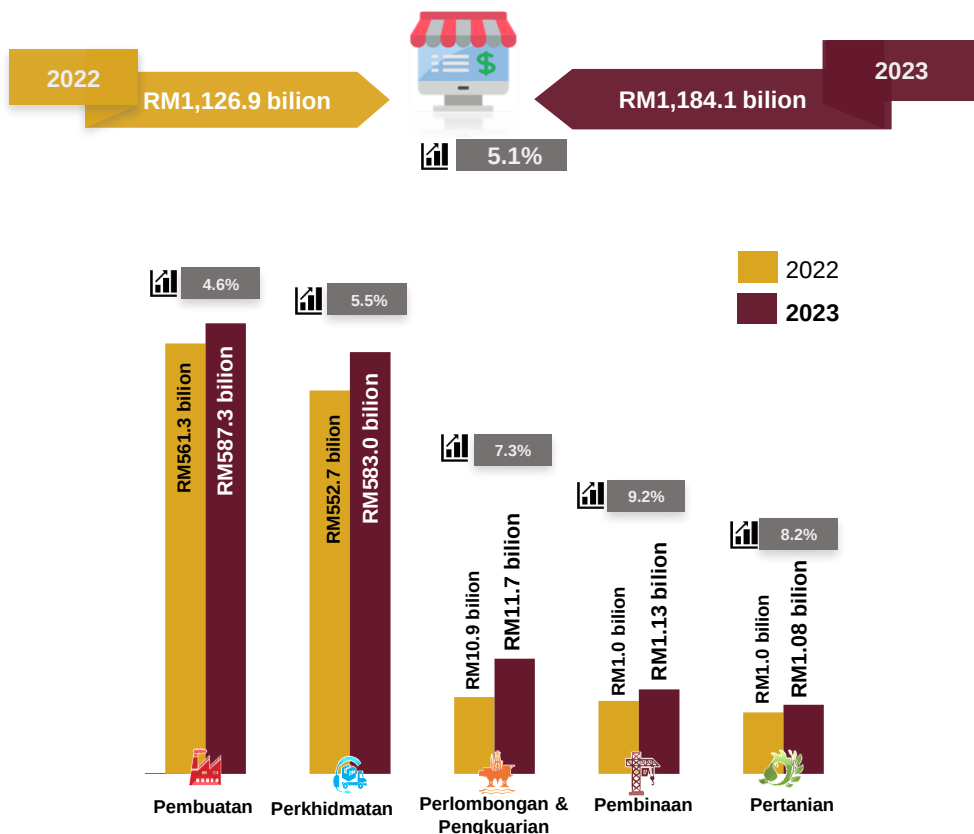
Nota:
Sumber: Kenyataan Media Perdagangan Borong & Runcit, September, 2025

3.3 PRESTASI E-DAGANG OLEH PERTUBUHAN

3.3.1 PENDAPATAN E-DAGANG MENGIKUT SEKTOR

Nilai pendapatan transaksi e-dagang terus mencatatkan pertumbuhan positif dengan nilai RM1,184.1 bilion pada tahun 2023 berbanding RM1,126.9 bilion pada tahun 2022, dengan kadar pertumbuhan tahunan meningkat sebanyak 5.1 peratus. Sektor Pembuatan merekodkan RM587.3 bilion, meningkat 4.6 peratus berbanding tahun 2022. Ini diikuti oleh sektor Perkhidmatan yang mencatatkan peningkatan RM583.0 bilion pada tahun 2023 daripada RM552.7 bilion pada tahun 2022 dengan pertumbuhan sebanyak 5.5 peratus seperti yang ditunjukkan dalam **Rajah 3.3**.

Rajah 3.3: Pendapatan E-Dagang mengikut Sektor, 2022 dan 2023



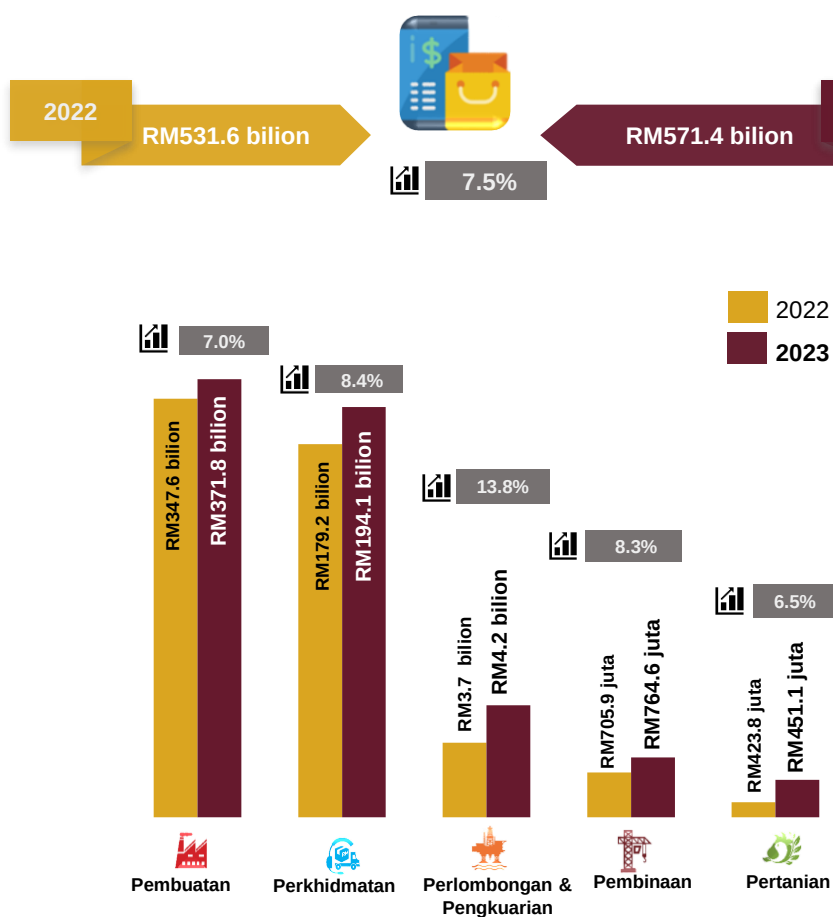
Nota:

Kadar pertumbuhan tahunan

3.3.2 PERBELANJAAN E-DAGANG MENGIKUT SEKTOR

Pada tahun 2023, perbelanjaan melalui transaksi e-dagang di Malaysia mencatatkan nilai sebanyak RM571.4 bilion, berbanding RM531.6 bilion pada tahun 2022, dengan kadar pertumbuhan tahunan sebanyak 7.5 peratus. Sektor Pembuatan mencatatkan perbelanjaan e-dagang tertinggi dengan nilai RM371.8 bilion pada tahun 2023 berbanding tahun 2022 sebanyak RM347.6 bilion dengan pertumbuhan 7.0 peratus. Ini diikuti oleh sektor Perkhidmatan dengan perbelanjaan berjumlah RM194.1 bilion berbanding tahun sebelumnya RM179.2 bilion dengan pertumbuhan tahunan 8.4 peratus seperti yang ditunjukkan dalam **Rajah 3.4**.

Rajah 3.4: Perbelanjaan E-Dagang mengikut Sektor, 2022 dan 2023



Nota:

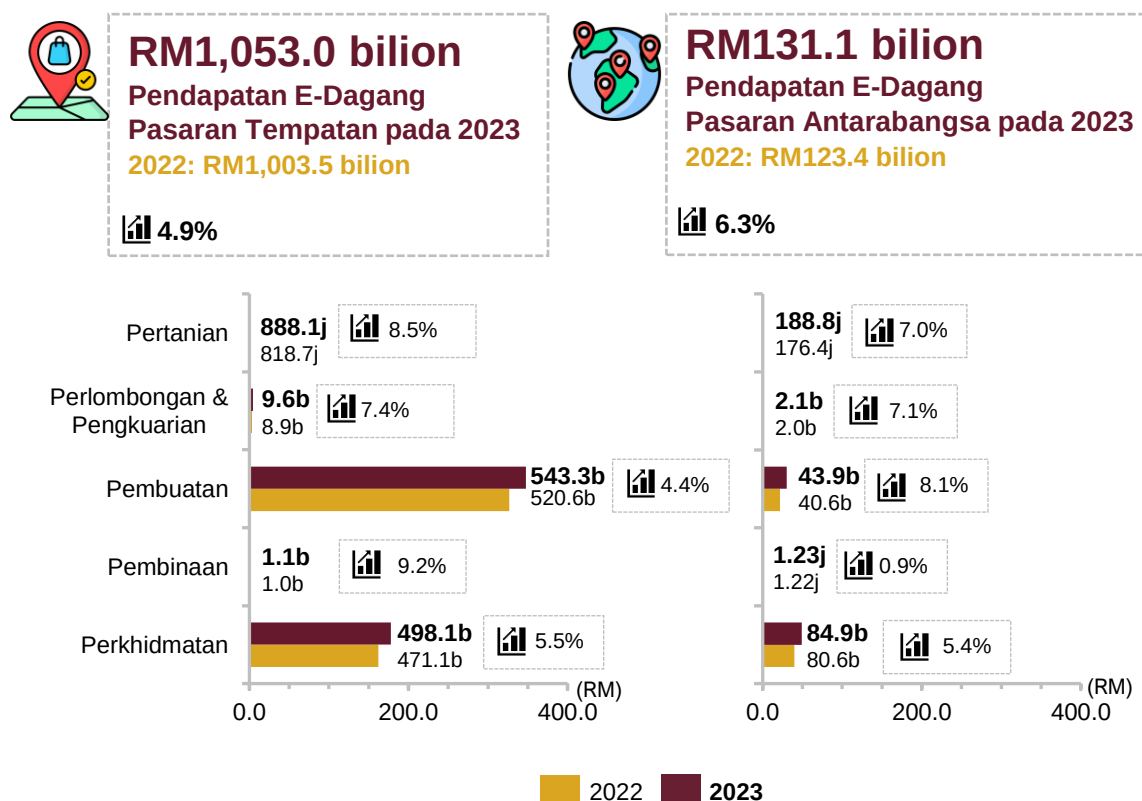
Kadar pertumbuhan tahunan

3.3.3 PENDAPATAN E-DAGANG MENGIKUT JENIS PASARAN

Pendapatan e-dagang di Malaysia didominasi oleh pasaran tempatan yang mencatatkan jumlah sebanyak RM1,053.0 bilion pada tahun 2023 berbanding RM1,003.5 bilion tahun 2022, dengan kadar pertumbuhan tahunan sebanyak 4.9 peratus. Sementara itu, pasaran antarabangsa menyumbang sebanyak RM131.1 bilion, meningkat 6.3 peratus berbanding RM123.4 bilion pada tahun sebelumnya.

Dalam pasaran tempatan, sektor Pembuatan muncul sebagai penyumbang utama dengan pendapatan e-dagang sebanyak RM543.3 bilion, dengan pertumbuhan tahunan sebanyak 4.4 peratus berbanding RM520.6 bilion pada tahun 2022. Bagi pasaran antarabangsa, sektor Perkhidmatan merupakan pemacu utama dengan pendapatan sebanyak RM84.9 bilion berbanding pada tahun 2023 berbanding RM80.6 bilion pada tahun 2022 dengan pertumbuhan sebanyak 5.4 peratus seperti di dalam **Rajah 3.5**.

Rajah 3.5: Pendapatan E-Dagang mengikut Jenis Pasaran, 2022 dan 2023



Nota:

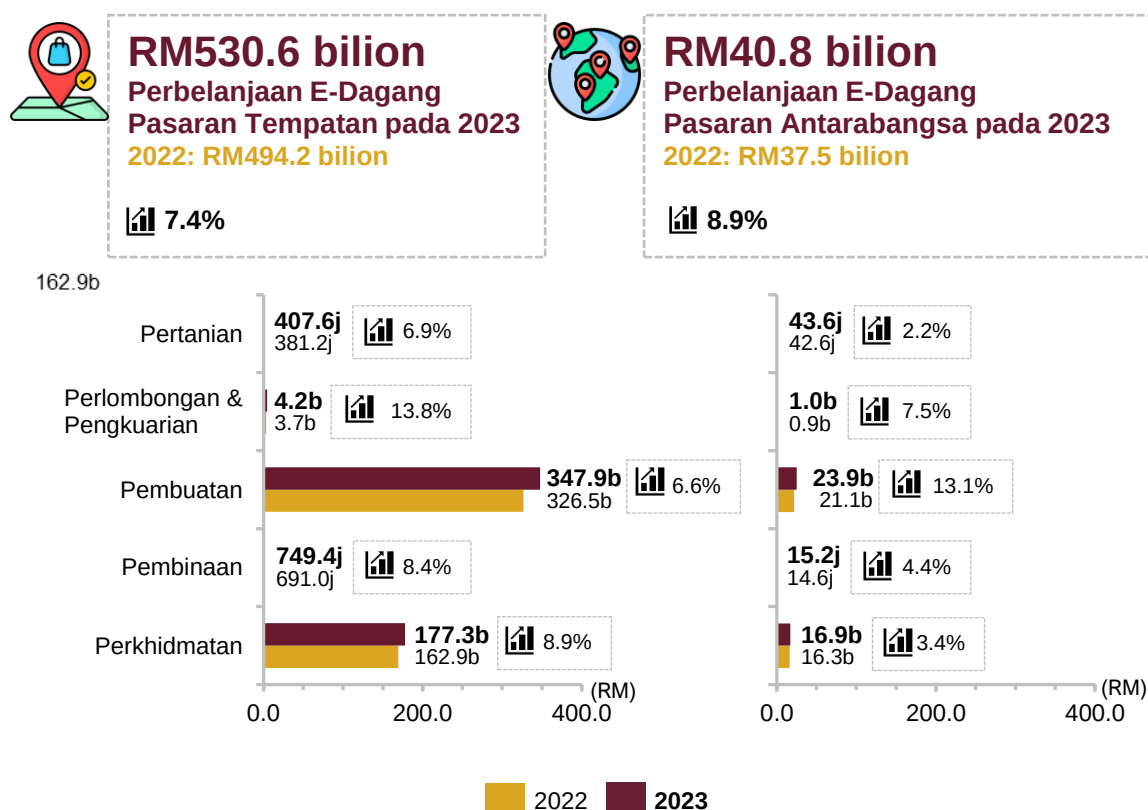
Kadar pertumbuhan tahunan
b Billion
j Juta

3.3.4 PERBELANJAAN E-DAGANG MENGIKUT JENIS PASARAN

Perbelanjaan e-dagang di Malaysia didominasi oleh pasaran tempatan yang mencatatkan jumlah sebanyak RM530.6 bilion pada tahun 2023 berbanding RM494.2 bilion tahun 2022, dengan kadar pertumbuhan tahunan sebanyak 7.4 peratus. Sementara itu, pasaran antarabangsa menyumbang sebanyak RM40.8 bilion, meningkat 8.9 peratus berbanding RM37.5 bilion pada tahun sebelumnya.

Dalam pasaran tempatan, sektor Pembuatan muncul sebagai penyumbang utama dengan perbelanjaan e-dagang sebanyak RM137.9 bilion, dengan kadar pertumbuhan tahunan sebanyak 6.6 peratus berbanding RM326.5 bilion pada tahun 2022. Bagi pasaran antarabangsa, sektor Pembuatan juga merupakan pemacu utama dengan perbelanjaan sebanyak RM23.9 bilion berbanding pada tahun 2023 berbanding RM21.1 bilion pada tahun 2022 dengan pertumbuhan sebanyak 13.1 peratus seperti di dalam **Rajah 3.6**.

Rajah 3.6: Perbelanjaan E-Dagang mengikut Jenis Pasaran, 2022 dan 2023



Nota:

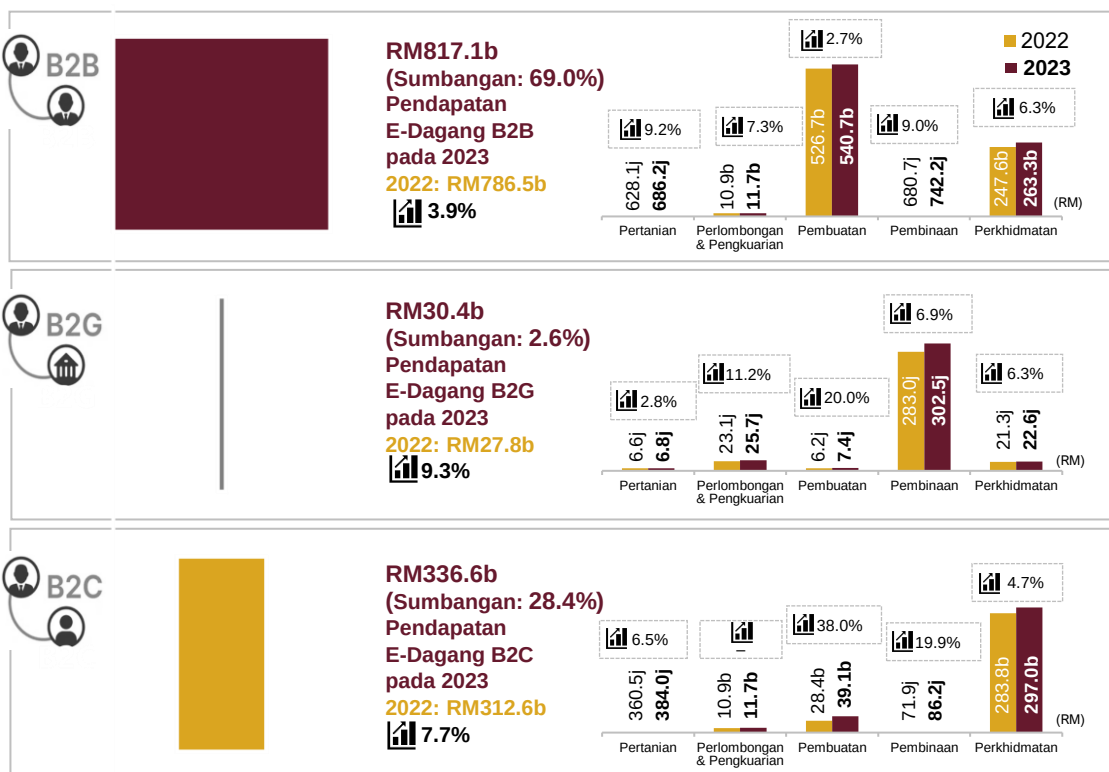
Kadar pertumbuhan tahunan
b Bilion
j Juta

3.3.5 PENDAPATAN E-DAGANG MENGIKUT JENIS PELANGGAN

Pendapatan e-dagang melalui transaksi *Business-to-Business* (B2B) kekal sebagai penyumbang utama dengan jumlah RM817.1 bilion, meningkat sebanyak 3.9 peratus berbanding RM786.5 bilion pada tahun sebelumnya. Ini diikuti oleh pendapatan melalui *Business-to-Consumer* (B2C) yang mencatatkan RM336.6 bilion dengan kenaikan 7.7 peratus berbanding RM312.6 bilion pada tahun sebelumnya. Bagi kategori terkecil iaitu *Business-to-Government* (B2G), pendapatan e-dagang juga mencatatkan peningkatan 9.3 peratus kepada RM30.4 bilion pada tahun 2023.

Sektor Pembuatan kekal sebagai penyumbang tertinggi bagi transaksi B2B dengan pendapatan e-dagang sebanyak RM540.7 bilion, pertumbuhan 2.7 peratus berbanding RM526.7 bilion pada tahun sebelumnya. Sementara itu, sektor Pembinaan mencatatkan pendapatan tertinggi bagi transaksi B2G dengan nilai pendapatan RM302.5 juta, pertumbuhan 6.9 peratus pada 2023, manakala pendapatan e-dagang tertinggi bagi transaksi B2C didominasi oleh sektor Perkhidmatan dengan nilai RM297.0 bilion seperti ditunjukkan di **Rajah 3.7**.

Rajah 3.7: Pendapatan E-Dagang mengikut Jenis Pelanggan, 2022 dan 2023



Nota:

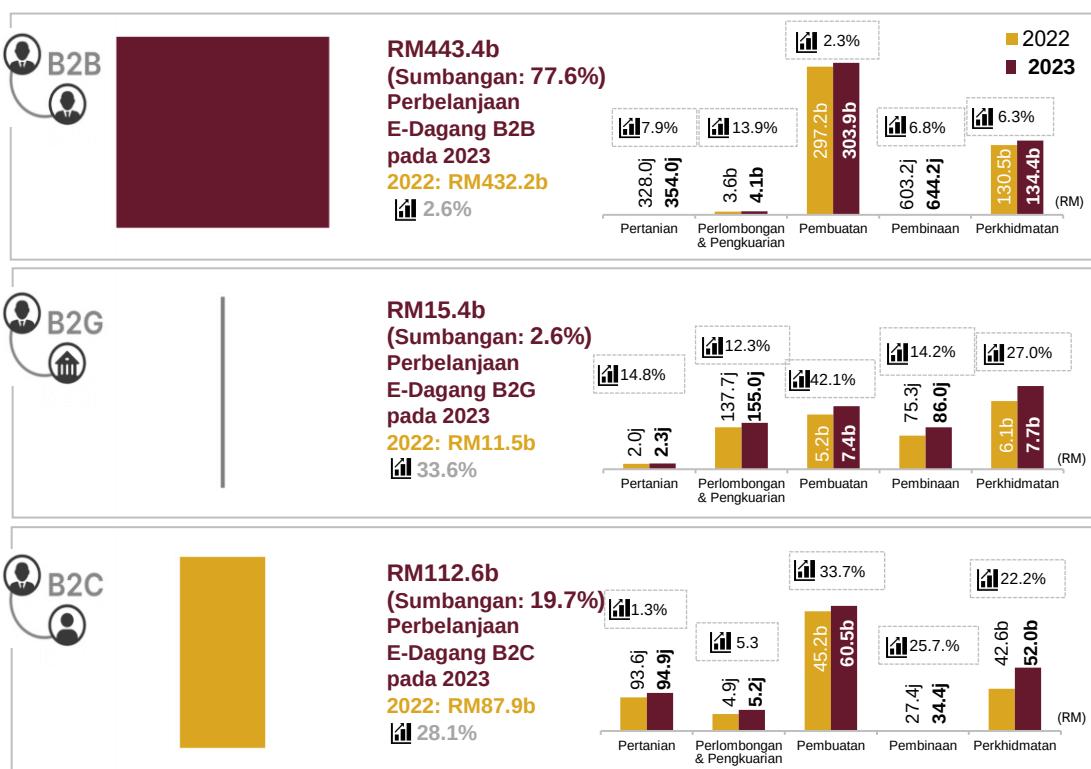
- Kadar pertumbuhan tahunan
- b Bilion
- j Juta

3.3.6 PERBELANJAAN E-DAGANG MENGIKUT JENIS PELANGGAN

Pada tahun 2023, perbelanjaan e-dagang mengikut jenis pelanggan telah mencatatkan kategori B2B kekal sebagai penyumbang utama dengan jumlah RM443.4 bilion, menunjukkan kadar pertumbuhan tahunan sebanyak 2.6 peratus. Bagi kategori B2C merekodkan RM112.6 bilion dengan pertumbuhan tahunan sebanyak 28.1 peratus manakala kategori B2G menyumbang RM15.4 bilion dengan pertumbuhan tahunan sebanyak 33.6 peratus. Bagi kategori B2B, sektor Pembuatan kekal menjadi penyumbang utama kepada perbelanjaan e-dagang dengan jumlah RM303.9 bilion dengan pertumbuhan tahunan 2.3 peratus.

Seterusnya, sektor Pembuatan juga mencatatkan nilai tertinggi sebanyak RM60.5 bilion bagi kategori B2C, dengan pertumbuhan tahunan sebanyak 33.7 peratus. Manakala kategori B2G, sektor Perkhidmatan mendominasi sebanyak RM7.7 bilion dengan pertumbuhan tahunan sebanyak 27.0 peratus seperti di dalam Rajah 3.8.

Rajah 3.8: Perbelanjaan E-Dagang mengikut Jenis Pelanggan, 2022 dan 2023



Nota:

- Kadar pertumbuhan tahunan
- b Billion
- j Juta

Sumber: Penggunaan ICT & E-Dagang oleh Pertubuhan, 2024

3. INTRODUCTION

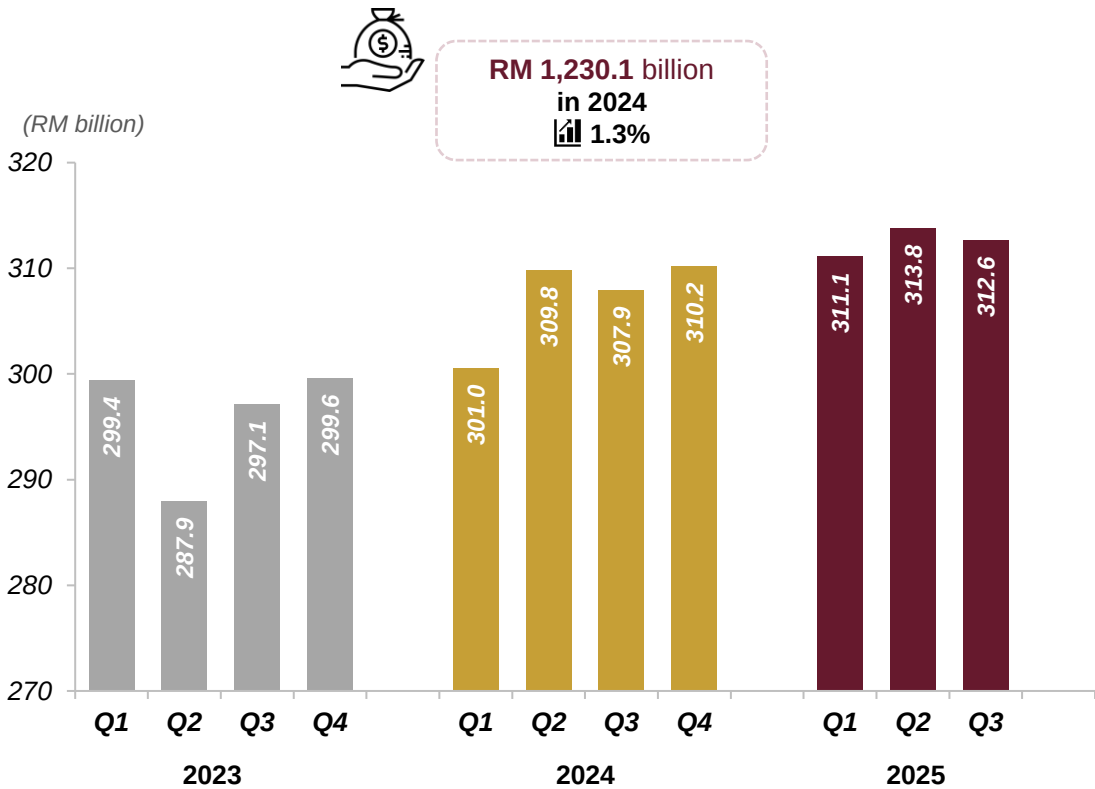
The Usage of ICT and E-Commerce by Establishment (ICTEC) 2024 report presents statistics on the use of ICT and e-commerce by establishments in Malaysia for the reference year 2023. This publication covers five (5) major economic sectors, namely Agriculture, Mining & Quarrying, Manufacturing, Construction and Services.

3.1 QUARTERLY E-COMMERCE INCOME BY ESTABLISHMENT

E-commerce income by establishment in Malaysia recorded an annual growth rate of 1.3 per cent in the third quarter of 2025. In the previous year, e-commerce income amounted to RM1,230.1 billion, an increase of 3.9 per cent compared to the year before.

In terms of quarterly performance, e-commerce income registered RM311.1 billion in the first quarter of 2025, before rising to RM313.8 billion in the second quarter. However, a slight decline was recorded in the third quarter, with e-commerce income amounting to RM312.6 billion, as illustrated in **Figure 3.1**.

Figure 3.1: Quarterly E-Commerce Income by Establishment, Q1 2023-Q3 2025



Note:|
Q Quarter

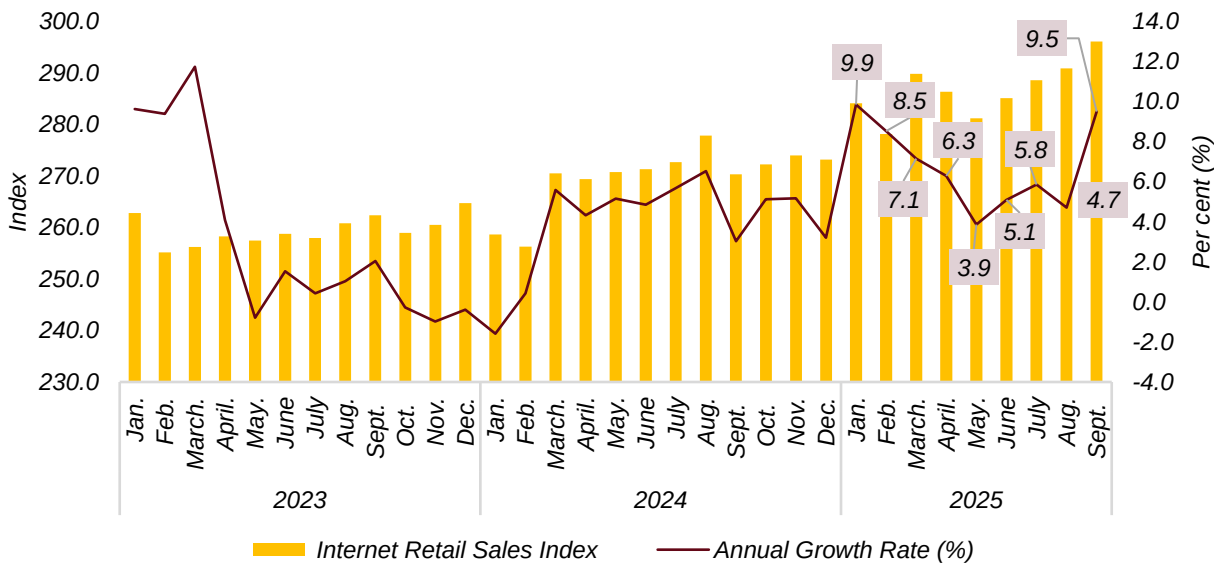
3.2 INDEX OF RETAIL SALE OVER THE INTERNET

The use of the internet has expanded the scope of wholesale and retail trade, as more transactions are now conducted online through e-commerce platforms. This convenience enables wholesalers to connect directly with retailers and customers across various locations, while consumers can purchase goods more easily without having to visit physical premises.

The Retail Sales Index via the internet recorded a stronger growth in September 2025, with an annual growth rate of 9.5 per cent, an improvement compared to 4.7 per cent in August 2025, as shown in **Figure 3.2**.

This increase was partly driven by the 9.9 online sales events (e.g., Shopee 9.9 and Lazada 9.9 Mega Sale), which stimulated consumer demand and contributed to a higher volume of transactions across major e-commerce platforms.

Figure 3.2: Index of Retail Sale Over the Internet, January 2023-September 2025



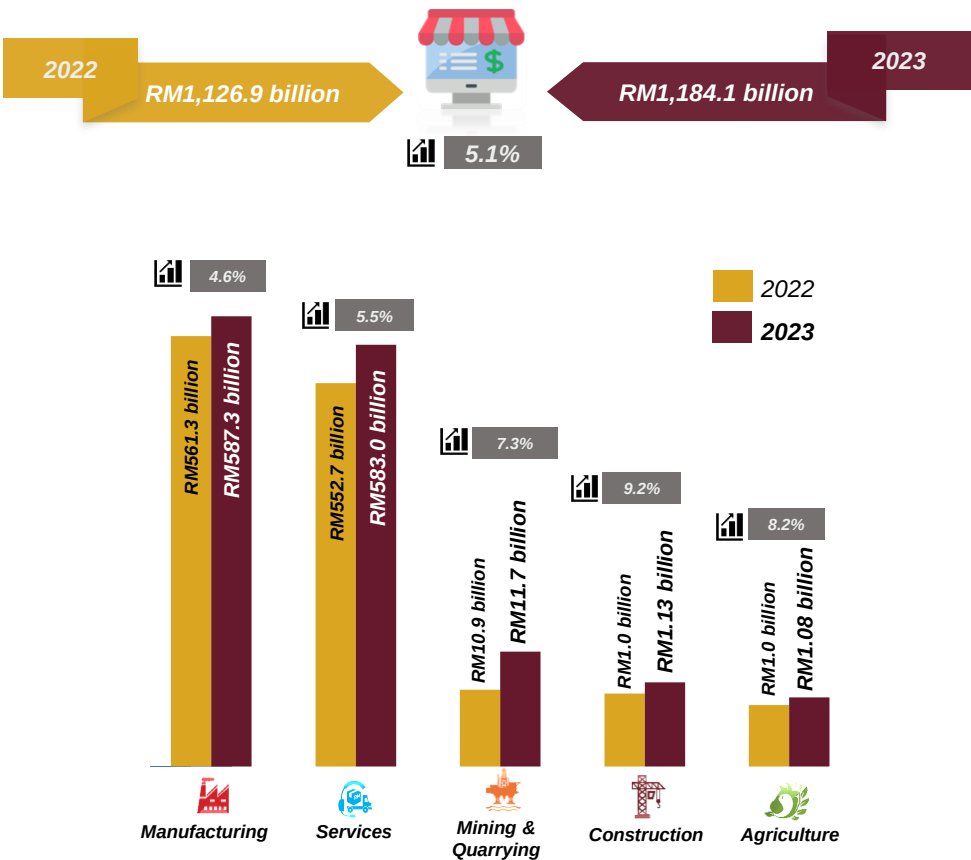
Note:
Source: Press Statement Performance of Wholesale & Retail Trade, September, 2025

3.3 PERFORMANCE OF E-COMMERCE

3.3.1 E-COMMERCE INCOME BY SECTOR

E-commerce transaction income continues to demonstrate positive growth, rising to RM1,184.1 billion in 2023 compared to RM1,126.9 billion in 2022, reflecting an annual growth rate of 5.1 per cent. The Manufacturing sector recorded RM587.3 billion, marking growth of 4.6 per cent compared to 2022. This was followed by the Services sector, which recorded increased to RM583.0 billion in 2023 from RM552.7 billion in 2022, representing growth of 5.5 per cent as illustrated in **Figure 3.3**

Figure 3.3: E-Commerce Income, 2022 and 2023

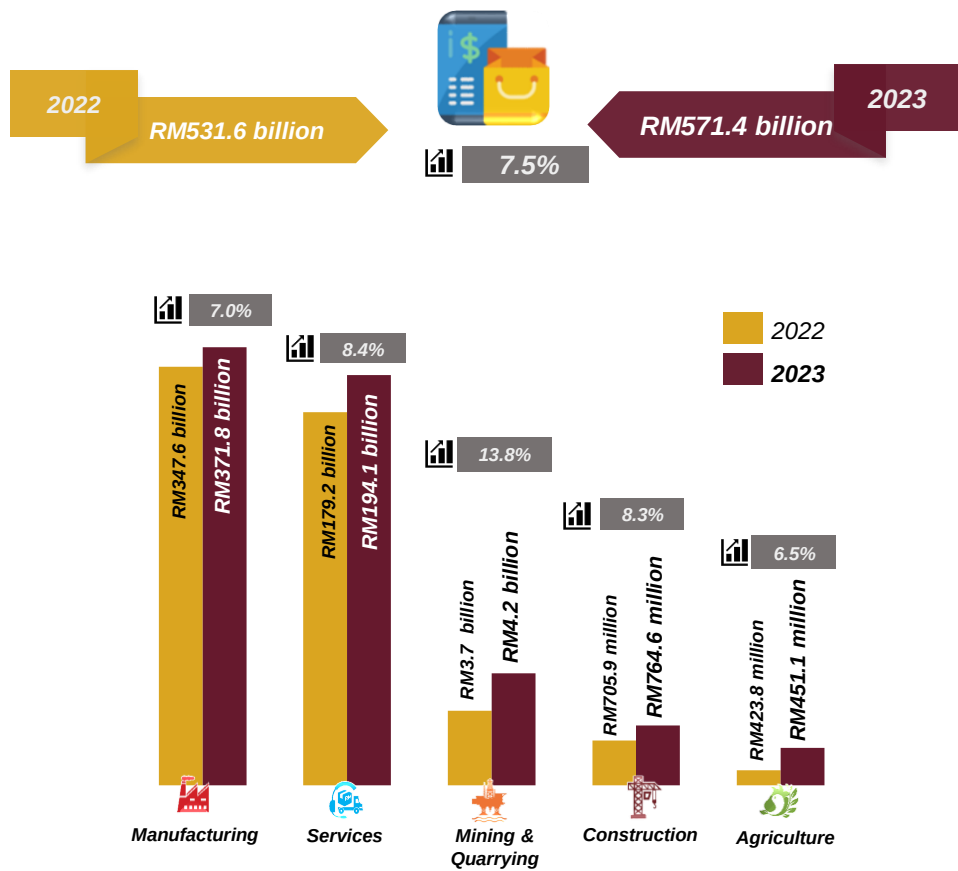


Note:
Annual growth rate

3.3.2 E-COMMERCE EXPENDITURE BY SECTOR

In 2023, expenditure from e-commerce transaction in Malaysia increased to RM571.4 billion, compared to RM531.6 billion in 2022, representing an annual growth rate of 7.5 per cent. Manufacturing sector recorded the highest e-commerce expenditure, amounting to RM371.8 billion in 2023 compared to RM347.6 billion in 2022, reflecting a growth of 7.0 per cent. This was followed by the Services sector, which recorded an expenditure of RM194.1 billion, an increase from RM179.2 billion in the previous year, with growth of 8.4 per cent, as shown in **Figure 3.4**.

Figure 3.4: E-Commerce Expenditure by Sector 2022 & 2023



Note:

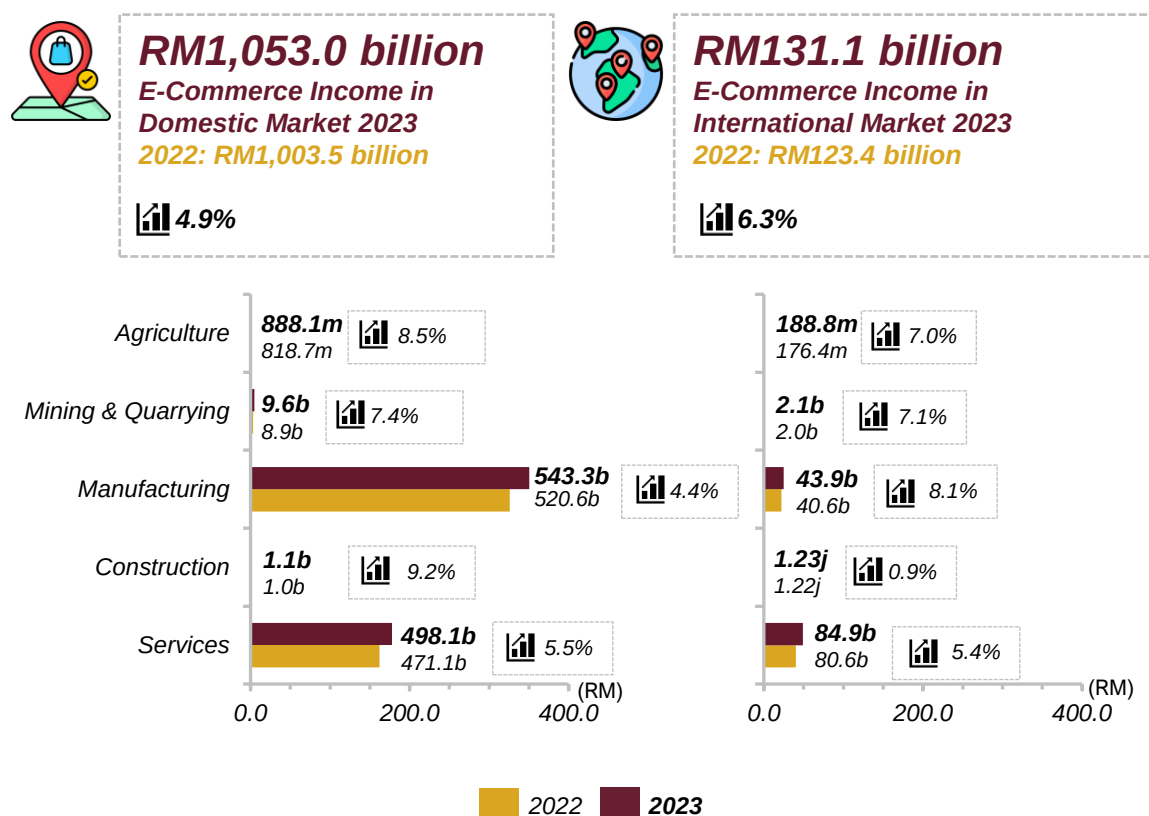
Annual growth rate

3.3.3 E-COMMERCE INCOME BY TYPE OF MARKET

E-commerce revenue in Malaysia is dominated by the domestic market, which recorded a total of RM1,053.0 billion in 2023 compared to RM1,003.5 billion in 2022, with an annual growth rate of 4.9 per cent. Meanwhile, the international market contributed RM131.1 billion, an increase of 6.3 per cent compared to RM123.4 billion in the previous year.

In the domestic market, the Manufacturing sector emerged as the main contributor with e-commerce revenue of RM543.3 billion, with an annual growth of 4.4 per cent compared to RM520.6 billion in 2022. For the international market, the Services sector was the main driver with revenue of RM84.9 billion in 2023 compared to RM80.6 billion in 2022, with a growth of 5.4 per cent, as shown in **Figure 3.5**.

Figure 3.5: E-Commerce Income by Type of Market, 2022 and 2023



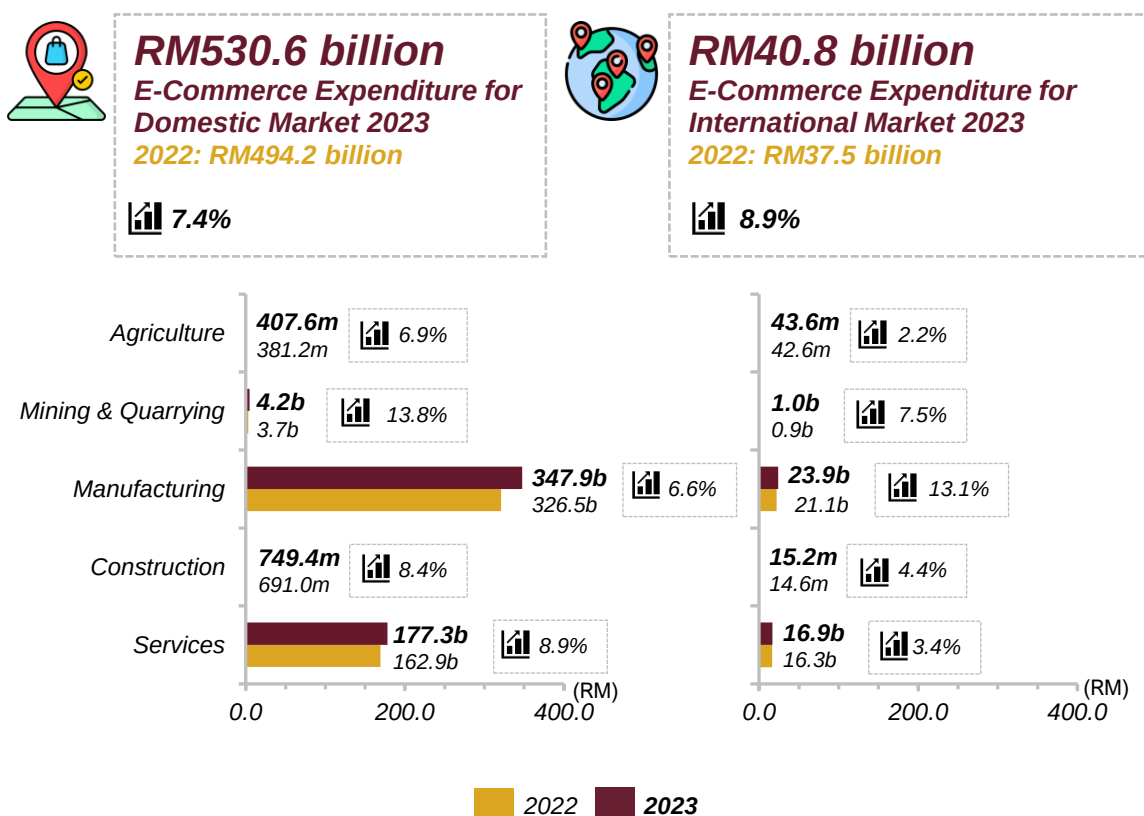
Note:
 Annual growth rate
 b Billion
 m Million

3.3.4 E-COMMERCE EXPENDITURE BY TYPE OF MARKET

E-commerce spending in Malaysia is dominated by the domestic market, which recorded a total of RM530.6 billion in 2023 compared to RM494.2 billion in 2022, with an annual growth rate of 7.4 per cent. Meanwhile, the international market contributed RM40.8 billion, an increase of 8.9 per cent compared to RM37.5 billion in the previous year.

In the domestic market, the Manufacturing sector emerged as the main contributor with e-commerce spending of RM137.9 billion, with an annual growth of 6.6 per cent compared to RM326.5 billion in 2022. For the international market, the Manufacturing sector was also the main driver with spending of RM23.9 billion in 2023 compared to RM21.1 billion in 2022, with a growth of 13.1 per cent, as shown in **Figure 3.6**.

Figure 3.6: E-Commerce Expenditure by Type of Market, 2022 and 2023



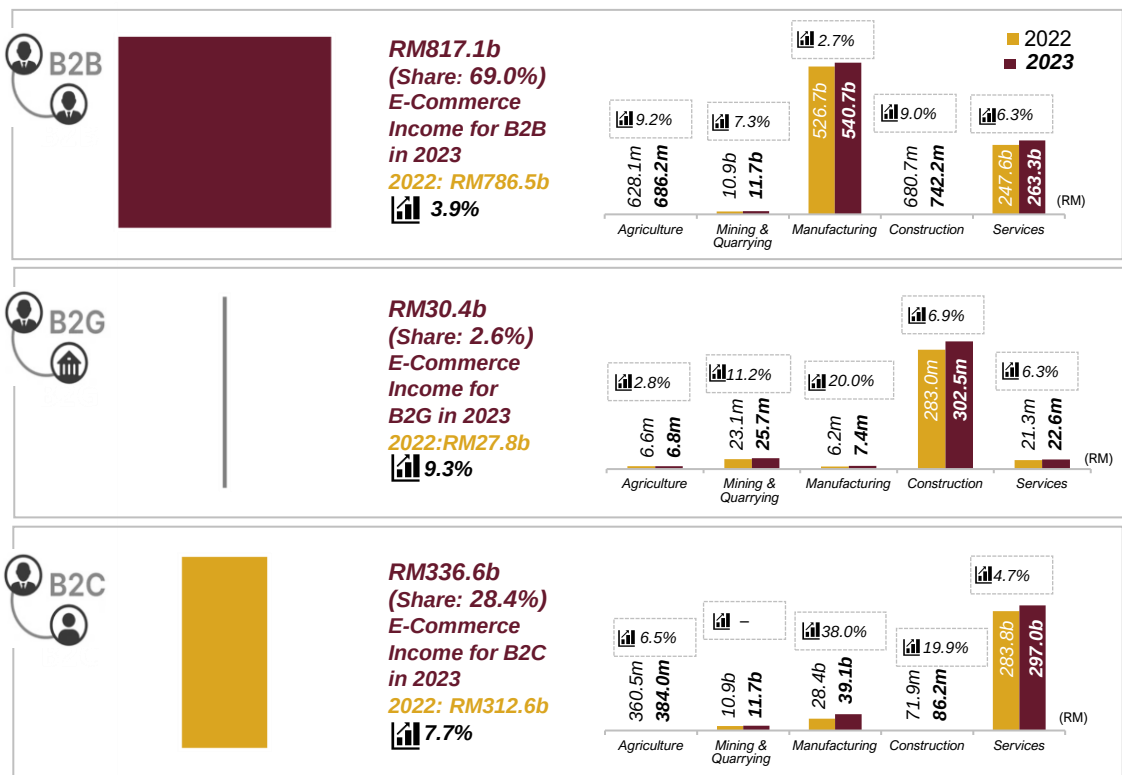
Note:
 Annual growth rate
 b Billion
 m Million

3.3.5 E-COMMERCE INCOME BY TYPE OF CUSTOMER

Total e-commerce income by customer type showed that the Business to Business (B2B) category remained the primary contributor with RM817.1 billion, reflecting a 3.9 per cent growth. Meanwhile, Business to Consumer (B2C) recorded an income amounting to RM336.6 billion achieving a 7.7 per cent growth compared to the previous year. For the Business to Government (B2G) category, income increased to RM30.4 billion with a growth of 9.3 per cent compared to 2022.

As Manufacturing sector remained the highest contributor for B2B with income of RM540.7 billion, recording a positive growth of 2.7 per cent compared in 2022. Meanwhile, Services sector dominated both B2C and B2G transactions in 2023, recording RM297.1 billion with a 4.7 per cent growth and RM22.6 billion with a 6.4 per cent growth, respectively, as shown in Figure 3.7.

Figure 3.7: E-Commerce Income by Type of Customer, 2022 and 2023



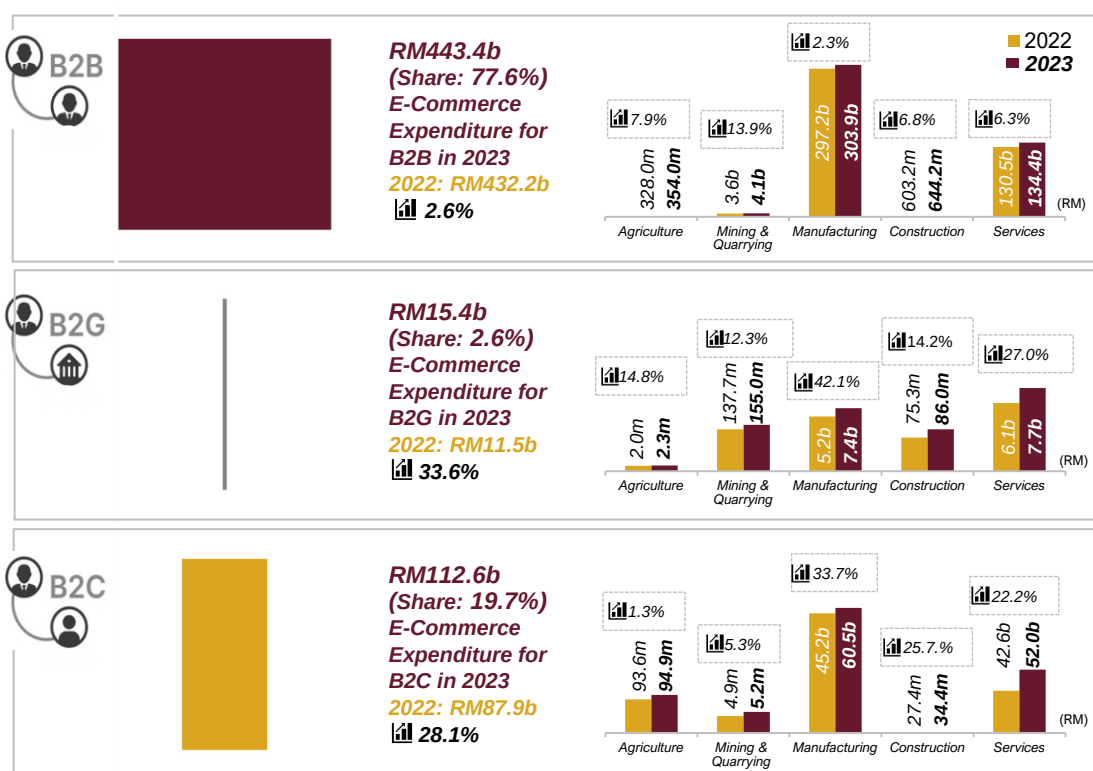
Note:
Annual growth rate
b Billion
m Million

3.3.6 E-COMMERCE EXPENDITURE BY TYPE OF CUSTOMER

On the year 2023, e-commerce expenditure according to type customer has recorded category Business to Business (B2B) remain as main contributor with total RM443.4 billion, shows an annual growth as much as 2.6 per cent. For category Business to Consumer (B2C), recorded RM112.6 billion with annual growth as much as 28.1 per cent. Meanwhile, Business to Government (B2G) contributed RM15.4 billion with annual growth as much as 33.6 per cent. For category B2B across the sector, Manufacturing remain become main contributor to e-commerce expenditure with total RM303.9 billion with annual growth 2.3 per cent.

Next, sector Manufacturing also recorded value highest as much as RM60.5 billion for category B2C, with annual growth as much as 33.7 per cent. Meanwhile, for category B2G, sector Services dominated as much as RM7.7 billion with annual growth as much as 27.0 per cent as in inside **Figure 3.8**.

Figure 3.8: E-Commerce Expenditure by Type of Customer, 2022 and 2023



Note:

YoY Annual growth rate
b Billion
m Million

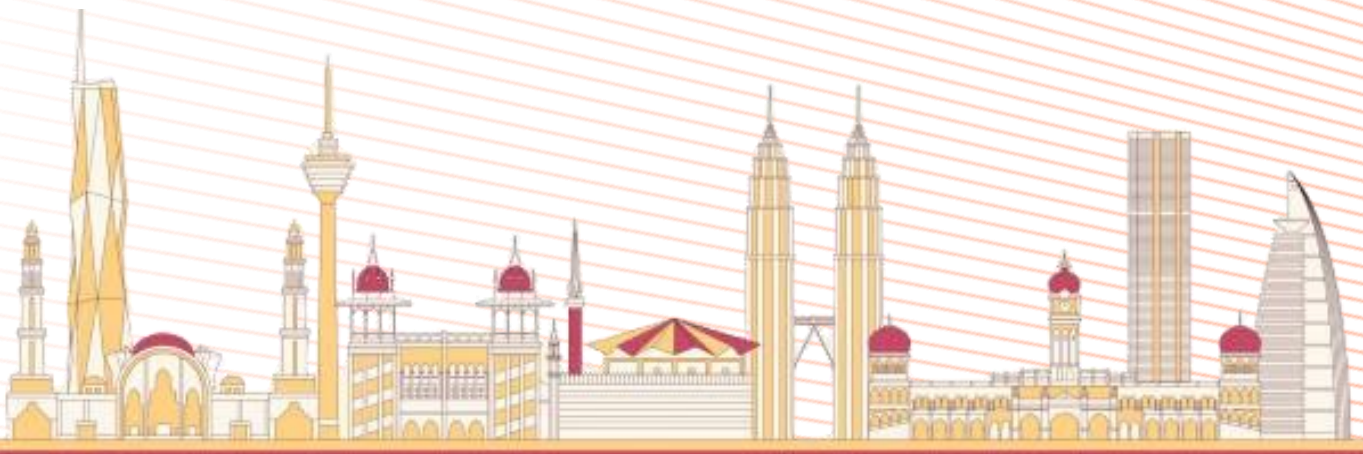
Source: Usage of ICT & E-Commerce by Establishment, 2024

BAB 4

CHAPTER

CAPAIAN DAN PENGGUNAAN ICT

ACCESS AND USAGE OF ICT



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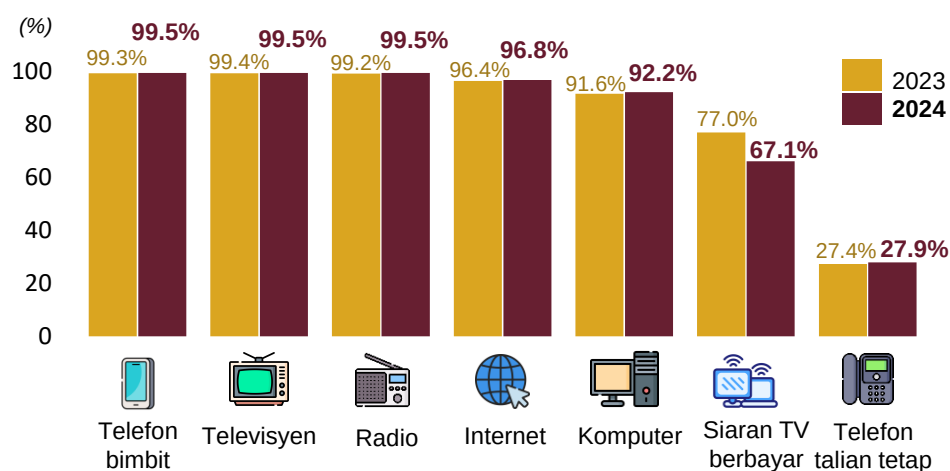
4. CAPAIAN DAN PENGGUNAAN ICT

Laporan ini memaparkan hasil penemuan Survei Penggunaan dan Capaian ICT oleh Individu dan Isi Rumah (ICTHS) yang dilaksanakan pada tahun 2024. Penemuan ini memaparkan statistik terkini capaian oleh isi rumah dan penggunaan oleh individu di Malaysia bagi peralatan dan perkhidmatan ICT.

4.1 CAPAIAN PERALATAN DAN PERKHIDMATAN ICT OLEH ISI RUMAH

Terdapat tujuh statistik capaian peralatan dan perkhidmatan ICT oleh isi rumah yang dimuatkan dalam laporan ini. Sesebuah isi rumah dianggap mempunyai capaian kepada peralatan dan perkhidmatan ICT sekiranya ia masih boleh digunakan semasa survei dijalankan. Secara keseluruhan, pada tahun 2024 semua peralatan dan perkhidmatan ICT menunjukkan peningkatan kecuali siaran TV berbayar yang mencatatkan penurunan ketara sebanyak 9.9 mata peratus kepada 67.1 peratus (2023: 77.0%). Peratusan capaian oleh isi rumah tertinggi direkodkan oleh peralatan telefon bimbit, televisyen dan radio yang masing-masing mencatatkan 99.5 peratus diikuti oleh Internet (96.8%), komputer (92.2%) dan telefon talian tetap (27.9%) seperti di **Carta 4.1**.

Carta 4.1: Peratusan Capaian Peralatan dan Perkhidmatan ICT oleh Isi Rumah, Malaysia, 2023 dan 2024

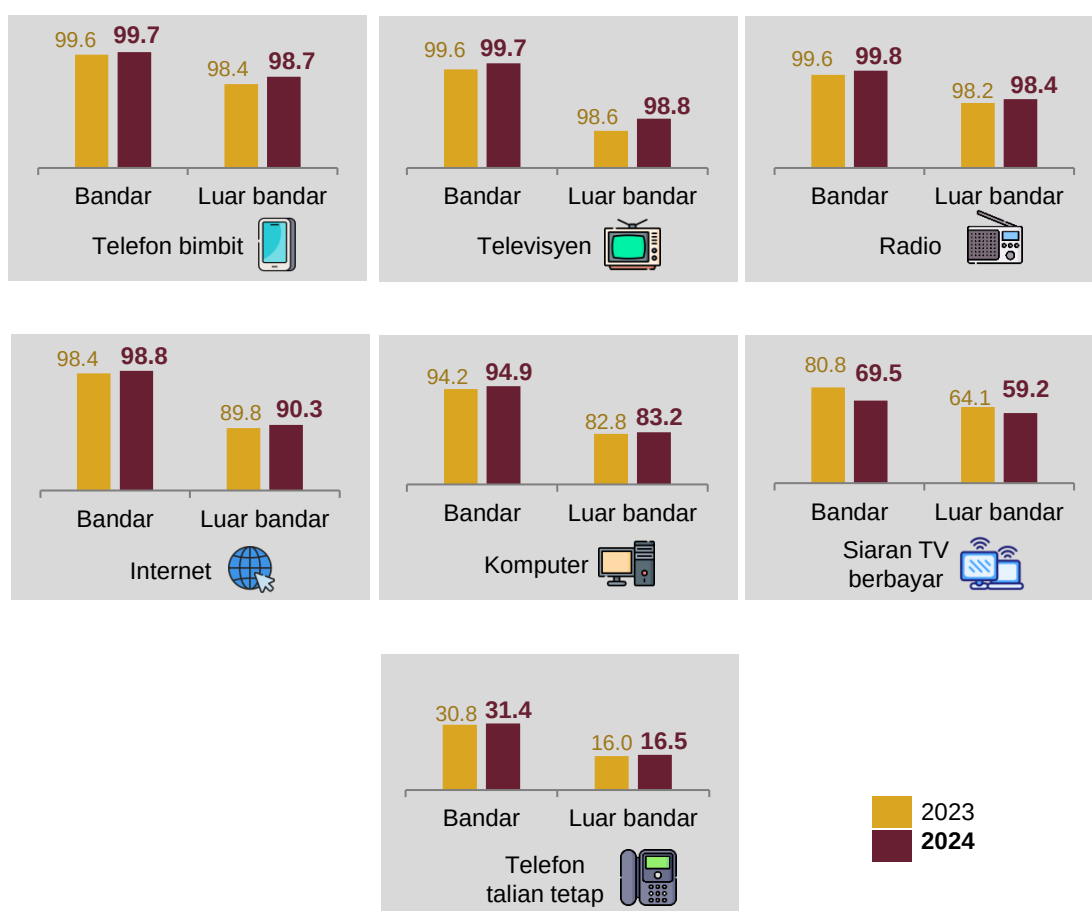


4.1.1 CAPAIAN PERALATAN DAN PERKHIDMATAN ICT OLEH ISI RUMAH MENGIKUT STRATA

Peratusan capaian tertinggi direkodkan oleh radio sebanyak 99.8 peratus, diikuti oleh televisyen (99.7%), telefon bimbit (99.7%), Internet (98.8%), komputer (94.9%), siaran TV berbayar (69.5%) dan telefon talian tetap (31.4%).

Seterusnya, isi rumah di luar bandar juga turut mencatatkan peningkatan bagi capaian peralatan dan perkhidmatan ICT iaitu televisyen (98.8%), telefon bimbit (98.7%), radio (98.4%), Internet (90.3%), komputer (83.2%), siaran TV berbayar (59.2%) dan telefon talian tetap (16.5%) seperti di **Carta 4.2**.

Carta 4.2: Peratusan Capaian Peralatan dan Perkhidmatan ICT oleh Isi Rumah mengikut Strata, Malaysia, 2023 dan 2024



4.2 PENGGUNAAN PERALATAN DAN PERKHIDMATAN ICT OLEH INDIVIDU

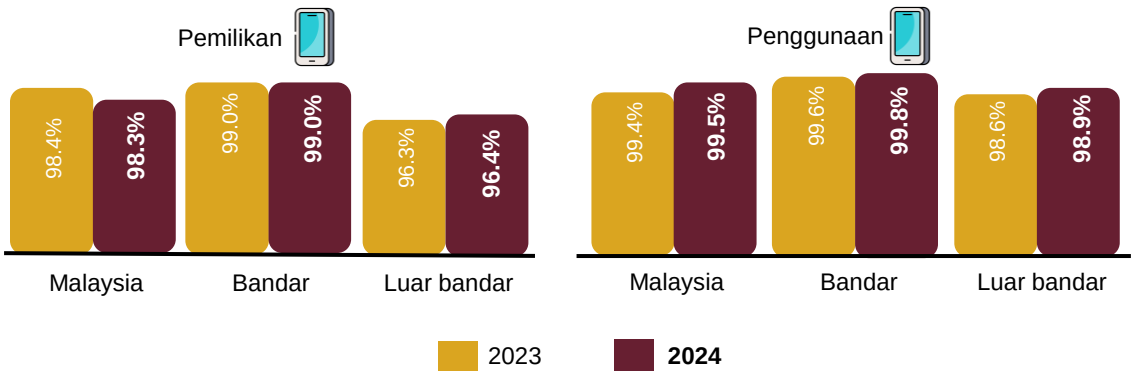
Pengukuran penggunaan peralatan dan perkhidmatan ICT oleh individu merangkumi penggunaan dan pemilikan telefon bimbit, penggunaan komputer dan penggunaan Internet oleh penduduk di Malaysia yang berumur 15 tahun dan ke atas.

Penggunaan merujuk kepada penggunaan peralatan dan perkhidmatan ICT oleh individu tanpa mengira lokasi penggunaan serta tidak terhad kepada tempat kediaman sahaja. Manakala, pemilikan telefon bimbit merujuk kepada individu yang mempunyai telefon bimbit dan kad *Subscriber Identity Module (SIM)* aktif untuk tujuan persendirian.

4.2.1 PEMILIKAN DAN PENGGUNAAN TELEFON BIMBIT

Pemilikan telefon bimbit oleh individu pada tahun 2024 menunjukkan penurunan marginal sebanyak 0.1 mata peratus kepada 98.3 peratus yang didorong oleh penurunan pemilikan telefon bimbit di bandar (0.0 mata peratus). Walau bagaimanapun, pemilikan telefon bimbit di luar bandar merekodkan peningkatan sebanyak 0.1 mata peratus (96.4%). Seterusnya, penggunaan telefon bimbit oleh individu merekodkan peningkatan kepada 99.5 peratus berbanding tahun sebelumnya (99.4%). Kenaikan ini didorong oleh peningkatan penggunaan telefon bimbit di bandar (0.2 mata peratus; 99.8%) dan luar bandar (0.3 mata peratus; 98.9%) seperti di **Carta 4.3**.

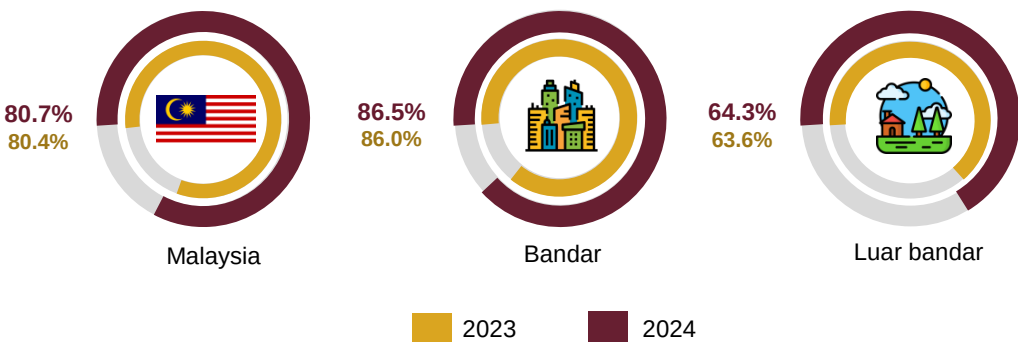
Carta 4.3: Peratusan Pemilikan dan Penggunaan Telefon Bimbit oleh Individu mengikut Strata, Malaysia, 2023 dan 2024



4.2.2 PENGGUNAAN KOMPUTER

Penggunaan komputer merangkumi penggunaan komputer peribadi, komputer riba atau papan elektronik mudah alih. Penggunaan komputer menunjukkan peningkatan sebanyak 0.3 mata peratus kepada 80.7 peratus berbanding 80.4 peratus pada tahun 2023. Peningkatan ini disumbangkan oleh peningkatan penggunaan komputer di bandar sebanyak 0.5 mata peratus (86.5%) dan luar bandar sebanyak 0.7 mata peratus (64.3%) seperti tertera di **Rajah 4.1**.

Rajah 4.1: Peratusan Penggunaan Komputer oleh Individu mengikut Strata, Malaysia, 2023 dan 2024

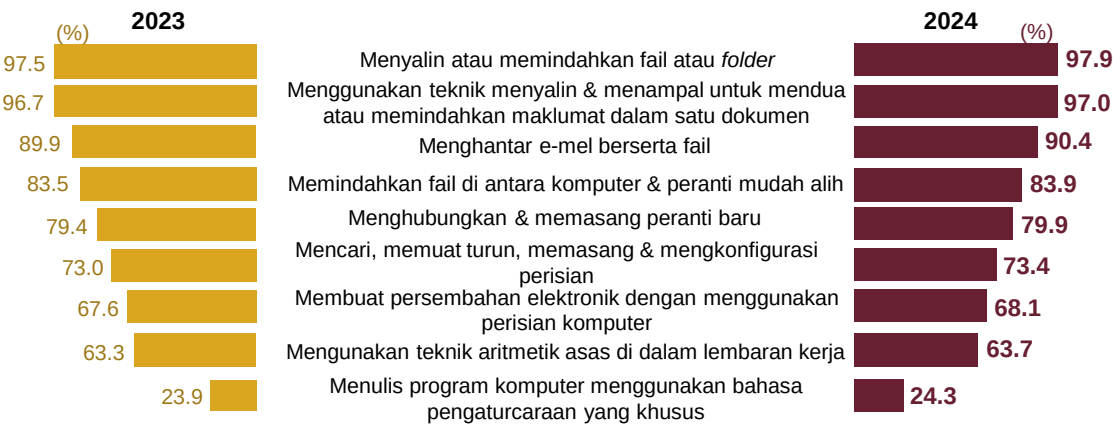


4.2.2.1 KEMAHIRAN ICT

Kemahiran ICT merupakan salah satu indikator yang dipantau dalam Matlamat Pembangunan Mampan (SDG) Indikator 4.4.1 yang mengukur peratusan belia dan dewasa dengan kemahiran teknologi maklumat dan komunikasi (ICT). Bagi ICTHS, sembilan jenis kemahiran ICT diukur.

Empat kemahiran merekodkan peratusan melebihi 80.0 peratus pada tahun 2024 iaitu menyalin atau memindahkan fail atau folder (97.9%) diikuti oleh menggunakan teknik menyalin & menampal untuk mendua atau memindahkan maklumat di dalam satu dokumen (97.0%), menghantar e-mel berserta fail (90.4%) dan memindahkan fail di antara komputer & peranti mudah alih lain (83.9%). Peratusan kemahiran terendah direkodkan oleh menulis program komputer menggunakan bahasa pengaturcaraan yang khusus sebanyak 24.3 peratus seperti di **Carta 4.4**.

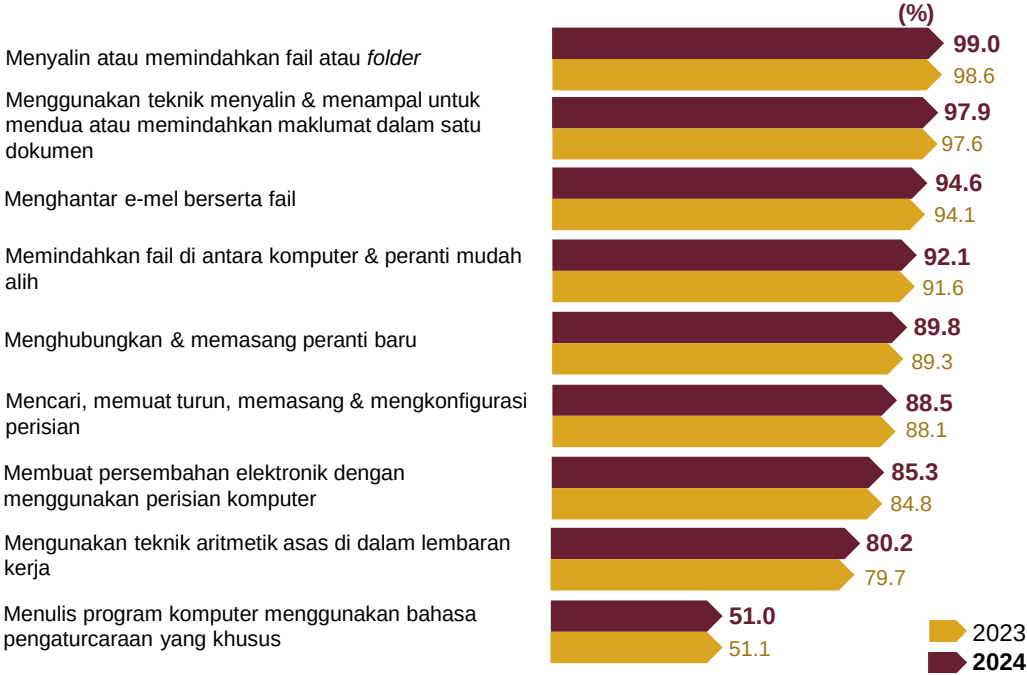
Carta 4.4: Peratusan Penggunaan Komputer oleh Individu mengikut Kemahiran Komputer Malaysia, 2023 dan 2024



4.2.2.2 KEMAHIRAN KOMPUTER DI KALANGAN BELIA

Laporan ini juga memaparkan statistik kemahiran komputer di kalangan belia iaitu individu yang berumur 15 hingga 24 tahun. Secara keseluruhannya, hampir semua jenis kemahiran mencatatkan peratusan melebihi 80.0 peratus kecuali kemahiran menulis program komputer menggunakan bahasa pengaturcaraan yang khusus (51.0%). Tiga kemahiran yang mencatatkan peratusan tertinggi adalah menggunakan komputer menjalankan aktiviti menyalin atau memindahkan fail atau *folder* iaitu 99.0 peratus, diikuti oleh menggunakan teknik menyalin & menampal untuk mendua atau memindahkan di dalam satu dokumen (97.9%) dan menghantar e-mel berserta fail (94.6%) seperti di **Carta 4.5**.

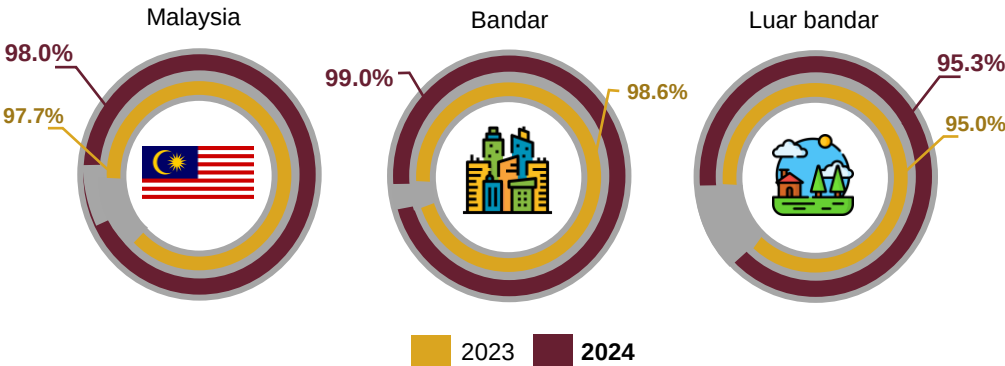
Carta 4.5: Peratusan Penggunaan Komputer oleh Belia mengikut Kemahiran Komputer, Malaysia, 2023 dan 2024



4.2.3 PENGGUNAAN INTERNET

Penggunaan Internet juga dinyatakan dalam SDG di bawah matlamat 17, Indikator 17.8.1 Peratusan individu yang menggunakan Internet. Di Malaysia, penggunaan Internet menunjukkan peningkatan sebanyak 0.3 mata peratus kepada 98.0 peratus berbanding 97.7 peratus pada tahun 2023. Peningkatan ini dipengaruhi oleh peningkatan penggunaan Internet di bandar sebanyak 0.4 mata peratus (99.0%) dan di luar bandar sebanyak 0.3 mata peratus (95.3%) seperti di **Rajah 4.2**.

Rajah 4.2: Peratusan Penggunaan Internet oleh Individu mengikut Strata, Malaysia, 2023 dan 2024

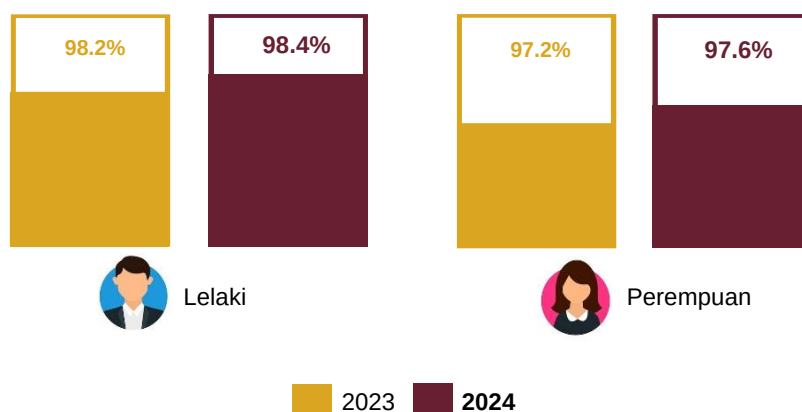


4.2.3.1 PENGGUNAAN INTERNET MENGIKUT JANTINA

Perbandingan mengikut jantina merekodkan penggunaan Internet bagi lelaki menunjukkan peratusan yang lebih tinggi iaitu 98.4 peratus berbanding perempuan 97.6 peratus pada tahun 2024.

Perbezaan peratusan antara kedua-dua jantina menguncup sebanyak 0.8 mata peratus pada tahun 2024 berbanding tahun sebelumnya sebanyak 1.0 mata peratus. Perkembangan ini mencerminkan peningkatan kesaksamaan digital antara lelaki dan perempuan seperti di **Carta 4.6**.

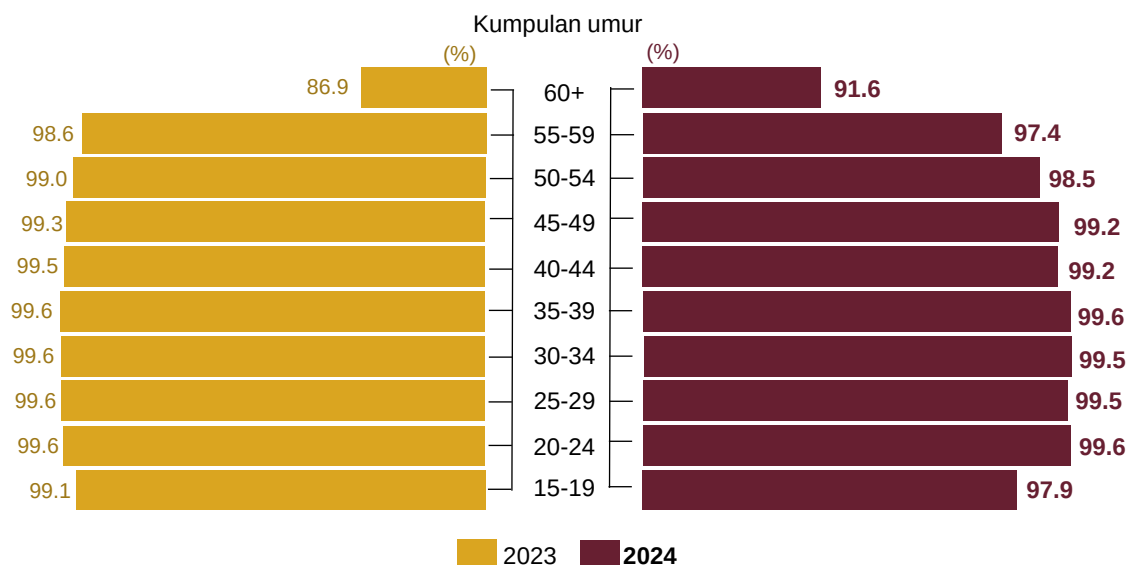
Carta 4.6: Peratusan Penggunaan Internet oleh Individu mengikut Jantina, Malaysia, 2023 dan 2024



4.2.3.2 PENGGUNAAN INTERNET MENGIKUT KUMPULAN UMUR

Secara keseluruhannya, semua kumpulan umur merekodkan prestasi penggunaan Internet melebihi 90.0 peratus. Peratusan pengguna Internet yang tertinggi adalah dalam kumpulan umur 20-24 tahun dan 35-39 tahun iaitu 99.6 peratus diikuti oleh kumpulan umur 25-29 tahun dan 30-34 tahun iaitu 99.5 peratus. Namun begitu, peratus penggunaan Internet bagi yang berumur 15-19 tahun menurun kepada 97.9 peratus (2023: 99.1%). Manakala, bagi kumpulan umur 60 tahun dan ke atas menunjukkan peningkatan ketara berbanding tahun sebelumnya iaitu 91.6 peratus (2023: 86.9%) seperti yang ditunjukkan di **Carta 4.7**.

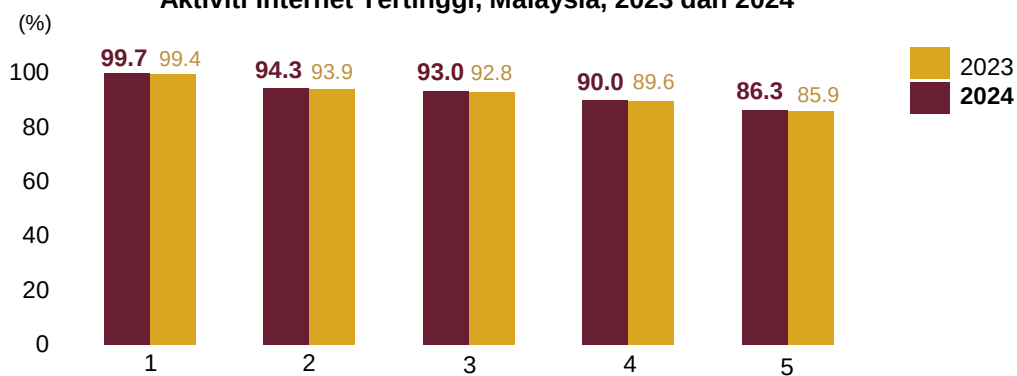
Carta 4.7: Peratusan Penggunaan Internet oleh Individu mengikut Kumpulan Umur, Malaysia, 2023 dan 2024



4.2.3.3 PENGGUNAAN INTERNET MENGIKUT AKTIVITI

Aktiviti penggunaan Internet yang paling popular pada tahun 2024 adalah menyertai dalam rangkaian sosial iaitu 99.7 peratus diikuti oleh aktiviti memuat turun gambar, filem, video atau muzik; bermain atau memuat turun permainan (94.3%), mendapatkan maklumat tentang barangan atau perkhidmatan (93.0%), memuat turun perisian atau aplikasi (90.0%) dan membuat panggilan telefon melalui Internet/ VoIP (86.3%) seperti di Carta 4.8.

Carta 4.8: Peratusan Penggunaan Internet oleh Individu mengikut Lima Aktiviti Internet Tertinggi, Malaysia, 2023 dan 2024



Label:

- 1 Menyertai rangkaian sosial
- 2 Memuat turun gambar, filem, video atau muzik; bermain atau memuat turun permainan
- 3 Mendapatkan maklumat tentang barangan atau perkhidmatan
- 4 Memuat turun perisian atau aplikasi
- 5 Membuat panggilan telefon melalui internet atau VoIP

Nota:

Individu boleh memilih lebih daripada satu aktiviti Internet

Sumber: Laporan Survei Penggunaan dan Capaian ICT oleh Individu dan Isi Rumah, 2024

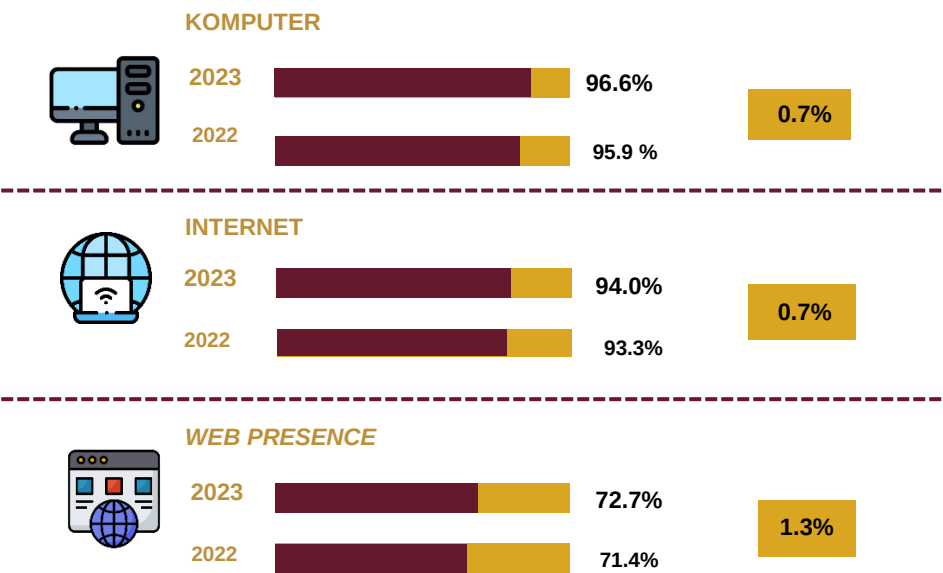
4.3 PENGGUNAAN ICT OLEH PERTUBUHAN

Laporan Penggunaan ICT dan E-Dagang (ICTEC) 2024 memaparkan statistik berkaitan penggunaan ICT dan e-gagang oleh Pertubuhan di Malaysia berdasarkan tahun rujukan 2023. Penerbitan ini merangkumi lima sektor utama ekonomi termasuk Pertanian, Perlombongan & Pengkuarian, Pembuatan, Pembinaan serta Perkhidmatan.

4.3.1 PENGGUNAAN ICT

Sebanyak 96.6 peratus pertubuhan menggunakan komputer seperti komputer peribadi, komputer riba dan *tablet* menunjukkan perubahan mata peratus sebanyak 0.7 peratus pada tahun 2023 berbanding 95.9 peratus pada tahun 2022. Perkembangan positif turut dapat dilihat dalam penggunaan internet, di mana 94.0 peratus pertubuhan telah menggunakan capaian internet, berbanding 93.3 peratus pada tahun sebelumnya. Perubahan ini sejajar dengan usaha kerajaan dalam memperluas capaian digital di dalam negara. Selain itu, peningkatan ketara juga direkodkan bagi pertubuhan yang mempunyai *web presence*, dengan 72.7 peratus berbanding 71.4 peratus pada tahun 2022, seperti yang dipaparkan dalam **Rajah 4.3**.

Rajah 4.3: Peratus Penggunaan Komputer, Internet dan *Web Presence*, 2022 dan 2023

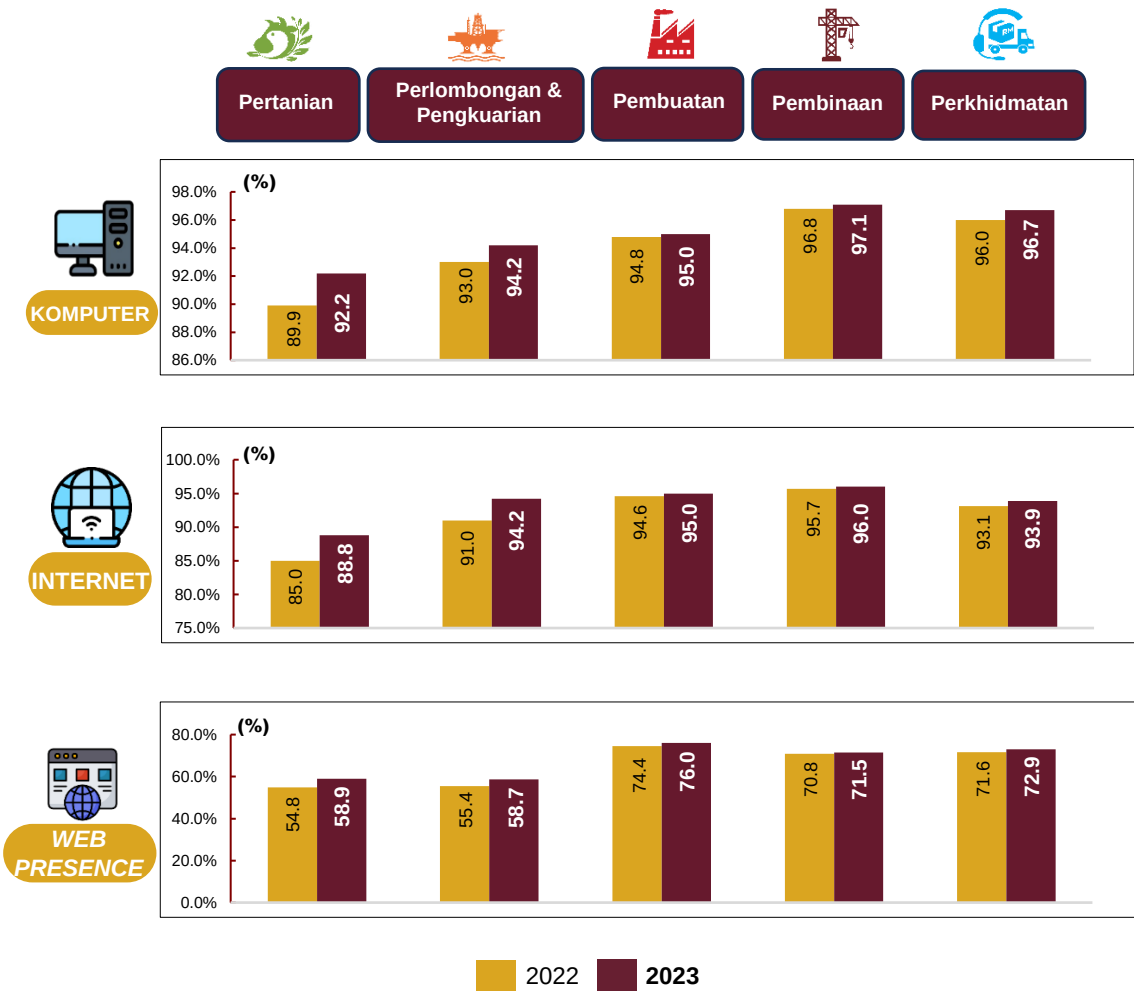


4.3.2 PENGGUNAAN ICT MENGIKUT SEKTOR

Rajah 4.4 menunjukkan penggunaan komputer, internet dan *web presence* mengikut sektor pada tahun 2022 dan 2023. Sektor Pembinaan menjadi peneraju utama dengan mencatatkan kadar penggunaan komputer tertinggi iaitu 97.1 peratus berbanding 96.8 peratus pada tahun 2022. Sektor ini juga mendahului dalam penggunaan internet iaitu 96.0 peratus, meningkat daripada 95.7 peratus pada tahun sebelumnya.

Sementara itu, sektor Pembuatan mencatatkan nilai tertinggi dalam penggunaan *web presence* dengan 76.0 peratus pada tahun 2023, meningkat berbanding 74.4 peratus pada tahun 2022. Perkembangan ini mencerminkan usaha berterusan pemilik industri dalam mengadaptasi teknologi digital bagi meningkatkan daya saing pertubuhan mereka.

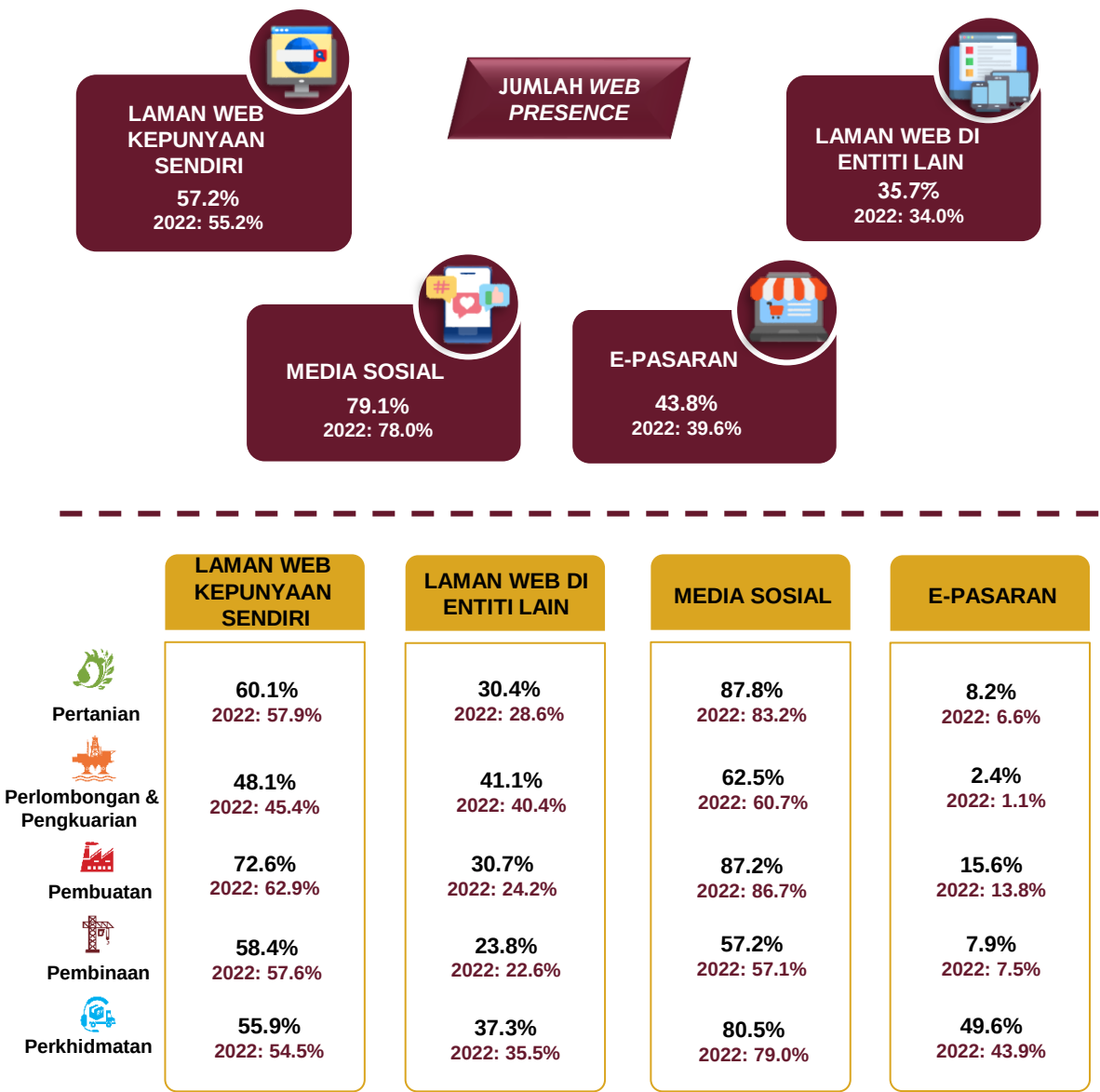
Rajah 4.4: Peratus Penggunaan Komputer, Internet dan *Web Presence* mengikut Sektor, 2022 dan 2023



4.3.3 JENIS PEMILIKAN *WEB PRESENCE* MENGIKUT SEKTOR

Rajah 4.5 memperincikan jenis pemilikan *web presence* yang digunakan oleh pertubuhan mengikut sektor. Sektor Pembuatan mencatatkan peratusan tertinggi bagi penggunaan laman web kepunyaan sendiri, iaitu sebanyak 72.6 peratus. Sementara itu, sektor Perlombongan & Pengkuarian menunjukkan penggunaan tertinggi bagi laman web di entiti lain, dengan mencatatkan 41.1 peratus. Bagi sektor Pertanian, media sosial mempunyai pemilikan *web presence* dengan peratusan tertinggi iaitu 87.8 peratus. Dalam masa yang sama, sektor Perkhidmatan mencatatkan penggunaan e-pasaran yang tertinggi dengan nilai 49.6 peratus pada tahun 2023 daripada 43.9 peratus pada tahun 2022

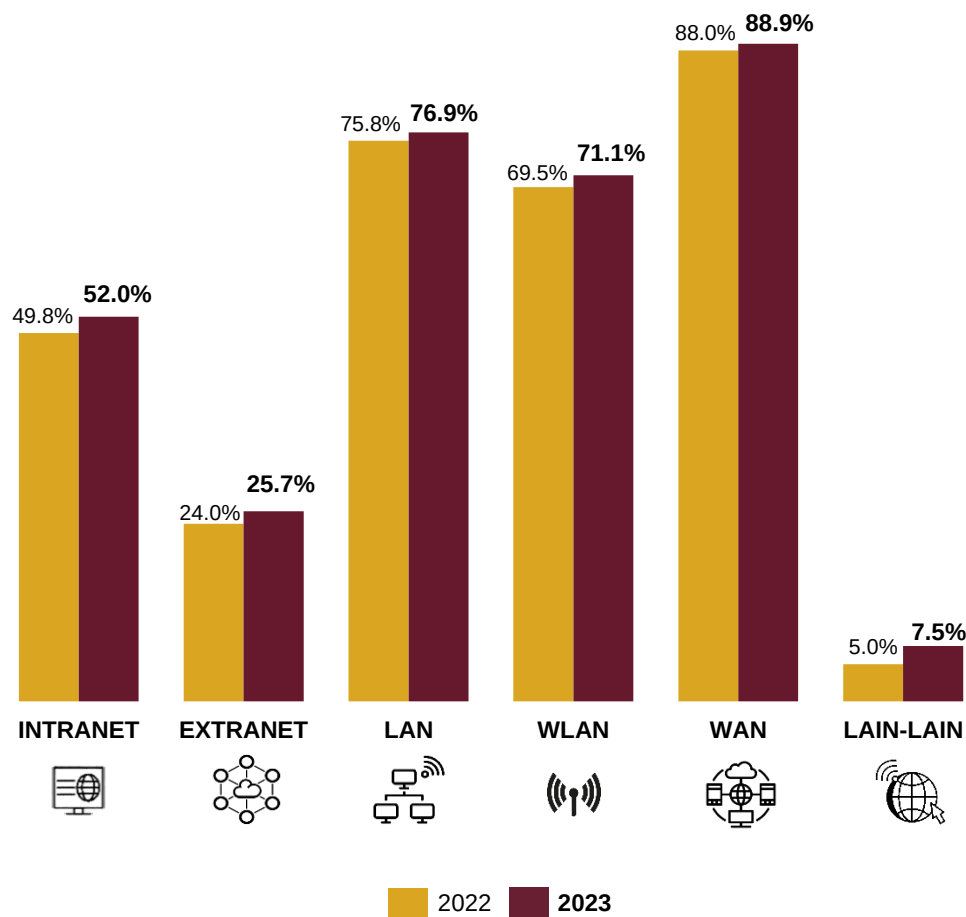
Rajah 4.5: Jenis Pemilikan *Web Presence* mengikut Sektor, 2022 dan 2023



4.3.4 INFRASTRUKTUR RANGKAIAN KOMPUTER

Penggunaan infastruktur rangkaian komputer pada tahun 2023 meningkat berbanding tahun sebelumnya. Penggunaan rangkaian Kawasan Luas (WAN) mencatatkan 88.9 peratus, meningkat daripada 88.0 peratus pada tahun 2022. Rangkaian Kawasan Tempatan (LAN) mencatatkan 76.9 peratus, meningkat sedikit daripada 75.8 peratus pada tahun sebelumnya. Begitu juga dengan Rangkaian yang meningkat kepada 71.1 peratus berbanding 69.5 peratus pada 2022. Intranet kekal relevan dengan penggunaan sebanyak 52.0 peratus pada tahun 2023, meningkat berbanding tahun sebelumnya iaitu 49.8 peratus, manakala Extranet turut mencatatkan peningkatan sebanyak 25.7 peratus pada tahun 2023 daripada 24.0 peratus pada tahun 2022. Statistik dalam **Carta 4.9** memaparkan peningkatan jenis penggunaan infrastruktur rangkaian komputer bagi tahun 2022 dan 2023.

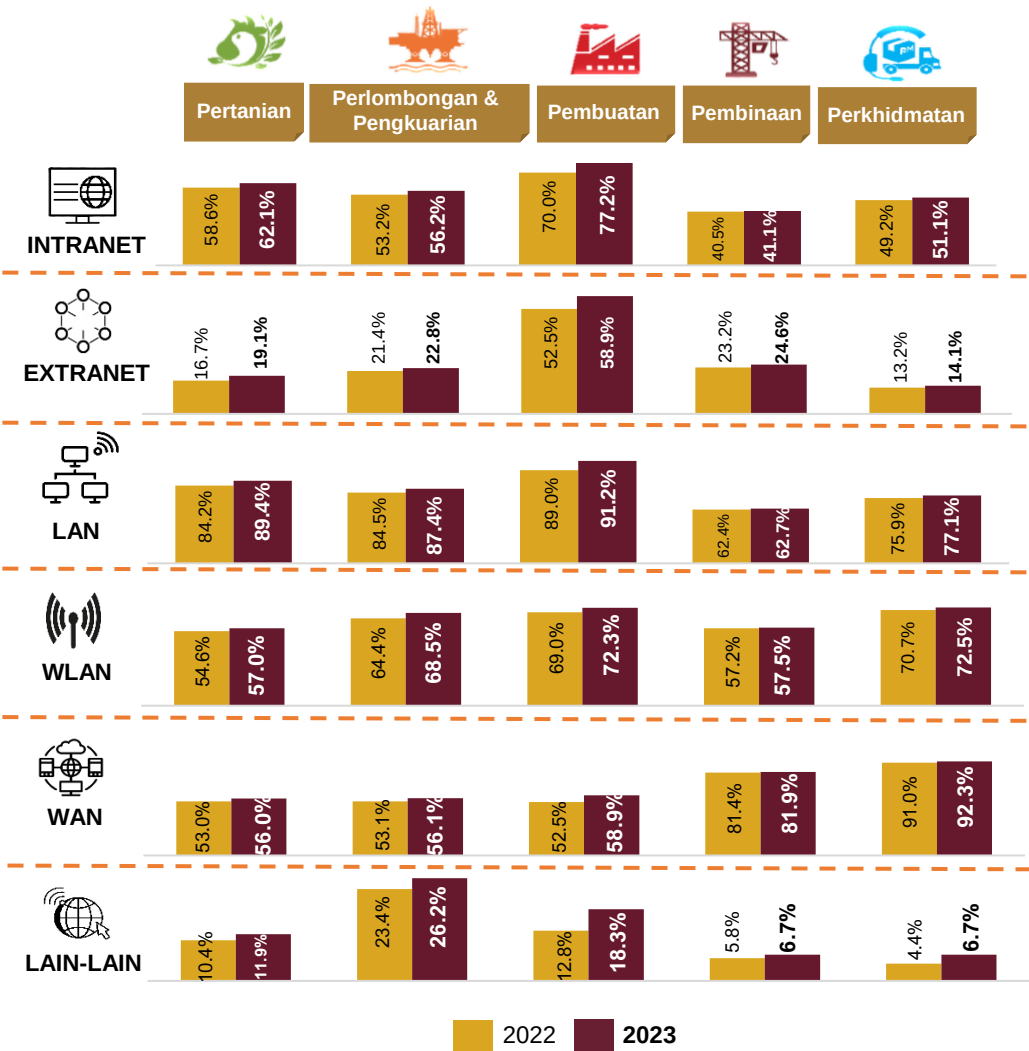
Carta 4.9: Jenis Penggunaan Infrastruktur Rangkaian Komputer, 2022 dan 2023



4.3.5 INFRASTRUKTUR RANGKAIAN KOMPUTER MENGIKUT SEKTOR

Sektor Pembuatan mencatatkan kadar tertinggi dalam penggunaan teknologi rangkaian bagi Intranet iaitu 77.2 peratus, Extranet dengan nilai 58.9 peratus dan LAN sebanyak 91.2 peratus pada **Rajah 4.6**. Sektor Perkhidmatan merekodkan kadar penggunaan WAN dan WLAN tertinggi iaitu masing-masing sebanyak 92.3 peratus dan 72.5 peratus. Ini menunjukkan keperluan yang semakin meningkat terhadap infrastruktur rangkaian berskala besar bagi menyokong perkhidmatan digital dan meningkatkan interaksi pelanggan. Bagi kategori infrastruktur Lain-lain, sektor perlombongan & pengkuarian merekodkan penggunaan tertinggi sebanyak 26.2 peratus merangkumi Rangkaian Kawasan Metropolitan (MAN), Rangkaian Kawasan Storan (SAN) dan Rangkaian Kawasan Peribadi (PAN), yang masing-masing mempunyai tujuan jaringan yang berbeza berdasarkan peranan dan kapasiti.

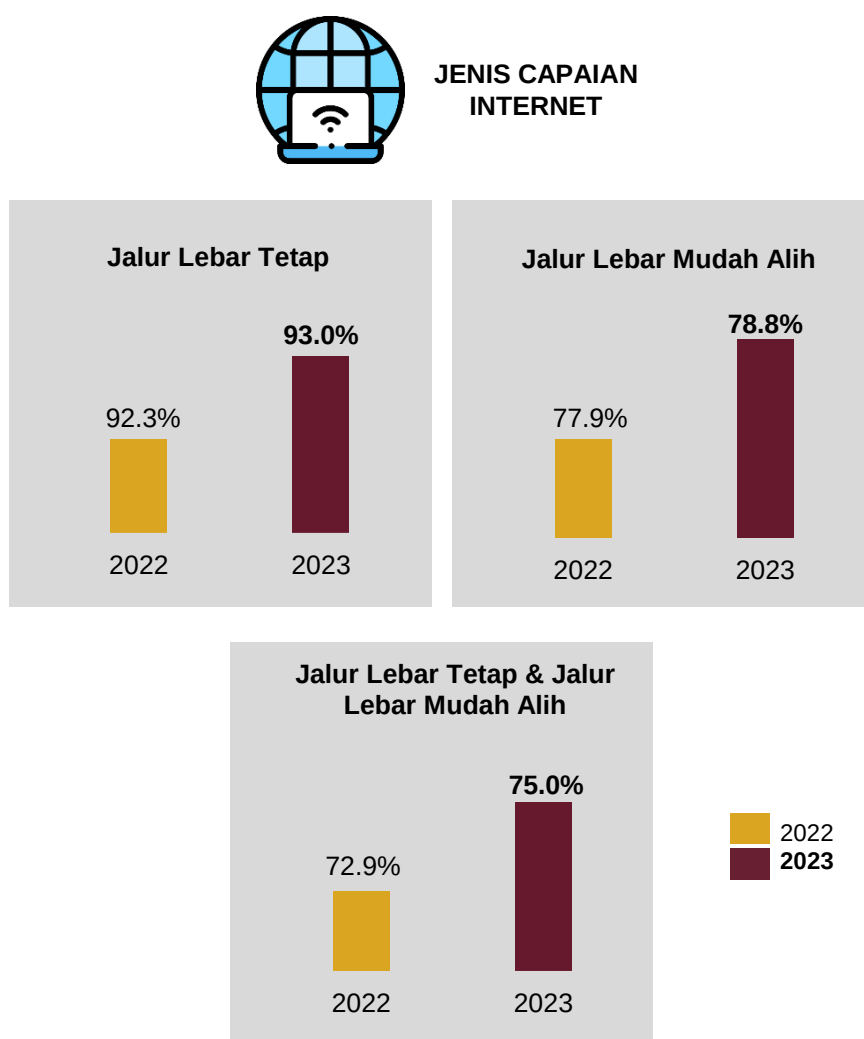
Rajah 4.6: Jenis Penggunaan Infrastruktur Rangkaian Komputer mengikut Sektor, 2022 dan 2023



4.3.6 JENIS CAPAIAN INTERNET

Pada tahun 2023, sebanyak 93.0 peratus pertubuhan menggunakan jalur lebar tetap, menunjukkan peningkatan berbanding 92.3 peratus pada tahun 2022. Penggunaan jalur lebar mudah alih turut meningkat kepada 78.8 peratus daripada 77.9 peratus pada tahun sebelumnya. Sementara itu, bagi kedua-dua jenis jalur lebar tetap dan mudah alih mencatatkan 75.0 peratus pada tahun 2023, meningkat daripada 72.9 peratus pada tahun 2022. Perubahan dalam jenis capaian internet ini menggambarkan peningkatan berterusan dalam penggunaan sambungan internet yang lebih fleksibel dan menyeluruh, seperti yang digambarkan dalam **Rajah 4.7**.

Rajah 4.7: Jenis Capaian Internet mengikut Sektor 2022 dan 2023



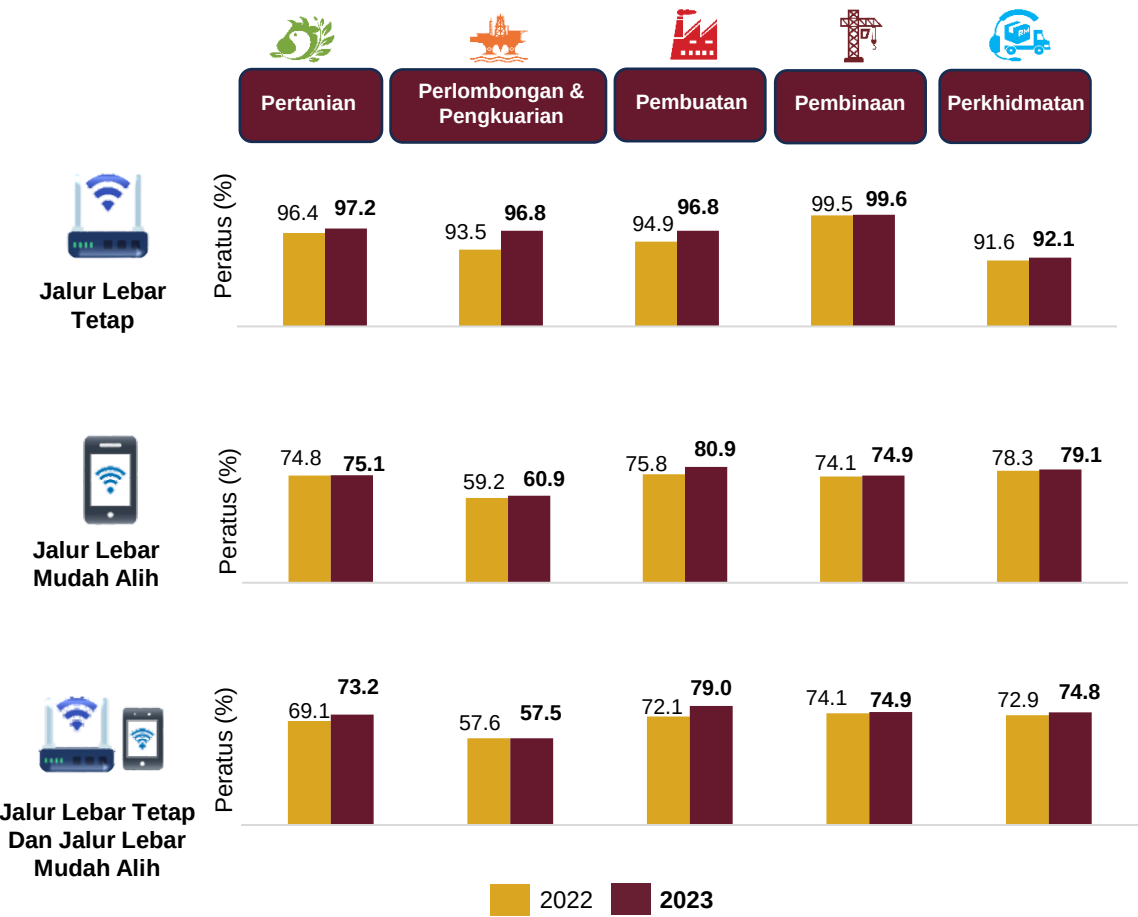
4.3.7 JENIS CAPAIAN INTERNET MENGIKUT SEKTOR

Rajah 4.8 menunjukkan jenis capaian internet mengikut sektor pada tahun 2022 dan 2023. Sektor Pembinaan mencatatkan penggunaan jalur lebar tetap tertinggi pada 2023 dengan mencapai 99.6 peratus, meningkat daripada 99.5 peratus pada tahun 2022. Sektor Pertanian mencatatkan peningkatan 97.2 peratus daripada 96.4 peratus tahun sebelumnya.

Bagi jalur lebar mudah alih, sektor Pembuatan mencatatkan kadar tertinggi pada tahun 2023 iaitu 80.9 peratus meningkat daripada 75.8 peratus pada tahun 2022. Sektor Perkhidmatan mencatatkan 79.1 peratus berbanding 78.3 peratus pada tahun sebelumnya.

Sektor Pembuatan mencatatkan nilai tertinggi dengan 79.0 peratus berbanding 72.1 peratus pada tahun sebelumnya bagi penggunaan jalur lebar tetap dan jalur lebar mudah alih. Selain itu, sektor Pembinaan mencatatkan peningkatan 74.9 peratus pada tahun 2023 daripada tahun sebelumnya 2022, dengan nilai 74.1 peratus.

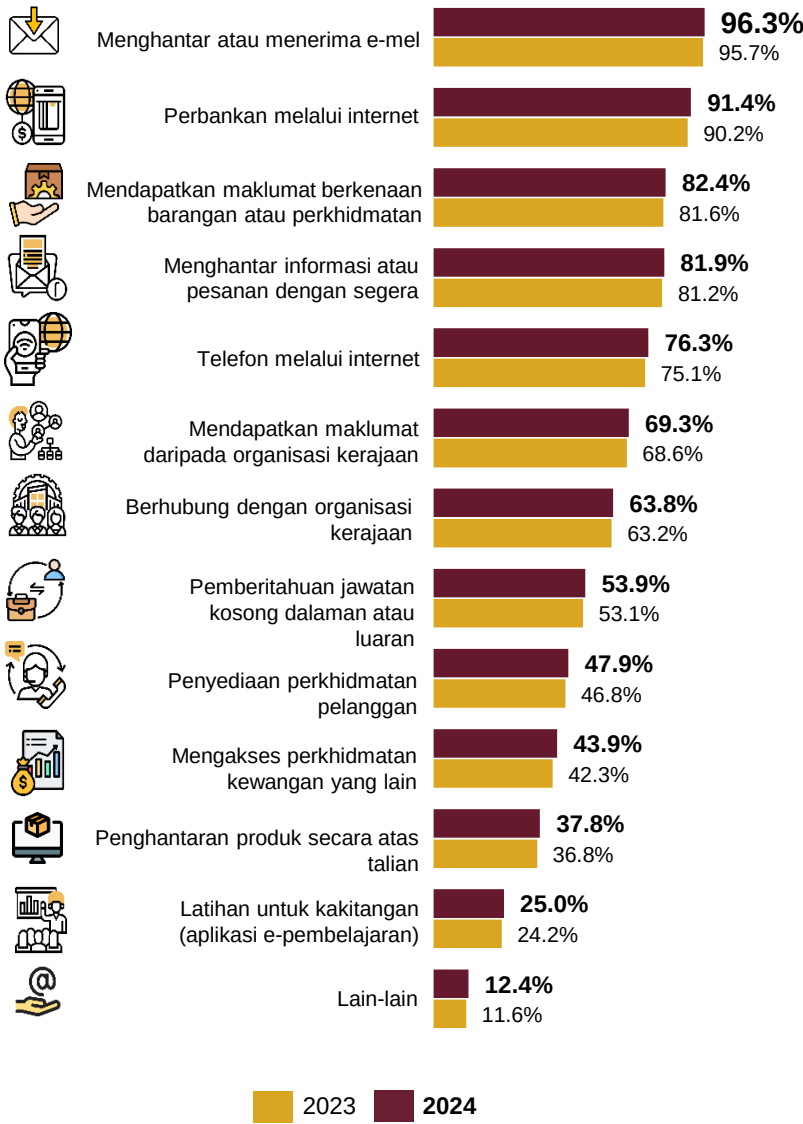
Rajah 4.8: Jenis Capaian Internet mengikut Sektor, 2022 dan 2023



4.3.8 TUJUAN PENGGUNAAN INTERNET

Tujuan utama penggunaan internet adalah untuk menghantar atau menerima e-mel, mencatatkan 96.3 peratus pada tahun 2023 meningkat daripada 95.7 peratus pada tahun 2022. Penggunaan bagi perbankan melalui internet mencatat 91.4 peratus pada tahun 2023 berbanding 90.2 peratus pada tahun sebelumnya, menunjukkan penerimaan meluas terhadap transaksi kewangan digital.

Carta 4.10: Tujuan Penggunaan Internet oleh Pertubuhan, 2022 dan 2023

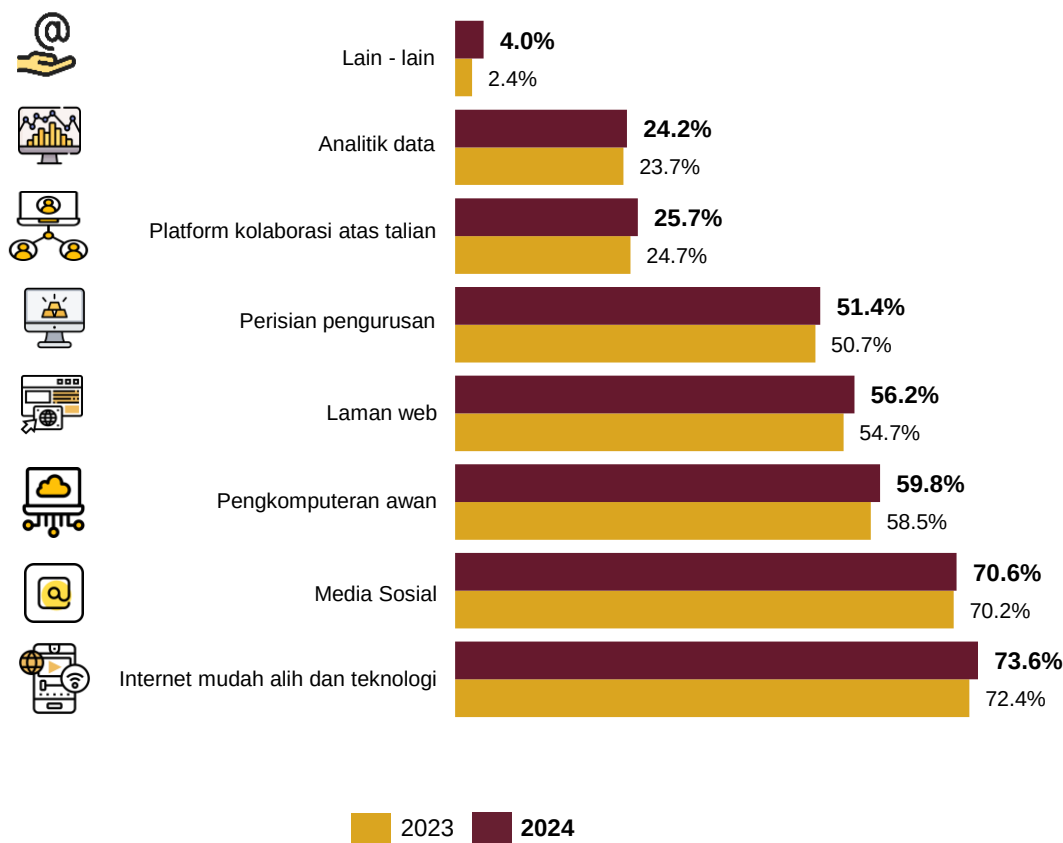


4.3.9 PENGGUNAAN TEKNOLOGI DIGITAL

Carta 4.11 menunjukkan penggunaan teknologi digital oleh pertubuhan pada tahun 2022 dan 2023. Internet mudah alih dan teknologi mencatatkan penggunaan teknologi digital tertinggi iaitu, 73.6 peratus meningkat daripada 72.4 peratus pada tahun sebelumnya. Media sosial turut menunjukkan peningkatan dengan 70.6 peratus pada tahun 2023 berbanding tahun 2022 yang merekodkan 70.2 peratus. Pengkomputeran awam meningkat dengan kadar penggunaan sebanyak 59.8 peratus berbanding 58.5 peratus pada tahun sebelumnya.

Penggunaan laman web mencatatkan peningkatan 56.2 peratus berbanding tahun sebelumnya iaitu 54.7 peratus, manakala perisian pengurusan mencapai peningkatan dengan 51.4 peratus pada tahun 2023 berbanding 50.7 peratus pada tahun 2022.

Carta 4.11: Penggunaan Teknologi Digital, 2022 dan 2023



Nota:
Sumber: Penggunaan ICT & E-Dagang oleh Pertubuhan, 2024

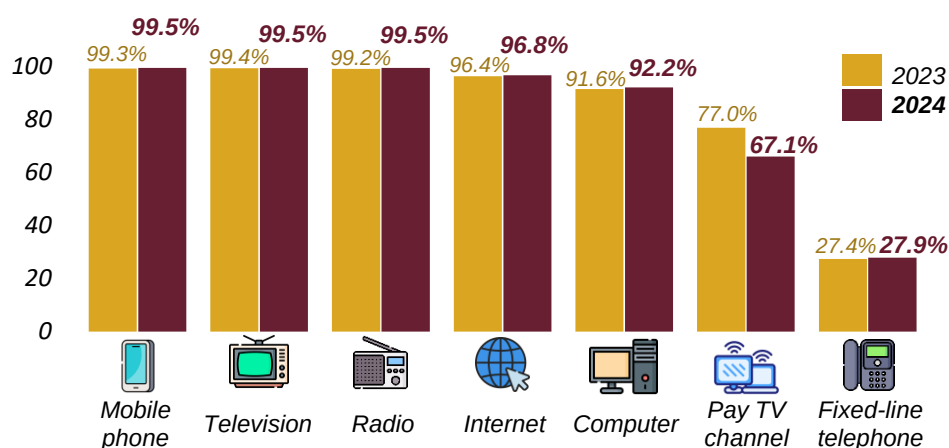
4. ACCESS AND USAGE OF ICT

This report presents the findings of the ICT Use and Access by Individuals and Households (ICTHS) conducted in 2024. The findings provide the latest statistics on households access and individual usage of ICT equipment and services in Malaysia.

4.1 ACCESS TO ICT EQUIPMENT AND SERVICES BY HOUSEHOLDS

There are seven statistics on access to ICT equipment and services by households included in this report. A household is considered to have access to ICT equipment and services if they are still functional at the time the survey is conducted. Overall, in 2024, all ICT equipment and services recorded an increase except for pay TV channel, which showed a notable decline of 9.9 percentage points to 67.1 per cent (2023: 77.0%). The highest percentage access by households were recorded for mobile phone, television and radio, each at 99.5 per cent followed by the Internet (96.8%), computer (92.2%) and fixed-line telephone (27.9%) as shown in **Chart 4.1**.

Chart 4.1: Percentage of Households with Access to ICT Equipment and Services, Malaysia, 2023 and 2024

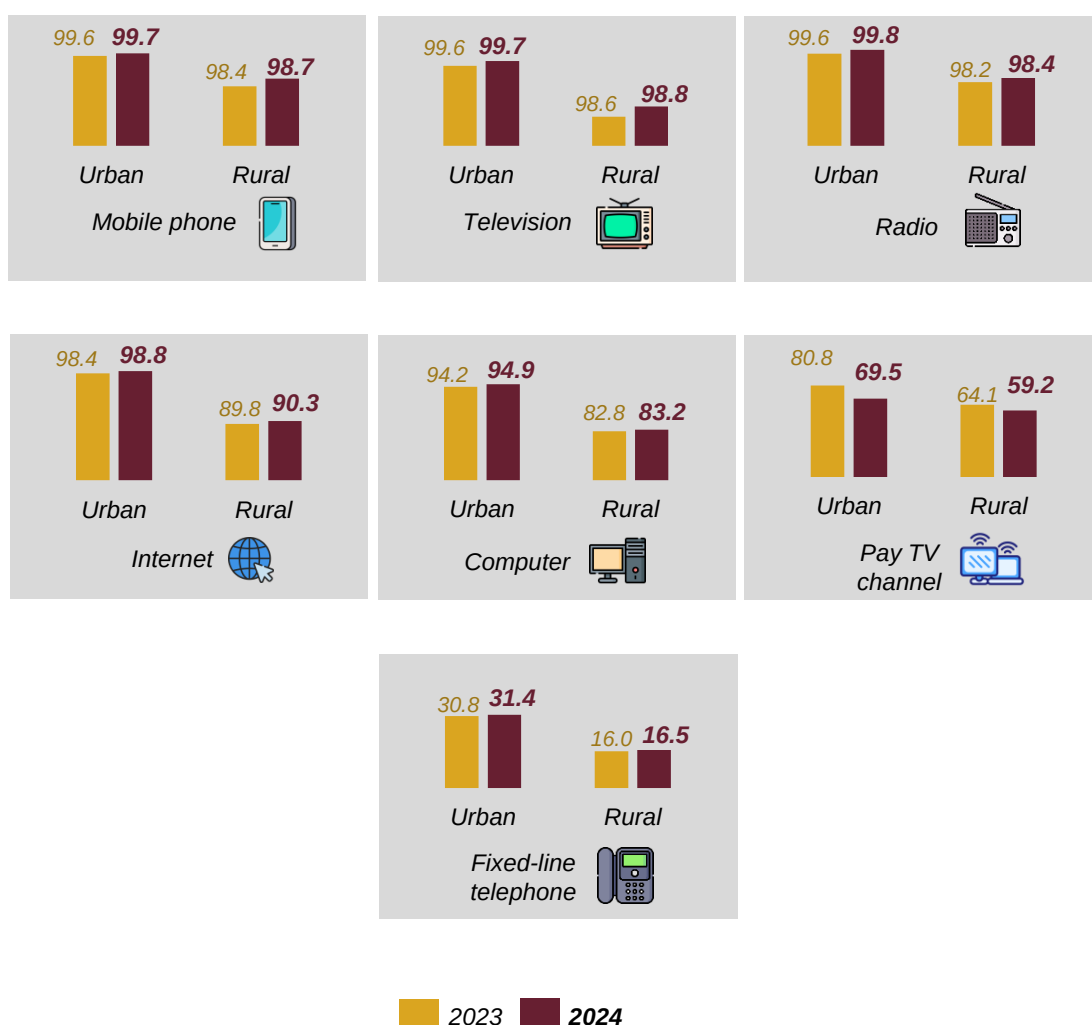


4.1.1 HOUSEHOLDS WITH ACCESS TO ICT EQUIPMENT AND SERVICES BY STRATA

Access to radio had the highest percentage at 99.8 per cent, followed by television (99.7%), mobile phone (99.7%), Internet (98.8%), computer (94.9%), pay TV channel (69.5%) and fixed-line telephone (31.4%).

Furthermore, rural households also showed a notable increase in access to ICT equipment and services such as television (98.8%), mobile phone (98.7%), radio (98.4%), Internet (90.3%), computer (83.2%), pay TV channel (59.2%) and fixed-line telephone (16.5%) as shown in **Chart 4.2**.

Chart 4.2: Percentage of Households with Access to ICT Equipment and Services by Strata, Malaysia, 2023 and 2024



4.2 USE OF ICT EQUIPMENT AND SERVICES BY INDIVIDUALS

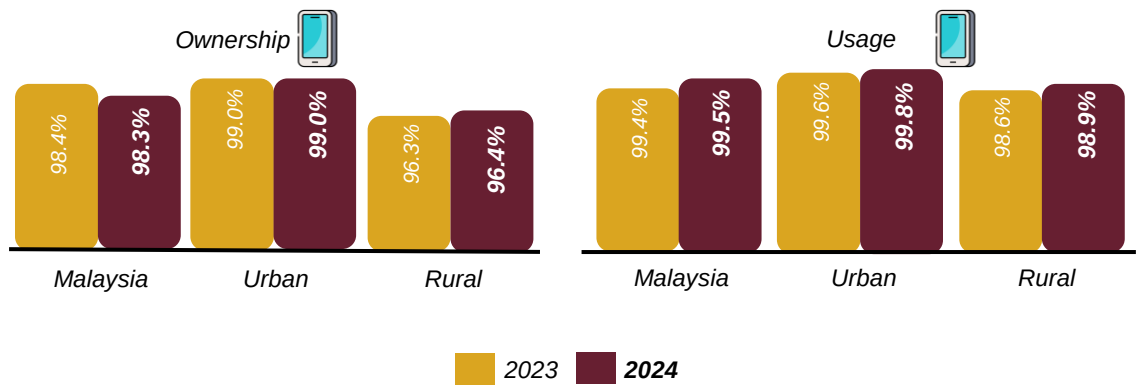
The measurement of ICT equipment and service usage by individuals includes mobile phone usage and ownership, computer usage and Internet usage among the population in Malaysia aged 15 years and above.

Usage refers to the use of ICT equipment and services by individuals regardless of location, and is not limited to use at their place of residence. Meanwhile, mobile phone ownership refers to individuals who possess a mobile phone along with an active Subscriber Identity Module (SIM) card for personal use.

4.2.1 MOBILE PHONE OWNERSHIP AND USAGE

Mobile phone ownership by individuals in 2024 showed a marginal decrease of 0.1 percentage points to 98.3 per cent driven by decrease of mobile phone ownership in urban (0.0 percentage points). However, mobile phone ownership in rural recorded an increase of 0.1 percentage points (96.4%). Meanwhile, mobile phone usage by individuals recorded an increase to 99.5 per cent as compared to the previous year (99.4%). This increase was driven by a rise in mobile phone usage in both urban (0.2 percentage points; 99.8%) and rural areas (0.3 percentage points; 98.9%) as shown in **Chart 4.3**.

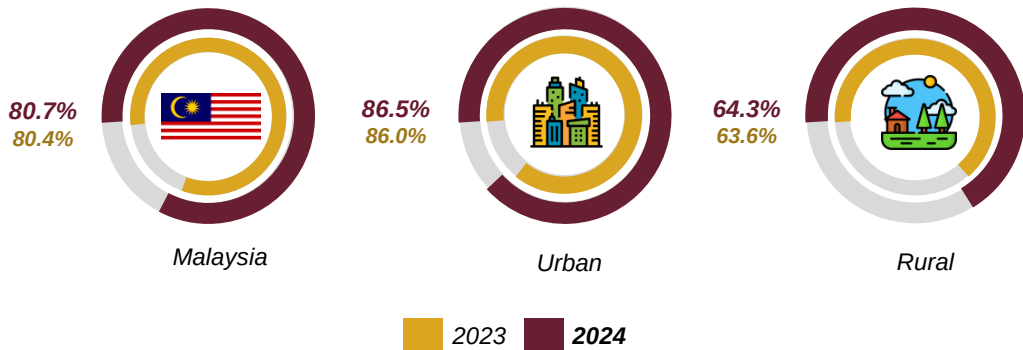
Chart 4.3: Percentage of Individuals Owning and Using Mobile Phone by Strata, Malaysia, 2023 and 2024



4.2.2 COMPUTER USAGE

Computer usage includes personal computer, laptop or tablet. Computer usage showed an increase of 0.3 percentage points to 80.7 per cent as compared to 80.4 per cent in 2023. This increase was contributed by a rise in computer usage in urban by 0.5 percentage points (86.5%) and in rural by 0.7 percentage points (64.3%) as shown in **Figure 4.1**.

Figure 4.1: Percentage of Individuals Using Computer by Strata, Malaysia, 2023 and 2024

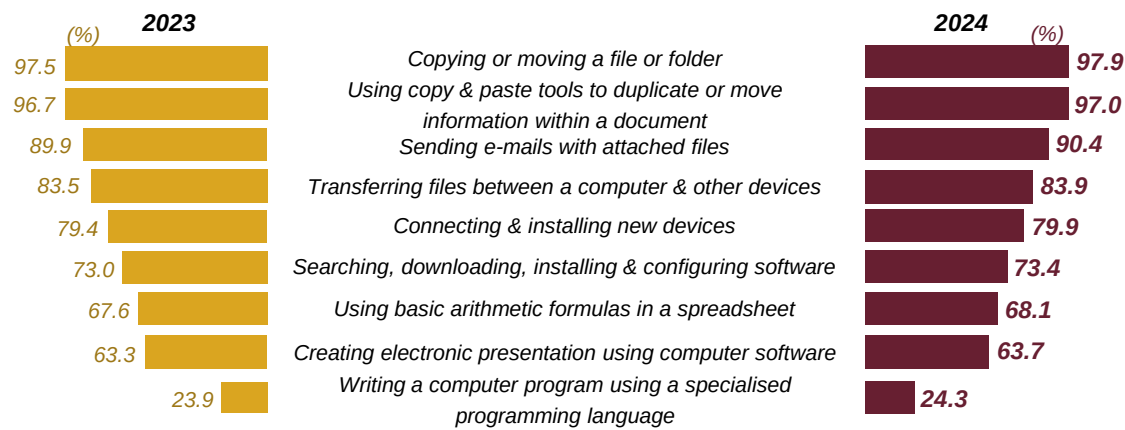


4.2.2.1 ICT SKILLS

ICT skills are one of the indicators monitored in the Sustainable Development Goals (SDG) Indicator 4.4.1 which measures the proportion of youth and adults with information and communications technology (ICT) skills. For ICTHS, nine types of ICT skills were measured.

Four activities recorded percentages exceeding 80.0 per cent in 2024 which were copying or moving a file or folder (97.9%) followed by using copy & paste tools to duplicate or move information within a document (97.0%), sending e-mails with attached files (90.4%), and transferring files between a computer & other mobile devices (83.9%). The lowest percentage was recorded for writing a computer program using a specialised programming language at 24.3 per cent as shown in **Chart 4.4**.

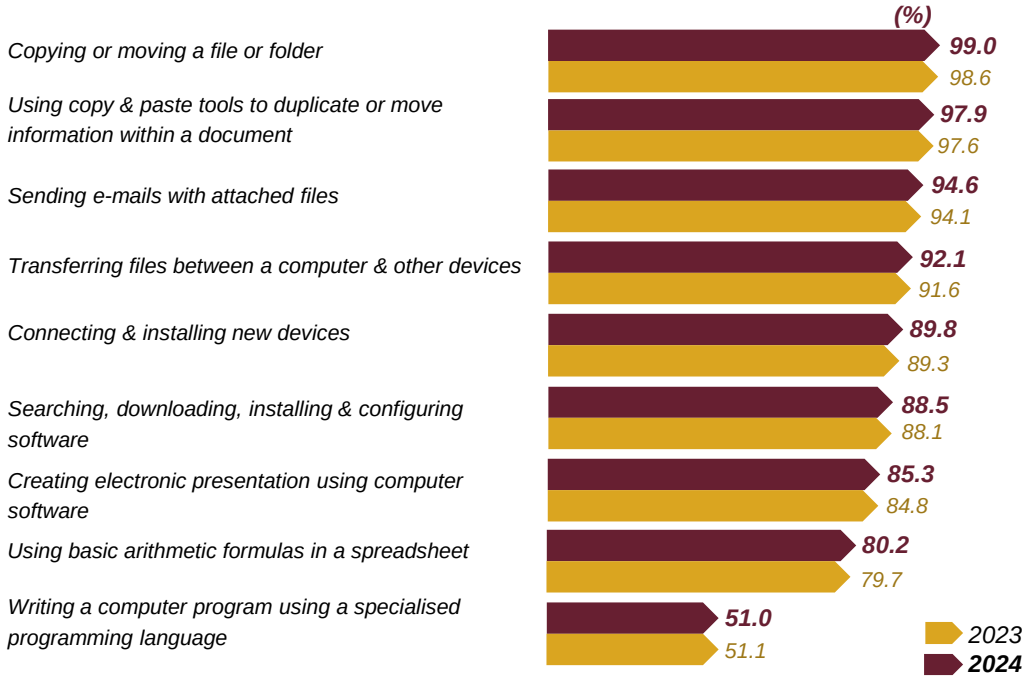
Chart 4.4: Percentage of Individuals Using Computer by ICT Skills, Malaysia, 2023 and 2024



4.2.2.2 COMPUTER SKILLS BY YOUTH

This report also displayed statistics on computer skills among youth individuals aged 15 to 24 years. Overall, almost all computer skills recorded percentages exceeding 80.0 per cent except writing a computer program using a specialised programming language (51.0%). Three skills with the highest percentages were using a computer to copy or transfer file or folder (99.0%), followed by using copy & paste tools to duplicate or move information within a document (97.9%), and sending emails with attachments (94.6%), as shown in **Chart 4.5**.

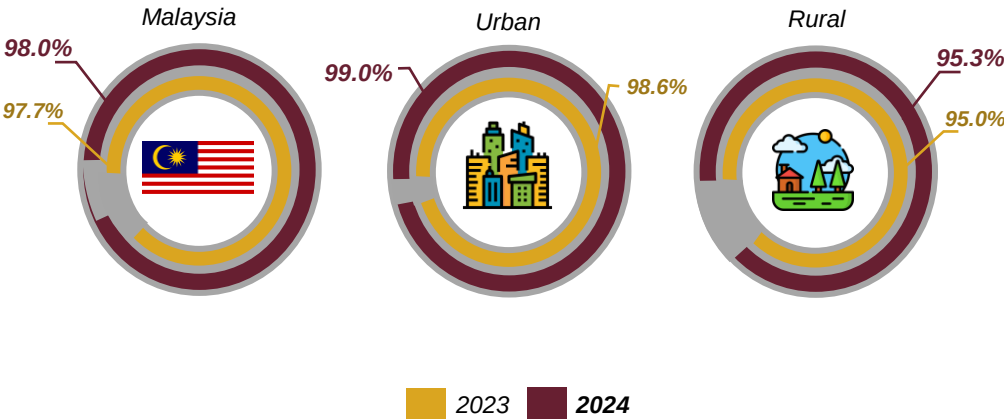
Chart 4.5: Percentage of Youth Using Computer by ICT skills, Malaysia, 2023 and 2024



4.2.3 INTERNET USAGE

Internet usage is also reflected in SDG under goal 17, Indicator 17.8.1 Proportion of individuals using the Internet. In Malaysia, Internet usage showed an increase of 0.3 percentage points to 98.0 per cent as compared to 97.7 per cent in 2023. This increase was influenced by a rise in Internet usage in urban by 0.4 percentage points (99.0%) and in rural by 0.3 percentage points (95.3%) as shown in **Figure 4.2**.

Figure 4.2: Percentage of Individuals Using Internet by Strata, Malaysia, 2023 and 2024

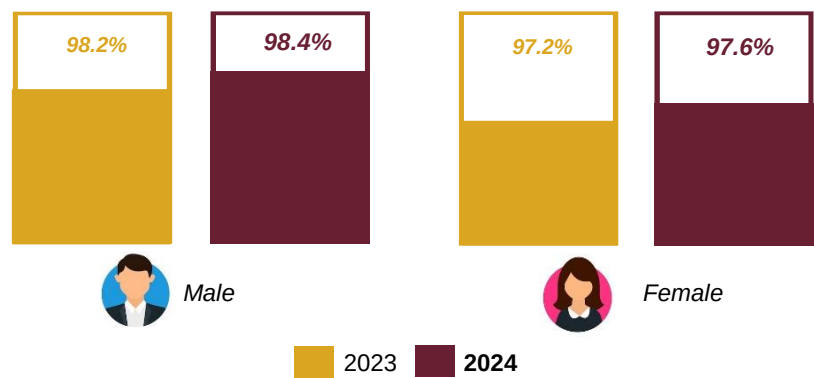


4.2.3.1 INTERNET USAGE BY SEX

A comparison by sex showed that Internet usage for male registered a higher rate at 98.4 per cent as compared to female 97.6 per cent in 2024.

The percentage difference between the two sexes narrowed by 0.8 percentage points in 2024 as compared to the previous year's gap of 1.0 percentage points. This development reflects an improvement in digital equity between male and female as shown in **Chart 4.6**.

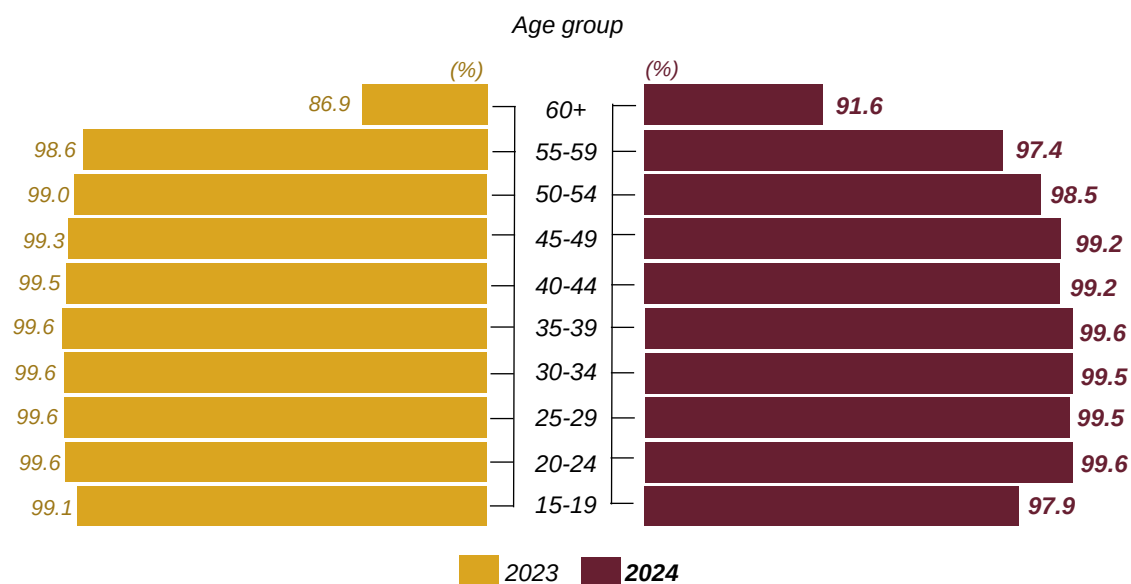
Chart 4.6: Percentage of Individuals Using the Internet by Sex, Malaysia, 2023 and 2024



4.2.3.2 INTERNET USAGE BY AGE GROUP

Overall, all age groups recorded Internet usage rates exceeding 90.0 per cent. The highest percentage of Internet users was observed in the 20-24 and 35-39 age groups, both at 99.6 per cent followed by the 25-29 and 30-34 age groups at 99.5 per cent. However, Internet usage among those aged 15-19 declined to 97.9 per cent (2023: 99.1%). Meanwhile, the age group 60 and above recorded a notable increase compared to the previous year, reaching 91.6 per cent (2023: 86.9%) as shown in **Chart 4.7**.

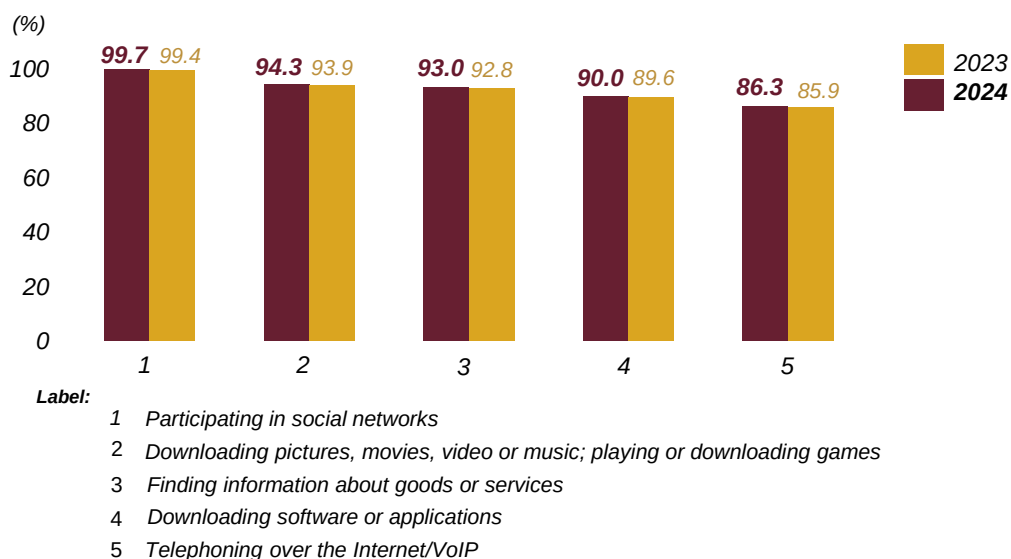
Chart 4.7: Percentage of Individuals Using the Internet by Age Group, Malaysia, 2023 and 2024



4.2.3.3 Internet Usage by Activities

The most popular Internet usage activity in 2024 was participating in social networks with 99.7 per cent followed by downloading pictures, movies, videos or music; playing or downloading games (94.3%), finding information about goods or services (93.0%), downloading software or applications (90.0%), and making phone calls via Internet/ VoIP (86.3%) as shown in Chart 4.8.

Chart 4.8: Percentage of Individuals Using the Internet by Top Five Internet Activities, Malaysia, 2023 and 2024



Note:

Each individuals can choose more than one Internet activities

Source: ICT Use And Access By Individuals and Households Survey Report, 2024

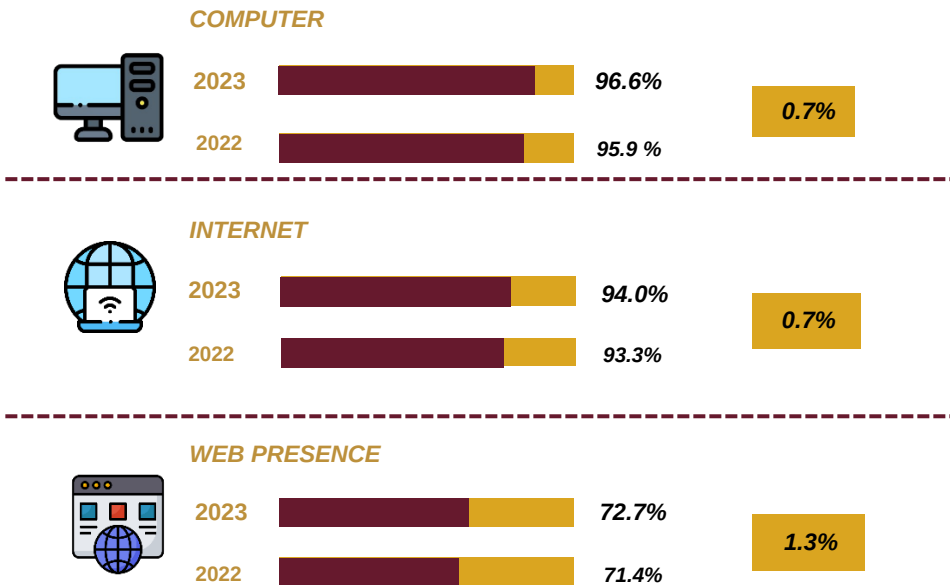
4.3 USAGE OF ICT BY ESTABLISHMENTS

Usage of ICT and E-Commerce (ICTEC) by Establishment 2024 publication highlights the statistics on Usage of ICT and E-Commerce in Malaysia based on the reference year 2023. This publication encompasses five key economic sectors which include Agriculture, Mining & quarrying, Manufacturing, Construction and Services.

4.3.1 USAGE OF ICT

There were 96.6 per cent of establishments in 2023 used computers including personal computers, laptops and tablets, indicating a 0.7 per cent point change increase compared to 95.9 per cent in 2022. A similar improvement was seen in usage of internet, with 94.0 per cent of establishments have internet access, compared to 93.3 per cent from a year before. These change were inline with government efforts to improve digital access across the country. Additionally, a significant increase was recorded in establishments with web presence, which rose to 72.7 per cent from 71.4 per cent in 2022, as illustrated in **Figure 4.3**.

Figure 4.3: Usage of Computer, Internet and Web Presence, 2023 and 2024

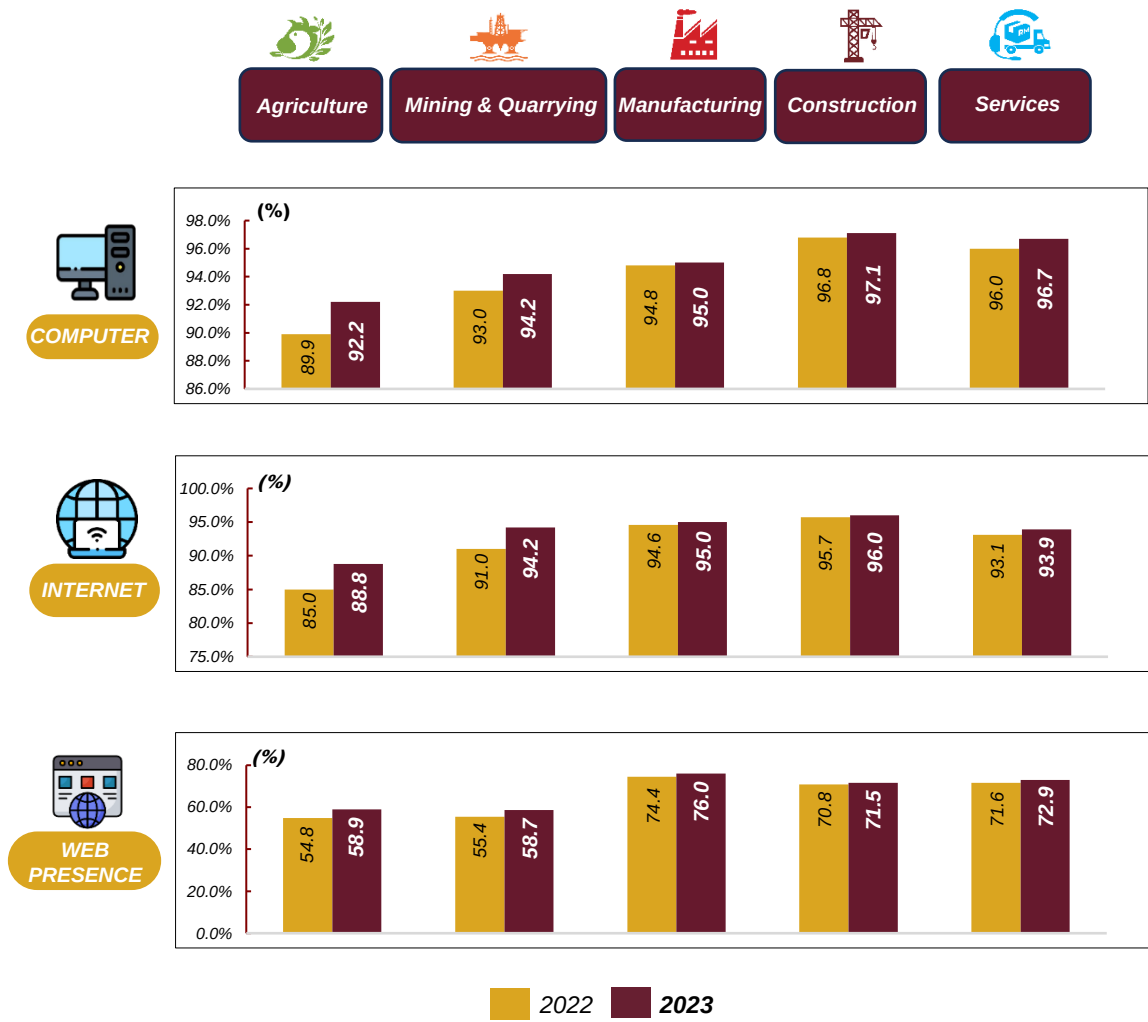


4.3.2 USAGE OF ICT BY SECTOR

Figure 4.4 illustrates the usage of computer, internet, and web presence by sector in year 2022 and 2023. The Construction sector recorded the highest rate of computer usage with 97.1 per cent, rose from 96.8 per cent in 2022. This sector also led in internet usage at 96.0 per cent, which increased from 95.7 per cent from previous year.

Meanwhile, the Manufacturing sector reported the highest web presence with 76.0 per cent in 2023, rising from 74.4 per cent in 2022. This growth reflects industry owners' sustained efforts to adopt digital technologies, enhancing their establishments' competitiveness.

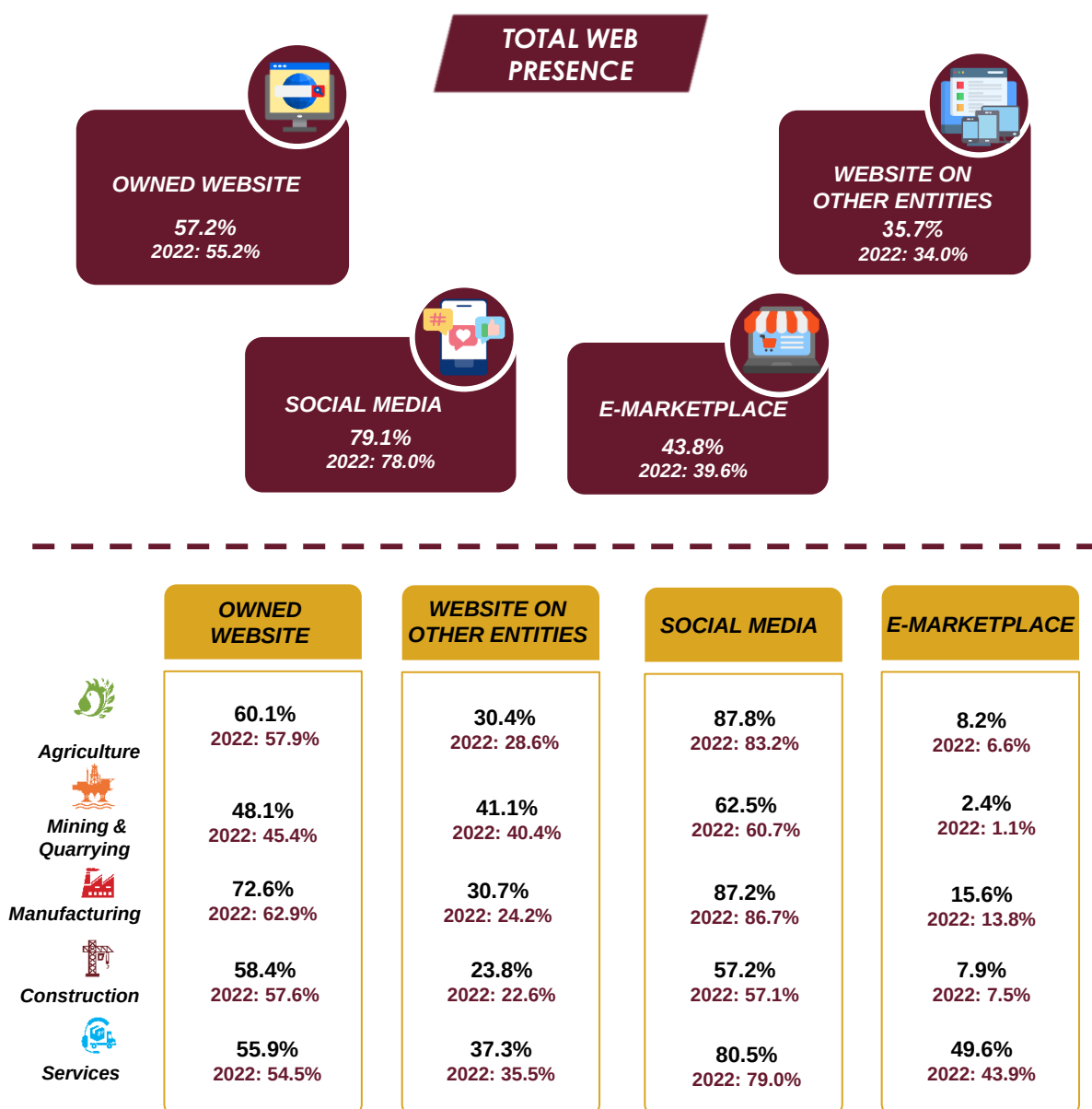
Figure 4.4: Percentage Usage of Computer, Internet and Web Presence by Sector, 2022 and 2023



4.3.3 TYPES OF WEB PRESENCE OWNERSHIP BY SECTOR

Figure 4.5 details the types of web presence owned by establishments according to sectors. Manufacturing sector led the highest usage of owned websites at 72.6 per cent. In contrast, Mining & quarrying sector showed the highest reliance on websites hosted by other entities, registering 41.1 per cent. Agriculture sector registered the highest preference for social media as their primary web presence with 87.8 per cent. Concurrently, Services sector exhibited growth in e-marketplace usage, which rose to 49.6 per cent in year 2023 compared to 43.9 per cent in year 2022.

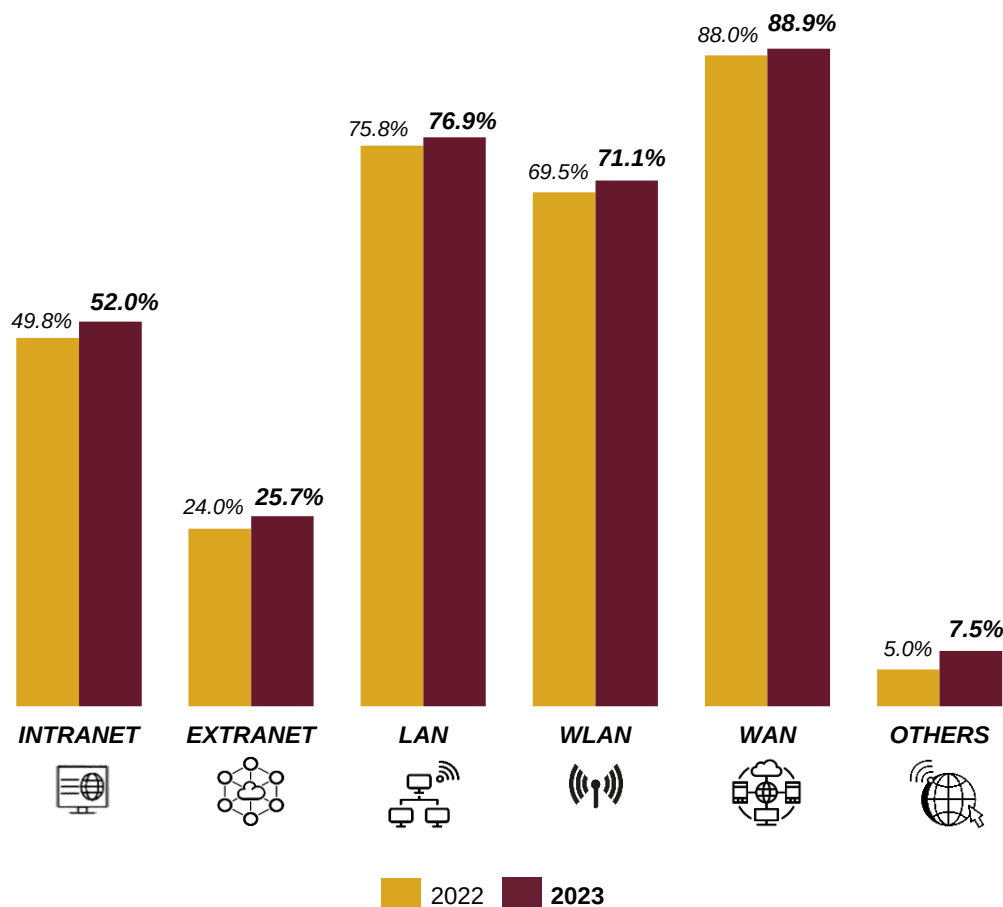
Figure 4.5 : Types of Web Presence Ownership by Sector, 2022 and 2023



4.3.4 COMPUTER NETWORK INFRASTRUCTURE

The adoption of computer network infrastructure showed an increase in 2023 compared to the previous year. Usage of Wide Area Network (WAN) reported at 88.9 per cent, up from 88.0 per cent in 2022. Local Area Network (LAN) usage maintained at 76.9 per cent, marking a slight rise from 75.8 per cent. Similarly, Wireless Local Area Network (WLAN) usage grew to 71.1 per cent from 69.5 per cent in 2022. Intranet usage stayed at maintain relevance at 52.0 per cent in 2023 increased from 49.8 per cent compared to previous year, while Extranet recorded a modest growth to 25.7 per cent in 2023 from 24.0 per cent in 2022. As illustrated in **Chart 4.9**, these statistics highlight the increase in the types of computer network infrastructure usage in 2022 and 2023.

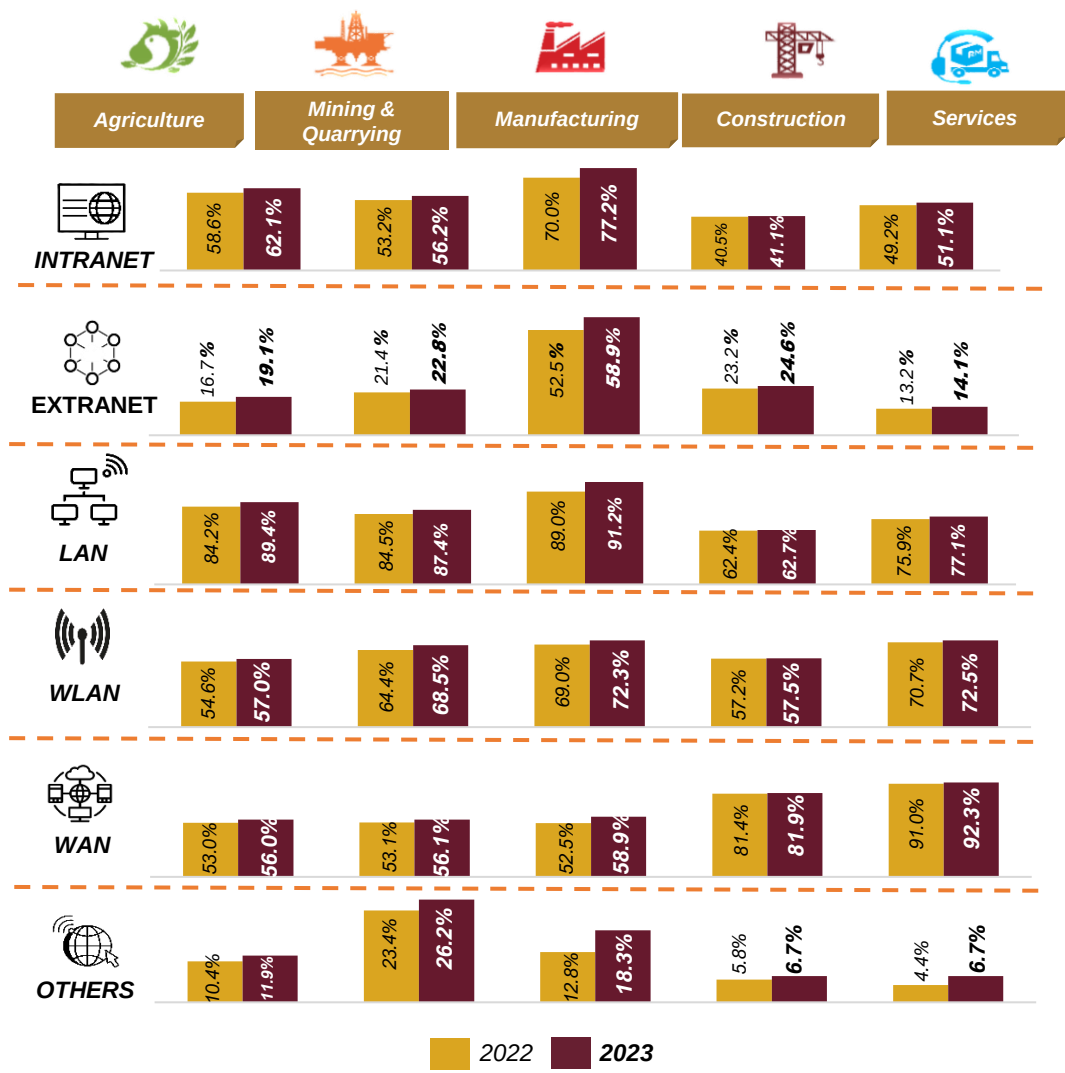
Chart 4.9: Types of Computer Network Infrastructure Usage, 2022 and 2023



4.3.5 COMPUTER NETWORK INFRASTRUCTURE BY SECTOR

Manufacturing sector recorded the highest adoption rates of network technologies, with Intranet usage at 77.2 per cent, Extranet at 58.9 per cent, and LAN at 91.2 per cent in **Figure 4.6**. Services sector recorded the highest usage of WAN and WLAN with 92.3 per cent and 72.5 per cent, respectively. This indicates a growing need for large-scale network infrastructure to support digital services and enhanced customer interactions. Meanwhile, Mining & quarrying sector reported the highest usage of other network infrastructure types with 26.2 per cent includes the Metropolitan Area Network (MAN), Storage Area Network (SAN), and Personal Area Network (PAN), each serving different connectivity purposes based on their specific roles and capacities.

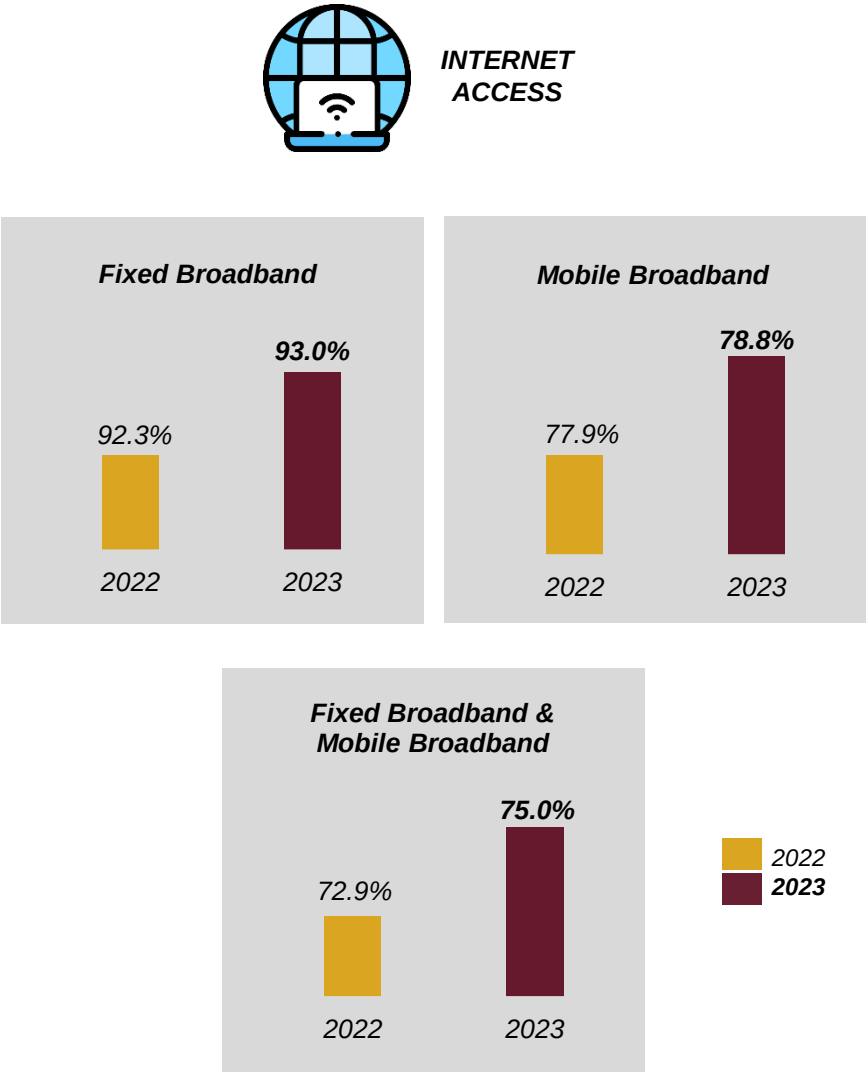
Figure 4.6: Types of Computer Network Infrastructure Usage by Sector, 2022 and 2023



4.3.6 TYPES OF INTERNET ACCESS

In 2023, a total of 93.0 per cent of establishments used fixed broadband, shows an increase from 92.3 per cent in 2022. Mobile broadband usage also rose to 78.8 per cent, up from 77.9 per cent a year before. Meanwhile, the use of both fixed and mobile broadband connections grow to 75.0 per cent in year 2023, compared to 72.9 per cent in year 2022. The shift in types of internet access reflects a continued increase in the use of more flexible and comprehensive internet connectivity, as illustrated in **Figure 4.7**.

Figure 4.7: Types of Internet Access by Sector, 2022 and 2023

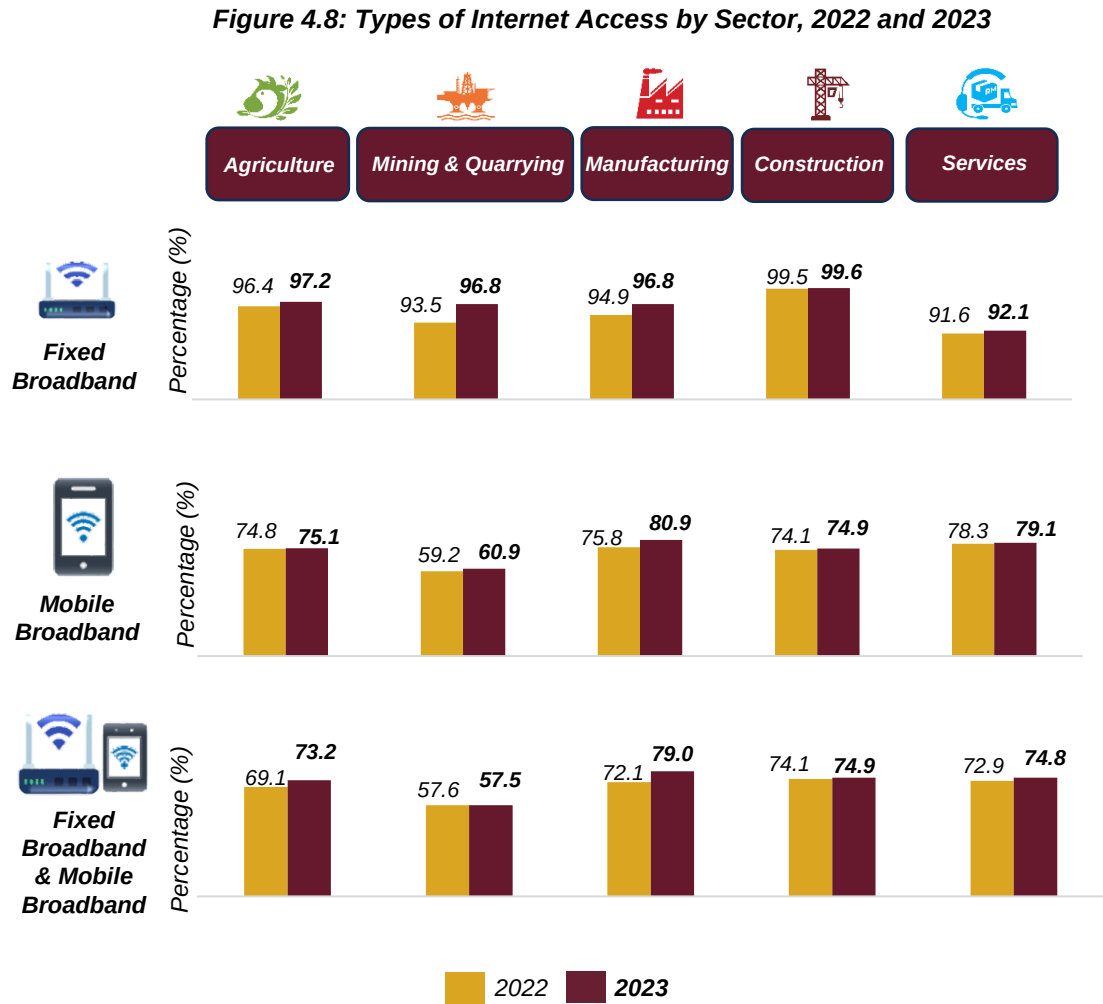


4.3.7 TYPES OF INTERNET ACCESS BY SECTOR

Figure 4.8 shows the internet access types by sector for 2022 and 2023. Construction sector recorded the highest fixed broadband usage in 2023, achieving 99.6 per cent, an increase from 99.5 per cent in 2022. Agriculture sector also experienced growth, rising to 97.2 per cent from 96.4 per cent the previous year.

For mobile broadband, Manufacturing sector led with 80.9 per cent in 2023, increased from 75.8 per cent in 2022. Services sector recorded 79.1 per cent, with a slight rose from 78.3 per cent from the preceding year.

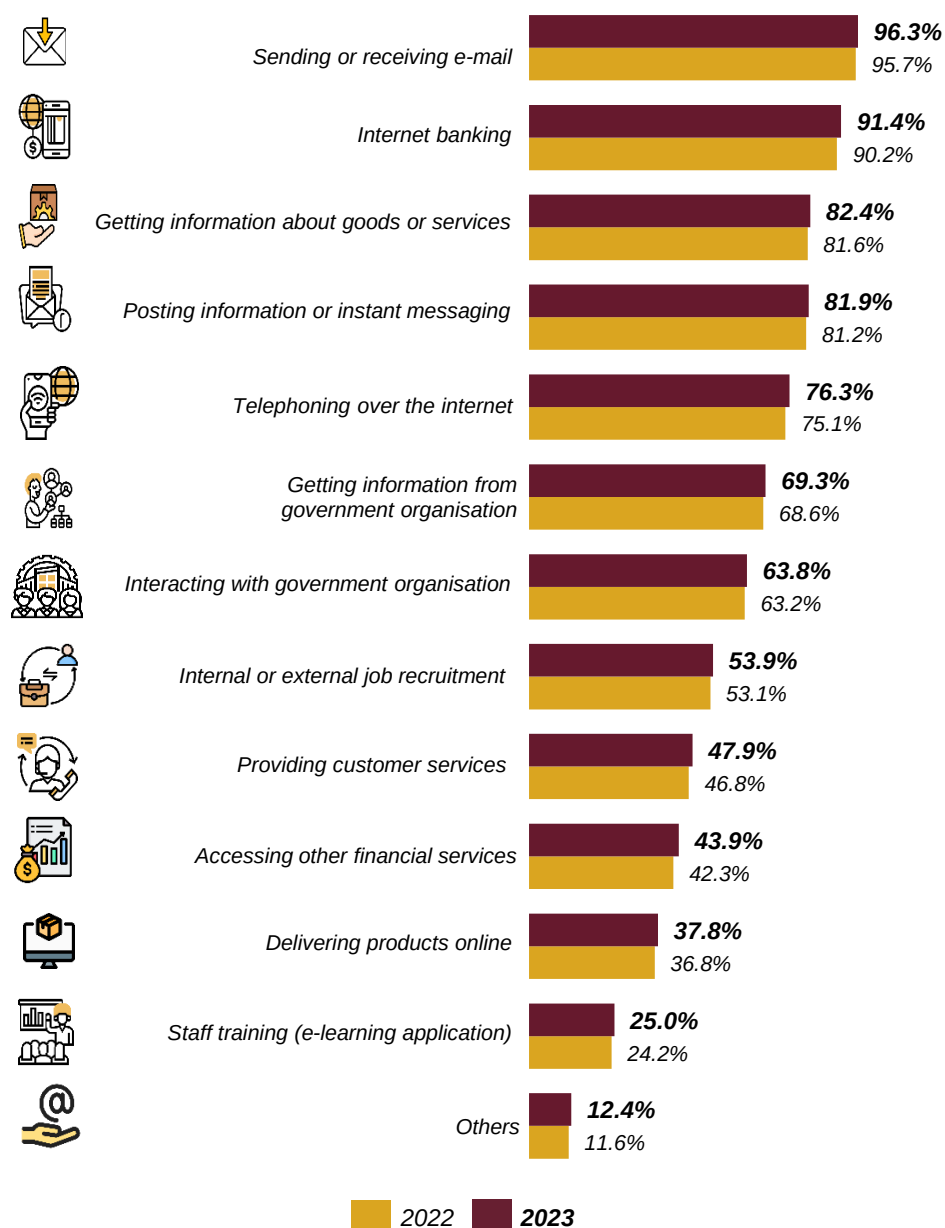
Manufacturing sector registered the highest value at 79.0 per cent, up from 72.1 per cent in previous year for the usage of both type broadband. Furthermore, the Construction sector reported an increased at 74.9 per cent, from 74.1 per cent compared to the previous year.



4.3.8 PURPOSE OF INTERNET USAGE

The primary purpose of internet usage among establishments in 2023 was to send or receive emails, recorded at 96.3 per cent, up from 95.7 per cent in 2022. Internet banking usage also increased to 91.4 per cent in 2023 compared to 90.2 per cent in the previous year, indicating broader acceptance of digital financial transactions.

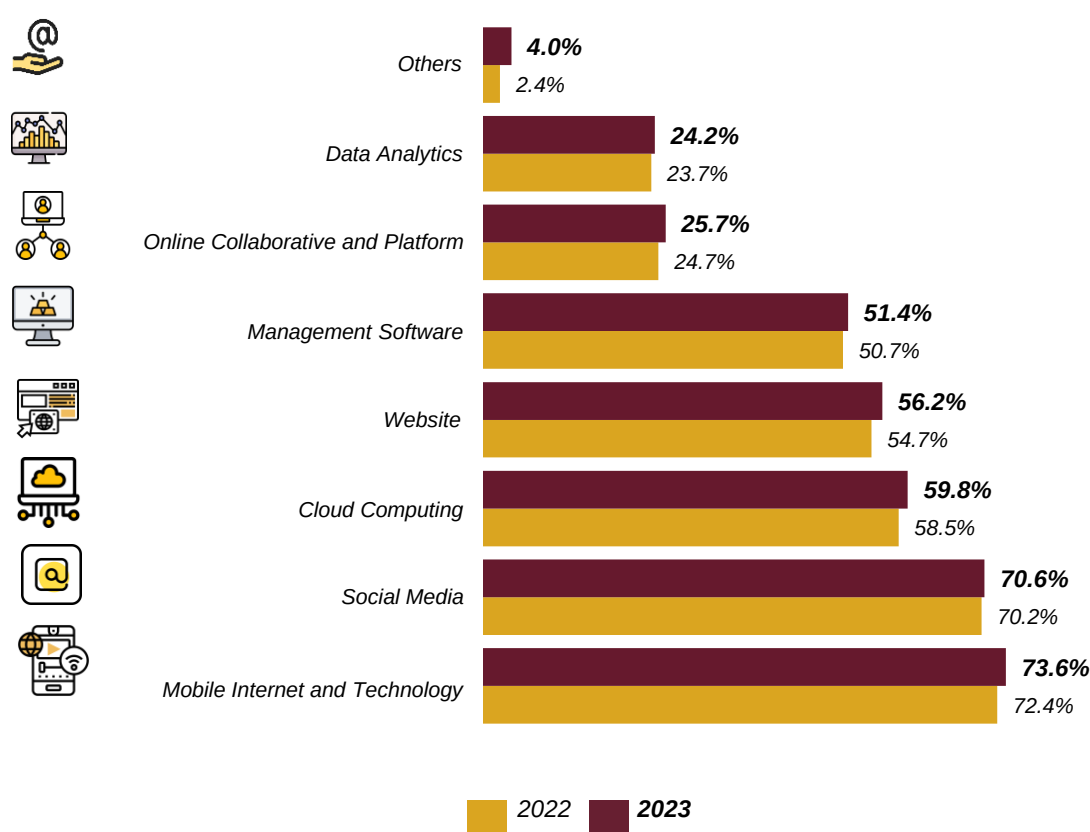
Chart 4.10: Purpose of Internet Usage by Establishments, 2022 and 2023



4.3.9 **USAGE OF DIGITAL TECHNOLOGY**

Chart 4.11 shows the usage of digital technologies by establishments in 2022 dan 2023. Mobile internet and technology remained the most adopted digital solution in 2023, with usage rising to 73.6 per cent from 72.4 per cent in 2022. Social media adoption also increased marginally to 70.6 per cent from 70.2 per cent in 2022, while cloud computing saw an uptake of 59.8 per cent, compared to 58.5 per cent in the previous year. Website usage rose to 56.2 per cent compared to 54.7 per cent in 2022, while the adoption of management software increased to 51.4 per cent from 50.7 per cent in 2022.

Chart 4.11: Usage of Digital Technology, 2022 and 2023



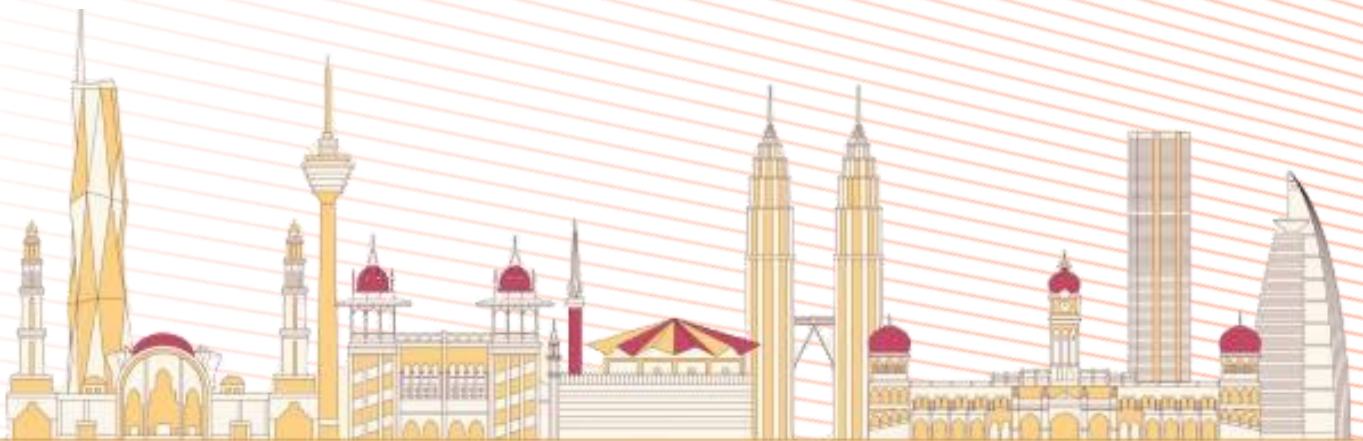
Note:
Source: Usage of ICT & E-Commerce by Establishment, 2024

BAB 5

CHAPTER

FAKTA LAIN EKONOMI DIGITAL MALAYSIA

OTHER FACTS ON MALAYSIA DIGITAL ECONOMY



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5. FAKTA LAIN MENGENAI EKONOMI DIGITAL MALAYSIA

Maklumat berkenaan prestasi serta perkembangan Ekonomi Digital Malaysia boleh diakses daripada pelbagai sumber dengan skop dan fokus yang berbeza. Suruhanjaya Komunikasi dan Multimedia Malaysia (SKMM) telah menerbitkan petunjuk Komunikasi & Multimedia melalui papan pemuka interaktif mereka iaitu Fakta dan Angka yang terdiri daripada statistik berkaitan bilangan langganan, kadar penembusan dan indeks ICT berkaitan.

5.1 KADAR PENEMBUSAN

Tahun	Suku Tahun	Jalur Lebar Tetap bagi 100 Premis	Jalur Lebar Mudah Alih bagi 100 Penduduk	Selular Mudah Alih bagi 100 Penduduk	TV Berbayar bagi 100 Isi Rumah
		(%)			
2021	1	39.0	120.1	135.7	82.6
	2	41.0	124.2	139.8	82.6
	3	39.9	127.4	142.1	82.2
	4	40.8	126.4	144.0	80.1
2022	1	42.9	124.1	139.2	78.4
	2	45.3	127.9	143.1	82.6
	3	46.4	128.9	143.7	81.4
	4	47.6	131.0	145.3	80.6
2023	1	48.6	132.0	146.7	79.6
	2	49.1	133.3	148.1	78.5
	3	49.9	133.8	148.6	77.3
	4	50.6	134.5	148.7	76.4
2024	1	46.9	132.1	146.7	68.7
	2	47.5	132.5	147.3	66.9
	3	48.2	132.0	145.4	66.0
	4	48.7	131.1	146.4	65.4
2025	1	48.4	130.8	146.0	64.8
	2	48.8	129.3	144.9	64.1

Nota:

Semua kadar penembusan adalah data anggaran unjuran penduduk seperti pada penghujung tempoh berdasarkan Banci 2020 oleh Jabatan Perangkaan Malaysia (DOSM). kecuali untuk S4 2021 & S1 2022, angka populasi dianggarkan menggunakan anggaran dalaman SKMM.

Kadar penembusan jalur lebar dikira berdasarkan bilangan langganan jalur lebar tetap dengan kelajuan sama atau lebih daripada 1Mbit/s dan jalur lebar mudah alih dengan kelajuan sama atau lebih daripada 650kbit/s.

Kadar penembusan jalur lebar tetap bagi 100 premis termasuklah bilangan langganan isi rumah dan bukan isi rumah. Bilangan langganan isi rumah merangkumi kediaman manakala bilangan langganan bukan isi rumah merangkumi perniagaan, kerajaan, organisasi dan lain-lain.

Bermula suku tahun pertama 2021, metodologi pengiraan jumlah premis telah dipinda dengan mengambil kira jumlah data premis perdagangan dan industri dari Pusat Maklumat Harta Tanah Negara (NAPIC) dan data fasiliti awam dari Jabatan Perangkaan Malaysia (DOSM).

Jumlah campuran mungkin berbeza disebabkan pembundaran.

Sumber: Komunikasi & Multimedia: Fakta dan Angka Terpilih (sehingga Jun 2025)

5.2 LANGGANAN JALUR LEBAR

Tahun	Suku Tahun	Bilangan Langganan		
		Jalur Lebar Tetap	Jalur Lebar Mudah Alih	Jumlah
		('000)		
2021	1	3,512.4	39,340.6	42,852.2
	2	3,679.6	40,571.7	44,251.0
	3	3,585.0	41,630.0	45,214.7
	4	3,727.4	42,016.1	45,743.5
2022	1	3,847.5	41,447.9	45,295.2
	2	3,975.2	41,768.6	45,743.8
	3	4,101.1	42,372.4	46,473.5
	4	4,220.5	43,239.5	47,460.0
2023	1	4,327.9	43,770.8	48,098.8
	2	4,402.3	44,486.0	48,888.3
	3	4,488.7	44,770.1	49,258.8
	4	4,574.1	45,333.9	49,908.0
2024	1	4,616.4	44,894.8	49,511.2
	2	4,679.2	45,128.4	49,807.6
	3	4,757.5	45,023.2	49,780.7
	4	4,815.0	44,782.9	49,597.9
2025	1	4,867.3	44,709.1	49,576.4
	2	4,915.1	44,257.8	49,172.9

Nota:

Jalur lebar tetap merujuk kepada kadar penembusan bagi 100 premis.

Jalur lebar mudah alih dan selular mudah alih merujuk kepada kadar penembusan bagi 100 penduduk.

Sumber: Komunikasi & Multimedia: Fakta dan Angka Terpilih (sehingga Jun 2025)

5.3 BILANGAN LANGGANAN TV BERBAYAR DAN KADAR PENEMBUSAN

Tahun	Suku Tahun	Bilangan Langganan TV Berbayar			Kadar Penembusan bagi 100 Isi Rumah
		Isi Rumah	Bukan Isi Rumah	Jumlah	
		('000)			
2021	1	6,810.0	9.5	6,819.3	82.6
	2	6,787.2	7.6	6,794.3	82.6
	3	6,754.2	7.7	6,761.2	82.2
	4	6,692.0	8.4	6,699.6	80.1
2022	1	6,621.3	8.2	6,628.8	78.4
	2	6,584.6	8.3	6,592.9	82.6
	3	6,536.9	8.6	6,545.5	81.4
	4	6,536.9	8.6	6,545.5	80.6
2023	1	6,449.4	9.3	6,458.7	79.6
	2	6,396.9	9.1	6,406.0	78.5
	3	6,315.4	9.1	6,324.5	77.3
	4	6,294.1	9.0	6,303.1	76.4
2024	1	6,212.9	8.9	6,221.7	68.7
	2	6,065.1	9.3	6,074.4	66.9
	3	5,993.9	9.4	6,003.4	66.0
	4	5,948.2	9.7	5,957.9	65.4
2025	1	5,926.6	9.4	5,936.0	64.8
	2	5,869.5	9.7	5,879.2	64.1

Nota:

TV Berbayar termasuk Televisyen Protokol Internet (IPTV) dan TV Satelit

TV Berbayar merujuk kepada kadar penembusan bagi 100 isi rumah

Sumber: Komunikasi & Multimedia: Fakta dan Angka Terpilih (sehingga Jun 2025)

5.4 TANDATANGAN DIGITAL - BILANGAN SIJIL DIKELUARKAN MENGIKUT JENIS

Tahun	Suku Tahun	Lain-lain ¹	Domestik		Jumlah
			Kerajaan	Korporat	
		('000)			
2021	1	54.6	566.6	15,314.0	15,935.1
	2	54.6	592.7	15,922.4	16,569.7
	3	55.4	622.7	16,126.3	16,804.4
	4	57.3	646.0	16,208.1	16,911.4
2022	1	59.8	674.8	16,738.4	17,473.0
	2	61.6	696.4	17,469.5	18,227.5
	3	61.6	744.4	17,654.0	18,460.0
	4	61.6	778.4	17,735.8	18,575.8
2023	1	60.5	812.4	18,330.1	19,203.0
	2	60.5	873.8	18,956.6	19,890.9
	3	60.5	989.2	19,174.0	20,223.7
	4	128.8	1,218.5	20,229.3	21,576.6
2024	1	128.8	1,218.5	20,238.3	21,585.6
	2	497.0	1,360.0	21,192.5	23,049.5
	3	837.1	1,542.0	21,527.4	23,906.5
	4	1,561.6	1,737.5	21,898.2	25,197.3
2025	1	2,149.5	1,878.2	22,692.6	26,720.4
	2	2,842.8	2,030.3	23,548.9	28,422.1

Nota:

¹ Lain-lain termasuk Domestik - Individu, Luar Negara - Korporat dan Luar Negara - Kerajaan

Sumber: Komunikasi & Multimedia: Fakta dan Angka Terpilih (sehingga Jun 2025)

5.5 LIPUTAN 4G DAN 5G

Tahun	Liputan 4G	Liputan 5G
	(%)	
2018	79.7	N/A
2019	82.2	N/A
2020	93.5	N/A
2021	95.4	4.0
2022	96.9	47.1
2023	97.1	80.2
2024	98.4	82.0
2025*	98.8	82.4

Nota:

- Liputan 4G merujuk kepada peratusan penduduk yang diliputi sekurang-kurangnya oleh rangkaian mudah alih LTE/WiMAX
- Liputan 5G merujuk kepada peratusan penduduk yang diliputi sekurang-kurangnya oleh rangkaian mudah alih 5G
- * Kemaskini sehingga Jun 2025
- Sumber: Komunikasi & Multimedia: Fakta dan Angka Terpilih (sehingga Jun 2025)

5. OTHER FACTS ON MALAYSIA DIGITAL ECONOMY

Information on Malaysia's Digital Economy performance and insights are accessible from various sources with different scopes and focuses. The Malaysian Communications and Multimedia Commission (MCMC) has published Communication & Multimedia indicators through their interactive dashboard namely Facts and Figures which consist of statistics related to number of subscriptions, penetration rates and related ICT indices.

5.1 PENETRATION RATES

Year	Quarter	Fixed Broadband per 100 Premises	Mobile Broadband per 100 Inhabitants	Mobile Cellular per 100 Inhabitants	Pay TV per 100 Households
(%)					
2021	1	39.0	120.1	135.7	82.6
	2	41.0	124.2	139.8	82.6
	3	39.9	127.4	142.1	82.2
	4	40.8	126.4	144.0	80.1
2022	1	42.9	124.1	139.2	78.4
	2	45.3	127.9	143.1	82.6
	3	46.4	128.9	143.7	81.4
	4	47.6	131.0	145.3	80.6
2023	1	48.6	132.0	146.7	79.6
	2	49.1	133.3	148.1	78.5
	3	49.9	133.8	148.6	77.3
	4	50.6	134.5	148.7	76.4
2024	1	46.9	132.1	146.7	68.7
	2	47.5	132.5	147.3	66.9
	3	48.2	132.0	145.4	66.0
	4	48.7	131.1	146.4	65.4
2025	1	48.4	130.8	146.0	64.8
	2	48.8	129.3	144.9	64.1

Note:

All penetration rates are estimated based on population projection as at end of period according to Census 2020 by Department of Statistics, Malaysia (DOSM), except for Q4 2021 & Q1 2022, the population figure is estimated using MCMC internal estimation.

Broadband penetration rate is calculated based on fixed-broadband subscriptions with speed equal or more than 1Mbit/s, and mobile-broadband with speed equal or more than 650kbit/s.

Fixed-broadband penetration rate per 100 premises includes household and non-household subscriptions. Household subscriptions cover residential whereas non-household subscriptions inclusive of businesses, government, organisation etc.

Commencing 10 2021, methodology to calculate total number of premises is revised by including total number of commercial and industrial premises from National Property Information Centre (NAPIC) and public facilities from DOSM.

The added total may differ due to rounding.

Source: Communication & Multimedia Dashboard: Facts & Figures (as at June 2025)

5.2 BROADBAND SUBSCRIPTIONS

Year	Quarter	Number of Subscriptions		
		Fixed Broadband	Mobile Broadband	Total
		('000)		
2021	1	3,512.4	39,340.6	42,852.2
	2	3,679.6	40,571.7	44,251.0
	3	3,585.0	41,630.0	45,214.7
	4	3,727.4	42,016.1	45,743.5
2022	1	3,847.5	41,447.9	45,295.2
	2	3,975.2	41,768.6	45,743.8
	3	4,101.1	42,372.4	46,473.5
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	4	4,574.1	45,333.9	49,908.0
2024	1	4,616.4	44,894.8	49,511.2
	2	4,679.2	45,128.4	49,807.6
	3	4,757.5	45,023.2	49,780.7
	4	4,815.0	44,782.9	49,597.9
2025	1	4,867.3	44,709.1	49,576.4
	2	4,915.1	44,257.8	49,172.9

Note:

Fixed-broadband refers to penetration rate per 100 premises

Mobile-broadband refers to penetration rate per 100 inhabitants

Source: Communication & Multimedia Dashboard: Facts & Figures (as at June 2025)

5.3 NUMBER OF PAY TV SUBSCRIPTIONS AND PENETRATION RATE

Year	Quarter	Number of Pay TV Subscriptions			Penetration Rate per 100 Households
		Households	Non Households	Total	
		('000)			(%)
2021	1	6,810.0	9.5	6,819.3	82.6
	2	6,787.2	7.6	6,794.3	82.6
	3	6,754.2	7.7	6,761.2	82.2
	4	6,692.0	8.4	6,699.6	80.1
2022	1	6,621.3	8.2	6,628.8	78.4
	2	6,584.6	8.3	6,592.9	82.6
	3	6,536.9	8.6	6,545.5	81.4
	4	6,536.9	8.6	6,545.5	80.6
2023	1	6,449.4	9.3	6,458.7	79.6
	2	6,396.9	9.1	6,406.0	78.5
	3	6,315.4	9.1	6,324.5	77.3
	4	6,294.1	9.0	6,303.1	76.4
2024	1	6,212.9	8.9	6,221.7	68.7
	2	6,065.1	9.3	6,074.4	66.9
	3	5,993.9	9.4	6,003.4	66.0
	4	5,948.2	9.7	5,957.9	65.4
2025	1	5,926.6	9.4	5,936.0	64.8
	2	5,869.5	9.7	5,879.2	64.1

Note:

Pay TV is inclusive of Internet Protocol TV (IPTV) and Satellite TV

Pay TV refers to penetration rate per 100 households

Source: Communication & Multimedia Dashboard: Facts & Figures (as at June 2025)

5.4 DIGITAL SIGNATURE - ACCUMULATE NUMBER OF CERTIFICATES ISSUED BY TYPE

Year	Quarter	Others ¹	Domestic		Total
			Government	Corporate	
			('000)		
2021	1	54.6	566.6	15,314.0	15,935.1
	2	54.6	592.7	15,922.4	16,569.7
	3	55.4	622.7	16,126.3	16,804.4
	4	57.3	646.0	16,208.1	16,911.4
2022	1	59.8	674.8	16,738.4	17,473.0
	2	61.6	696.4	17,469.5	18,227.5
	3	61.6	744.4	17,654.0	18,460.0
	4	61.6	778.4	17,735.8	18,575.8
2023	1	60.5	812.4	18,330.1	19,203.0
	2	60.5	873.8	18,956.6	19,890.9
	3	60.5	989.2	19,174.0	20,223.7
	4	128.8	1,218.5	20,229.3	21,576.6
2024	1	128.8	1,218.5	20,238.3	21,585.6
	2	497.0	1,360.0	21,192.5	23,049.5
	3	837.1	1,542.0	21,527.4	23,906.5
	4	1,561.6	1,737.5	21,898.2	25,197.3
2025	1	2,149.5	1,878.2	22,692.6	26,720.4
	2	2,842.8	2,030.3	23,548.9	28,422.1

Note:

1 Others includes Local - Individual, Foreign - Corporate and Foreign - Government

Source: Communication & Multimedia Dashboard: Facts & Figures (as at June 2025)

5.5 4G AND 5G COVERAGE

Year	4G Coverage	5G Coverage
	(%)	
2018	79.7	N/A
2019	82.2	N/A
2020	93.5	N/A
2021	95.4	4.0
2022	96.9	47.1
2023	97.1	80.2
2024	98.4	82.0
2025*	98.8	82.4

Note:

4G coverage refers to percentage of population covered by at least LTE/WIMAX mobile networks

5G coverage refers to percentage of population covered by at least 5G mobile networks

* Update as at June 2025

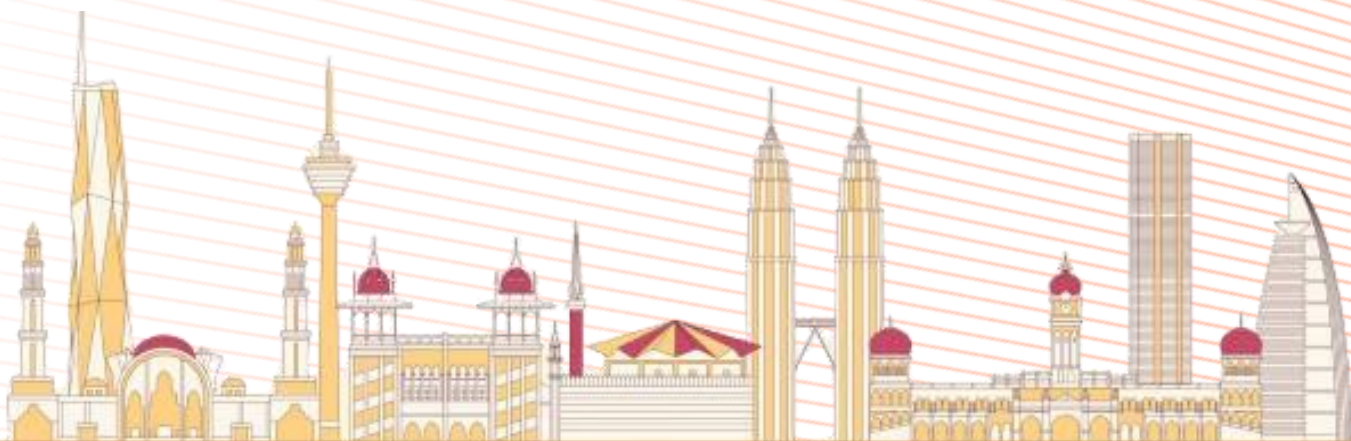
Source: Communication & Multimedia Dashboard: Facts & Figures (as at June 2025)

BAB 6

CHAPTER

RANCANGAN MALAYSIA KETIGA BELAS (RMK13), 2026-2030: EKONOMI DIGITAL

***THE THIRTEENTH MALAYSIA PLAN (RMK13),
2026-2030: DIGITAL ECONOMY***



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6. RANCANGAN MALAYSIA KETIGA BELAS 2026-2030 (RMK13)

Rancangan Malaysia Ketiga Belas, 2026-2030 (RMK13) dengan tema 'Melakar Semula Pembangunan' merupakan tekad berterusan Kerajaan untuk merealisasikan aspirasi Ekonomi MADANI. Pembangunan negara untuk tempoh lima tahun mendatang akan ditunjangi peralihan secara menyeluruh kepada pendigitalan dan teknologi termaju, terutama Kecerdasan Buatan (AI) serta pembangunan sistem sosial berteraskan insan MADANI dengan masyarakat yang bersatu di bawah pendekatan keseluruhan negara. Penstrukturan semula ekonomi yang berlandaskan teknologi dan pembentukan sistem sosial yang utuh merupakan elemen penting dalam membina negara bangsa yang berdaulat dan bermaruah. Peralihan ini memerlukan perancangan dan tindakan yang bersepadu untuk melonjakkan pertumbuhan ekonomi negara seumpama menaikkan siling, meningkatkan darjat hidup rakyat seumpama menaikkan lantai dan memperkukuh penyampaian perkhidmatan ke arah tatakelola terbaik.

6.1 MALAYSIA SEBAGAI NEGARA AI

Aspirasi Malaysia pada tahun 2030 adalah untuk menjadi negara AI yang terangkum dan mampan serta berperanan sebagai hab pengeluar teknologi digital serantau dalam penciptaan inovasi serta penghasilan produk dan perkhidmatan 'Made by Malaysia'. Aspirasi ini adalah sejajar dengan Kerangka Ekonomi MADANI: Memperkasa Rakyat bagi meningkatkan pertumbuhan ekonomi dalam menaikkan siling; mengangkat darjat hidup rakyat dalam menaikkan lantai; dan memperkukuh tatakelola baik. Negara AI merujuk kepada negara berteknologi AI yang mengintegrasikan AI secara menyeluruh sebagai teras utama dalam pembangunan sosioekonomi, pentadbiran negara dan kehidupan seharian rakyat.

Peralihan kepada negara AI merupakan satu pembaharuan melalui pendigitalan yang sistematik dan memerlukan pembangunan ekosistem AI yang terangkum dan beretika berasaskan teknologi termaju. Sebagai sebuah negara berteraskan AI, pelbagai manfaat strategik akan diperolehi, terutama dalam memperkukuh daya saing dan kemampanan negara melalui peningkatan produktiviti, kecekapan dan inovasi merentas sektor. Bagi merealisasikan aspirasi Malaysia sebagai negara AI, penyelesaian berasaskan AI akan disepadukan dalam semua sektor utama, seperti pembuatan, pertanian, perkhidmatan, kesihatan, pendidikan, kewangan, keselamatan dan pertahanan, perumahan serta perbandaran dan perkhidmatan awam.

6.2 MENAIKKAN SILING

Peralihan kepada negara AI yang berasaskan inovasi dan teknologi mampu meningkatkan pelaburan berkualiti dan melonjakkan pertumbuhan industri, seterusnya meningkatkan kerencaman ekonomi yang memberi limpahan nilai yang tinggi kepada negara. Penghasilan produk dan perkhidmatan bernilai tinggi menggunakan teknologi tempatan turut membuka peluang untuk mewujudkan pekerjaan berkemahiran dan memperkukuh daya saing negara pada peringkat antarabangsa.

Penerimagunaan AI dan teknologi termaju lain yang lebih meluas dalam keseluruhan rantai nilai industri dapat meningkatkan kecekapan, inovasi dan daya saing tempatan. Pengaplikasian AI seperti dalam automasi bersepadu, analitik ramalan dan sistem robotik dapat meningkatkan pengeluaran produk dan perkhidmatan bernilai tinggi.

Dalam sektor pertanian contohnya, AI boleh diaplikasikan bagi tujuan pemantauan tanaman secara berketepatan tinggi, peramalan cuaca dalam masa nyata dan perancangan penggunaan sumber secara lebih lestari. Penggunaan teknologi robotik dalam perladangan kelapa sawit dapat meningkatkan produktiviti dan mengurangkan kebergantungan kepada pekerja asing.

Dalam industri tenaga boleh baharu (TBB), keupayaan analitik ramalan berasaskan AI boleh digunakan dalam penyediaan unjuran permintaan dan bekalan tenaga dengan lebih tepat, yang seterusnya dapat mengoptimumkan pengurusan grid pintar serta meningkatkan kecekapan operasi dan penyediaan infrastruktur TBB.

Penubuhan pusat inkubasi, hab penyelidikan dan *sandbox* berteraskan AI dalam ekosistem penyelidikan, pembangunan, pengkomersialan dan inovasi (R&D&C&I) akan memudah cara pembangunan dan pengujian penyelesaian tempatan.

Penubuhan pusat inkubasi, hab penyelidikan dan *sandbox* berteraskan AI dalam ekosistem penyelidikan, pembangunan, pengkomersialan dan inovasi (R&D&C&I) akan memudah cara pembangunan dan pengujian penyelesaian tempatan. Pendekatan ini turut disokong oleh penggunaan pemodelan simulasi lanjutan yang dapat mempercepat penciptaan teknologi baharu serta meningkatkan kecekapan dan keberkesanan proses inovasi secara menyeluruh.

Cabaran yang dihadapi dalam pasaran buruh negara berkaitan ketidakpadanan permintaan dan penawaran boleh ditangani melalui pengintegrasian AI dalam pelbagai mekanisme perancangan dan pembangunan bakat. Aplikasi AI dalam membuat ramalan keperluan dan

kemahiran bakat melalui analitik tenaga kerja, analisis data prestasi dan kebolehan kognitif serta sistem perancangan penggantian dan mobiliti dalaman membolehkan penyedia bakat dan industri mengenal pasti keperluan bakat dan potensi individu dengan lebih tepat.

6.3 MENAIKKAN LANTAI

Masyarakat yang menerima guna AI dan teknologi termaju lain dalam pelbagai aspek kehidupan dapat bergiat aktif dalam aktiviti sosioekonomi yang terangkum tanpa ada sesiapa yang terpinggir ke arah meningkatkan tahap mobiliti sosial. Di samping itu, rakyat yang diperkasakan dengan pengetahuan dan kemahiran berkaitan AI dan teknologi termaju akan berupaya untuk menyumbang kepakaran dan kemahiran dalam pelbagai bidang untuk mencapai kehidupan yang wajar dan bermaruah. Penggunaan teknologi AI dalam pelbagai aspek kehidupan, seperti pendidikan, kesihatan, pemeliharaan kesihatan bumi dan keselamatan dapat mengangkat darjat hidup rakyat.

Peranan AI dalam pendidikan sebagai pemangkin kepada sistem pembelajaran yang lebih tangkas, terangkum dan berkesan dapat meningkatkan pengalaman pengajaran dan pembelajaran yang disesuaikan mengikut keperluan pelajar. Penerimgunaan AI membolehkan pelajar memanfaatkan platform interaktif dan akses kepada sumber maklumat yang lebih baik bagi meningkatkan prestasi pembelajaran. Selain itu, melalui analisis data pembelajaran, AI membantu pendidik mengenal pasti kekuatan dan kelemahan pelajar secara lebih tepat, seterusnya membolehkan intervensi awal dan sokongan yang disasarkan.

Pelaksanaan agenda pendigitalan kesihatan negara dapat meningkatkan keberkesanan perkhidmatan penjagaan kesihatan. Melalui keupayaan menganalisis data raya, AI membolehkan diagnosis awal dan penyesuaian rawatan yang lebih tepat mengikut keperluan pesakit. Dalam pentadbiran hospital, AI boleh dimanfaatkan untuk pengurusan jadual rawatan, penggunaan fasiliti dan peralatan perubatan serta aliran pesakit, sekali gus mengurangkan masa menunggu dan mempertingkatkan kualiti perkhidmatan serta mengoptimumkan sumber.

Dalam aspek pemeliharaan kesihatan bumi, penerimgunaan AI membolehkan pemantauan kualiti udara dan air yang lebih tepat dan berdasarkan masa nyata serta pengurusan sisa secara pintar. Teknologi AI dapat meningkatkan inovasi teknologi hijau bagi mempercepat peralihan kepada ekonomi rendah karbon yang lebih mampan. Penggunaan AI juga dapat meningkatkan kecekapan, ketepatan serta keberkesanan persediaan dan tindak balas menghadapi bencana. AI digunakan untuk ramalan bencana, membantu dalam pengurusan logistik bantuan, pengagihan sumber dan pusat pemindahan, pengesanan kawasan terjejas serta penilaian kerosakan infrastruktur dan mengoptimumkan pelan pemulihan.

Teknologi AI memainkan peranan penting dalam usaha memperkukuh keselamatan dan pertahanan negara. AI digunakan dalam sistem pengesanan wajah dan biometrik untuk pengesahan identiti digital yang pantas dan tepat. Sistem pemantauan berasaskan AI juga membolehkan pengawasan automatik di Kawasan sempadan fizikal melalui penggunaan dron, kamera pintar dan sensor yang berupaya memberikan amaran awal kepada pihak berkuasa. AI digunakan untuk mengesan ancaman siber secara masa nyata dan membolehkan tindak balas segera terhadap potensi serangan.

6.4 MEMPERKUKUH TATAKELOLA BAIK

Pendigitalan dalam perkhidmatan kerajaan melalui pemerkasaan GovTech yang berpaksikan teras tatakelola terbaik berupaya menyediakan ekosistem kerajaan digital yang bukan hanya menghubungkan kerajaan dengan kerajaan, tetapi juga kerajaan dengan rakyat dan komuniti perniagaan. Pelaksanaan pendigitalan di bawah GovTech ini yang mengarusperdanakan penerimgunaan teknologi termaju, seperti AI, internet benda dan reality terimbuh akan mampu meningkatkan kecekapan dan keberkesanan penyampaian perkhidmatan awam yang lebih telus, tangkas dan tuntas.

Pemerkasaan GovTech akan mewujudkan sistem perkhidmatan digital kerajaan yang menyeluruh merentas fasa kehidupan rakyat, iaitu bermula dari kelahiran sehingga kematian bagi memudah cara urusan rakyat dan komuniti perniagaan tanpa mengira lokasi, termasuk di luar bandar dan pedalaman. Penerimgunaan AI yang meluas oleh semua agensi kerajaan, termasuk agensi barisan hadapan, agensi penguatkuasaan, agensi keselamatan dan agensi penyelidikan dapat memastikan urusan perkhidmatan yang telus, tangkas dan tuntas.

Justeru, AI yang diaplikasikan dalam perkhidmatan awam boleh membantu rakyat mendapat perkhidmatan yang cepat dan maklumat yang tepat serta membolehkan urusan harian dan transaksi perniagaan secara dalam talian dijalankan dalam ekosistem pendigitalan yang selamat dan dipercayai.

Penerimgunaan AI dalam pentadbiran kerajaan turut menawarkan pembaharuan dalam aspek membuat keputusan berasaskan data melalui penganalisan maklumat secara masa nyata. Sebagai contoh, penerimgunaan analitik data raya dalam institusi perundangan dapat membantu hakim dan majistret membuat keputusan yang lebih tepat berdasarkan analisa fakta kes terdahulu secara menyeluruh. AI juga dapat memperkukuh integriti dan akauntabiliti sistem pentadbiran negara apabila risiko ketidakpatuhan, penyelewengan atau penyalahgunaan kuasa dapat dikesan pada peringkat awal.

6.5 KERANGKA PEMBANGUNA NEGARA AI

Kerangka pembangunan negara AI, seperti di **Rajah 6.1** memetakan ekosistem pembangunan negara AI kepada tiga teras Ekonomi MADANI, iaitu menaikkan siling, menaikkan lantai dan memperkukuh tatakelola baik. Kerangka ini yang berlandaskan kepada tiga objektif dan dicerakinkan kepada lima elemen utama dalam pembangunan ekosistem AI seperti berikut:



Membangunkan Dasar

Aspirasi mewujudkan negara AI memerlukan hala tuju yang jelas dan boleh dijadikan rujukan oleh semua pihak. Dalam hubungan ini, Pelan Tindakan AI Kebangsaan 2030 akan diperkenalkan sebagai asas kepada perancangan, pembangunan, pelaksanaan dan inovasi AI. Elemen ini adalah untuk memastikan ekosistem AI negara berkembang seiring dengan perubahan teknologi.



Memperkuh Pembangunan Bakat

Ketersediaan bakat berkemahiran yang mencukupi, mencakupi semua bidang dan pada pelbagai peringkat adalah penting bagi menjayakan aspirasi negara AI. Literasi AI akan dipupuk dari peringkat awal pendidikan. Program pembangunan bakat dan pengkhususan meliputi pensijilan, peningkatan kemahiran dan latihan kemahiran semula akan diperkukuh. Kerjasama dalam kalangan sektor awam, industri dan akademik akan dipergiat untuk memperkasakan bakat tempatan berkemahiran dalam teknologi termaju.



Mempertingkatkan Infrastruktur Digital Dan Data

Infrastruktur digital dan data yang lengkap dan menyeluruh merupakan asas dalam menyokong ekosistem AI yang mampan dan berdaya saing. Penyediaan infrastruktur dan infostruktur digital, seperti pusat data, pengkomputeran awan dan capaian internet, terutama yang berkelajuan tinggi akan dipertingkatkan bagi menyokong penggunaan AI secara meluas, termasuk di luar bandar. Selain itu, peluasan pelaksanaan repositori data bersepadu akan memudahkan akses dan perkongsian maklumat, di samping menyokong proses membuat keputusan yang lebih tepat.



Meningkatkan Kepercayaan Digital

Kepercayaan digital adalah penting untuk memastikan penggunaan teknologi AI secara selamat dan beretika. Kepercayaan digital akan dipertingkatkan bagi membina keyakinan rakyat terhadap AI melalui literasi dan keselamatan siber. Strategi kepercayaan digital dan keselamatan data nasional akan diluncurkan bertujuan memastikan ekosistem digital negara kekal teguh, beretika dan selamat untuk rakyat, perniagaan dan kerajaan.

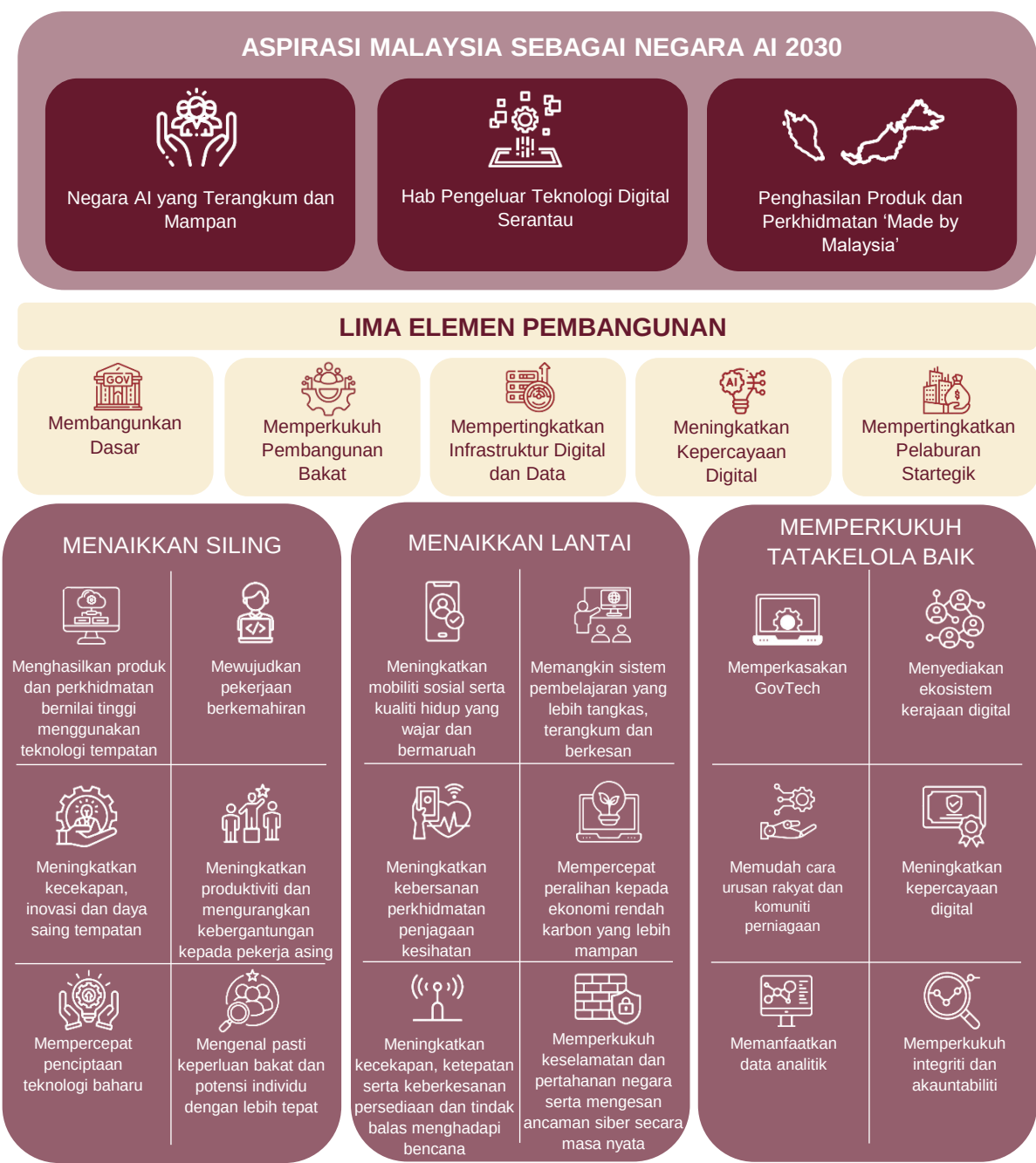


Mempertingkatkan Pelaburan Strategik

Pengukuhan ekosistem AI memerlukan sokongan kewangan, teknologi dan kepakaran daripada pelbagai pihak, termasuk sektor swasta. Kerjasama awam dan swasta akan dipergiat bagi meningkatkan pelaburan strategik berkaitan AI menerusi pepadanan projek dan pelaburan. Usaha ini akan melibatkan semua pihak berkepentingan, termasuk syarikat berkaitan kerajaan, syarikat multinasional dan akademik. Selain itu, model *quadruple helix* akan dimanfaatkan bagi menggalakkan inovasi dalam pengurusan sumber.

Malaysia sebagai negara AI yang berpacuan teknologi termaju memerlukan anjakan daripada semua pihak termasuk rakyat dan komuniti perniagaan. Penekanan terhadap lima elemen utama dalam rangka kerja negara AI yang memberi tumpuan kepada pembangunan terangkum dan mampan akan meletakkan Malaysia sebagai hab pengeluar teknologi digital serantau yang berupaya menghasilkan produk dan perkhidmatan ‘Made by Malaysia’.

Rajah 6.1: Kerangka Pembangunan Negara AI

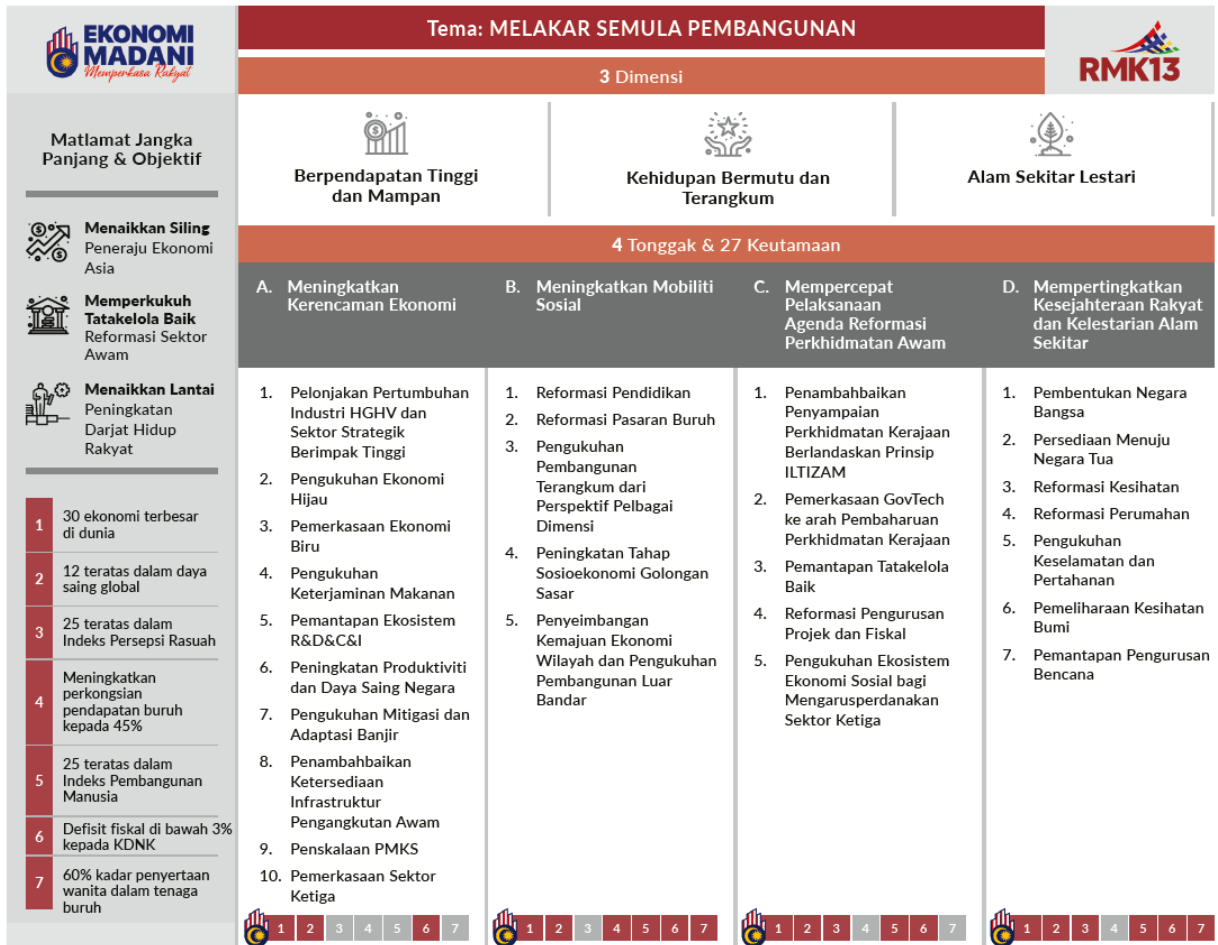


6.6 KERANGKA RANCANGAN MALAYSIA KETIGA BELAS, 2026-2030

RMK13 yang bertemakan 'Melakar Semula Pembangunan', meletakkan matlamat pembangunan sosioekonomi melalui tiga dimensi, iaitu Negara Berpendapatan Tinggi dan Mampan, Kehidupan Bermutu dan Terangkum serta Alam Sekitar Lestari. Tema ini dipilih berdasarkan pelbagai reformasi yang akan diperkenalkan dalam RMK13 bagi menstruktur semula pembangunan sosioekonomi negara. Penstrukturan semula ini perlu dilaksanakan bagi mengambil kira keperluan untuk mempercepat peralihan kepada ekonomi berasaskan penciptaan nilai dalam persekitaran yang lestari serta memperkukuh aspek kerohanian dan nilai insaniah dalam pembentukan sistem sosial negara yang utuh berteraskan insan MADANI. Penyusunan dokumen RMK13 adalah berdasarkan empat tonggak, iaitu Meningkatkan Kerencaman Ekonomi, Meningkatkan Mobiliti Sosial, Mempercepat Pelaksanaan Agenda Reformasi Perkhidmatan Awam serta Mempertingkatkan Kesejahteraan Rakyat dan Kelestarian Alam Sekitar. Dalam hubungan ini, strategi dan inisiatif yang menyeluruh dan berskala telah diujajarkan dengan tujuh aspirasi Ekonomi MADANI.

Penyusunan dokumen RMK13 adalah berdasarkan empat tonggak, iaitu Meningkatkan Kerencaman Ekonomi, Meningkatkan Mobiliti Sosial, Mempercepat Pelaksanaan Agenda Reformasi Perkhidmatan Awam serta Mempertingkatkan Kesejahteraan Rakyat dan Kelestarian Alam Sekitar. Dalam hubungan ini, strategi dan inisiatif yang menyeluruh dan berskala di bawah setiap tonggak ini telah diujajarkan dengan tujuh aspirasi Ekonomi MADANI, seperti yang ditunjukkan di **Rajah 6.2**.

**Rajah 6.2: Kerangka RMK13 Dipeta Untuk Merealisasikan Matlamat
Ekonomi MADANI**



Nota:

Sumber: Kementerian Ekonomi dan Kementerian Digital

6. THE THIRTEENTH MALAYSIA PLAN, 2026-2030 (RMK13)

The Thirteenth Malaysia Plan, 2026-2030 (RMK13), with the theme 'Melakar Semula Pembangunan', represents continuous commitment of the Government in realising the aspirations of the Ekonomi MADANI. The national development for the upcoming five years will be based on a comprehensive transition towards digitalisation and advanced technologies, particularly Artificial Intelligence (AI), as well as the development of a social system anchored on insan MADANI with a united society under the whole-of-nation approach. The restructuring of the economy based on technology and the establishment of a strong social system are the main elements in building a sovereign and dignified nation-state. This transition requires integrated planning and action to boost economic growth akin to raising the ceiling, uplift the living status of the rakyat akin to raising the floor and strengthen service delivery towards excellent governance.

6.1 MALAYSIA AS AN AI NATION

Malaysia aspires to become an inclusive and sustainable AI nation by 2030, serving as a regional hub for digital technology production in innovation creation as well as the production of 'Made by Malaysia' products and services. This aspiration is aligned with the Kerangka Ekonomi MADANI: Memperkasa Rakyat aimed at enhancing economic growth in raising the ceiling; uplifting the living status of the rakyat in raising the floor; and strengthening good governance. An AI nation refers to a country with AI-technology integrated holistically as the main thrust in socioeconomic development, national administration and daily lives of the rakyat.

The transition towards an AI nation is a reform through systematic digitalisation and requires the development of an inclusive and ethical AI ecosystem based on advanced technologies. As a nation based on AI, various strategic benefits will be derived, particularly in strengthening the competitiveness and sustainability of the country through increased productivity, efficiency and innovation across sectors. In realising the aspiration for Malaysia to be an AI nation, AI-based solutions will be integrated into all key sectors, such as the manufacturing, agriculture, services, health, education, finance, security and defence, housing, urban as well as public service.

6.2 RAISING THE CEILING

The transition towards an AI nation based on innovation and technology is able to increase quality investment and boost industrial growth, thus advancing economic complexity that generates high spill over value for the nation. The production of high-value products and services using local technology will also create opportunities to generate skilled jobs and strengthen competitiveness of the country at the international level.

Wider adoption of AI and other advanced technologies throughout the entire industry value chain will increase efficiency, innovation and local competitiveness. The application of AI such as in integrated automation, predictive analytics and robotic systems is able to increase the production of high-value products and services.

In the agriculture sector for example, AI can be applied for high-precision crop monitoring, real-time weather forecasting and planning for more sustainable resource utilisation. The deployment of robotic technology in oil palm plantations will improve productivity and reduce dependency on foreign workers.

In the renewable energy (RE) industry, AI-based predictive analytics capabilities can be utilised to provide a more accurate projection of energy demand and supply, which in turn can optimise smart grid management as well as enhance operational efficiency and RE infrastructure provision.

The establishment of AI-based incubation centers, research hubs and sandbox within the research, development, commercialisation and innovation (R&D&C&I) ecosystem will facilitate the development and testing of local solutions. This approach is further supported by the usage of advanced simulation modelling, which can accelerate new technology creations as well as enhance the efficiency and effectiveness of the overall innovation process.

National labor market challenges related to demand and supply mismatch can be addressed through the integration of AI across various talent planning and development mechanisms. AI applications in forecasting talent needs and skills through workforce analytics, performance and cognitive ability data analysis, as well as succession planning and internal mobility systems, enable talent providers and industries to identify talent requirements and individual potential more accurately.

6.3 RAISING THE FLOOR

Society that adopts AI and other advanced technologies across various aspects of life is able to actively engage in inclusive socioeconomic activities without leaving anyone behind for greater social mobility. In addition, the rakyat empowered with knowledge and skills related to AI and advanced technologies will be capable of contributing expertise and skills in multiple fields to achieve a decent and dignified life. The use of AI technology in various aspects of life, such as education, health, planetary health preservation and safety, can elevate the living status of the rakyat.

The role of AI in education as a catalyst for more agile, inclusive and effective learning system can enhance the teaching and learning experience that is tailored to the needs of students. The adoption of AI enables students to leverage interactive platforms and better access to information resources to improve learning outcomes. In addition, through learning data analytic, AI assists educators in identifying strengths and weaknesses of students more accurately as well as enables early intervention and targeted support.

The implementation of the national health digitalisation agenda can enhance the effectiveness of healthcare services. AI enables more accurate early diagnosis and treatment customisation based on the needs of the patients through big data analytics capabilities. In hospital administration, AI can be leveraged for the management of treatment schedules, utilisation of facilities and medical equipment as well as patient flow, thus reducing waiting times and improving service quality as well as optimising resources.

In the aspect of preserving the planetary health, the adoption of AI enables more accurate and real-time monitoring of air and water quality as well as smart waste management. AI technology can increase green technology innovation to accelerate the transition towards a low-carbon and more sustainable economy. The use of AI can also enhance the efficiency, precision as well as effectiveness of disaster preparedness and response. AI is utilised in forecasting disaster, assisting in the management of relief logistics, resource distribution and evacuation centres, detection of affected areas and assessments of infrastructure damages as well as optimising recovery plans.

AI technology plays an important role in the efforts to strengthen national security and defense. AI is applied in facial recognition and biometric systems to enable fast and accurate digital identity verification. AI-based monitoring systems also facilitate automated surveillance in physical border areas through the usage of drones, smart cameras and sensors, capable of providing early warnings to the authorities. AI is used to detect cyber threats in real time, allowing for immediate response to potential attacks.

6.4 STRENGTHENING GOOD GOVERNANCE

Digitalisation of government services, through empowerment of the GovTech based on principles of excellent governance will enable the establishment of a digital government ecosystem that connects not only government to government, but also government to the rakyat and the business community. The implementation of digitalisation under the GovTech, which mainstreams the adoption of advanced technologies, such as AI, the internet of things and augmented reality, will enhance the efficiency and effectiveness of public service delivery, making it more transparent, timely and thorough.

The mainstreaming of the GovTech will create a comprehensive digital government service system across the lifespan of the rakyat, from cradle to grave in facilitating the matters concerning the rakyat and business community, regardless of location, including those in the rural and remote areas. The widespread adoption of AI by all government agencies, including front line agencies, enforcement agencies, security agencies and research agencies will ensure transparent, timely and thorough services.

Thus, application of AI in the public service will enable the rakyat to receive fast services and accurate information as well as enable daily activities and business transactions to be conducted online within a safe and trusted digital ecosystem.

The adoption of AI in the government administration also offers reform in data driven decision making through real time information analysis. For example, the adoption of big data analytics in legal institutions will be able to help judges and magistrates in making more accurate rulings based on a comprehensive analysis of past case facts. AI can also strengthen integrity and accountability of the national administrative system when the risks of non-compliance, malpractices or abuses of power are detected at an early stage.

6.5 AI NATION DEVELOPMENT FRAMEWORK

*The AI nation development framework, as shown in **Figure 6.1**, maps the AI nation development ecosystem to the three thrusts of the Ekonomi MADANI, namely raising the ceiling, raising the floor and strengthening good governance. This framework is based on three objectives and is further outlined into five key elements in the development of the AI ecosystem, as follows:*



Developing Policy

The aspiration to establish an AI nation requires a clear direction that can serve as a reference for all stakeholders. In this regard, the *Pelan Tindakan AI Kebangsaan 2030* will be introduced as the basis for AI planning, development, implementation and innovation. This element aims to ensure that the national AI ecosystem evolves in line with changes in technology.



Strengthening Talent Development

The availability of adequate skilled talent across all fields and at various levels is important for the success of the AI nation aspiration. AI literacy will be nurtured at an early stage of education. Talent development and specialisation programs, including certification, upskilling and reskilling will be strengthened. Collaboration among the public sector, industry and academia will be intensified to equip local talent with skills in advanced technologies.



Enhancing Digital And Data

Comprehensive and robust digital and data infrastructure is the foundation in supporting a sustainable and competitive AI ecosystem. The provision of digital infrastructure and infostructure, such as data centers, cloud computing and internet connectivity, particularly high-speed connectivity will be enhanced to support the extensive adoption of AI, including in the rural areas. In addition, expansion of the integrated data repository will facilitate access and sharing of information as well as support more accurate decision-making process.



Building Digital Trust

Digital trust is essential to ensure the safe and ethical usage of AI technology. Digital trust will be enhanced to build public confidence in AI through literacy and cybersecurity. National digital trust and data security strategies will be launched with the aim to ensure the national digital ecosystem remains resilient, ethical and safe for the rakyat, businesses and government.



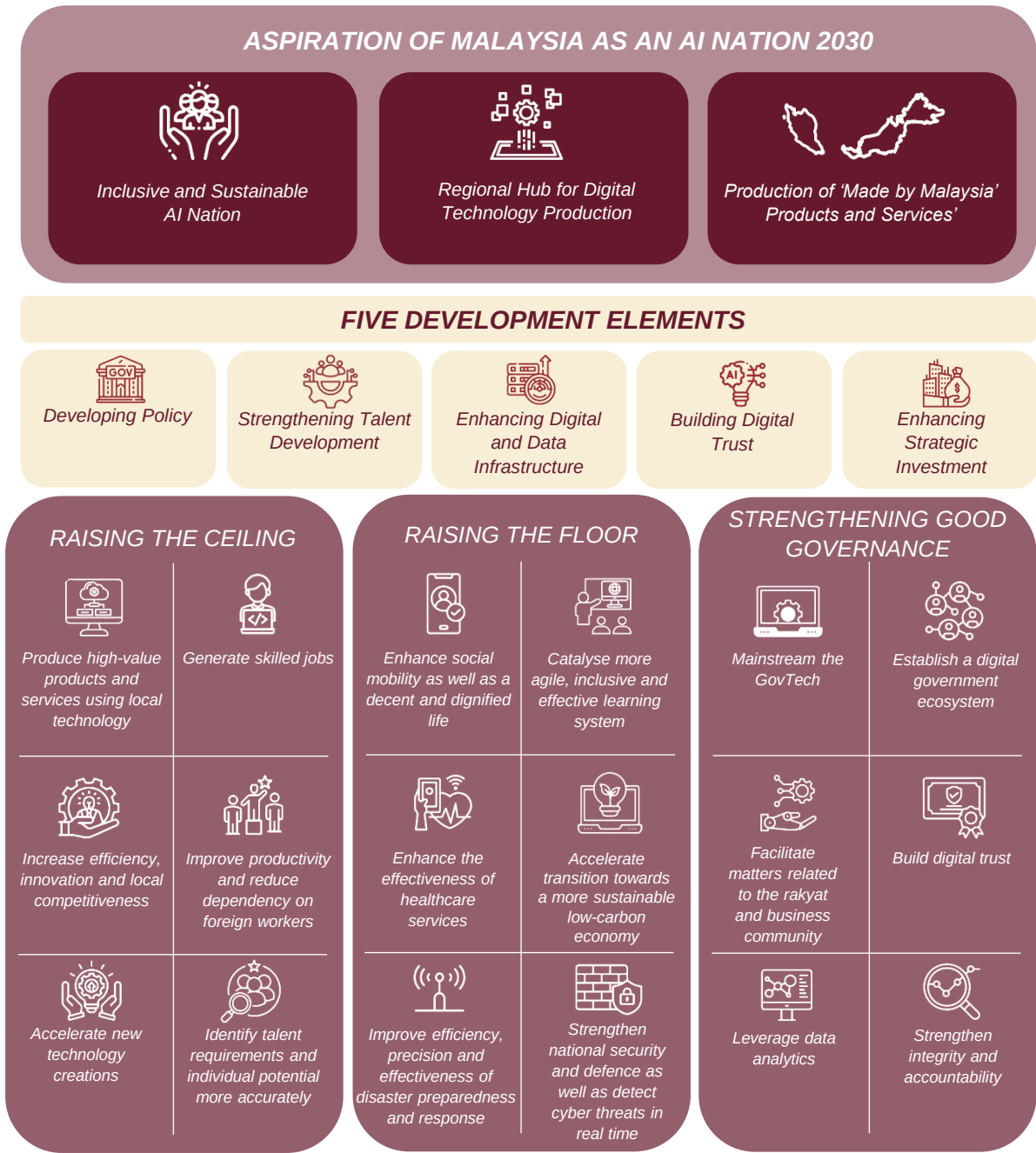
Enhancing Strategic Investment

Strengthening of AI ecosystem requires financial, technological and expertise supports from various parties, including the private sector. Public-private partnerships will be intensified to increase strategic AI-related investment through project and investment matchings. These efforts will involve all stakeholders, including government-linked companies, multinational corporations and academia. In addition, the quadruple helix model will be leveraged to encourage innovation

Thus, application of AI in the public service will enable the rakyat to receive fast services and accurate information as well as enable daily activities and business transactions to be conducted online within a safe and trusted digital ecosystem.

Malaysia, as an AI nation driven by advanced technologies, requires transformation by all parties, including the rakyat and business community. Emphasis on the five key elements in the AI nation framework which focuses on inclusive and sustainable development will position Malaysia as a regional hub for digital technology production, capable of producing ‘Made by Malaysia’ products and services.

Figure 6.1: AI Nation Development Framework

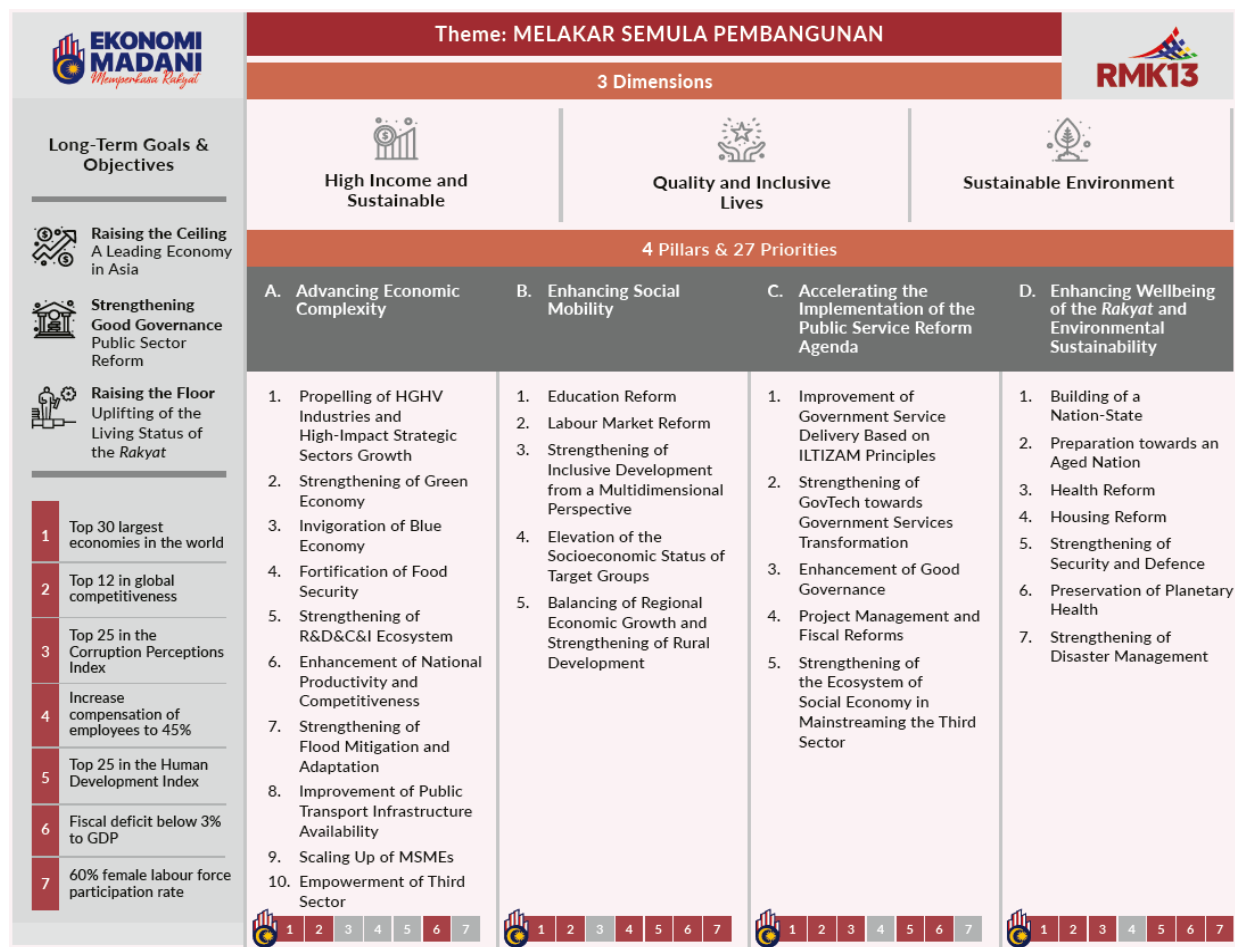


6.6 THE THIRTEENTH PLAN FRAMEWORK, 2026-2030

The Thirteenth Plan with the theme ‘Melakar Semula Pembangunan’, sets the socioeconomic development objectives through three dimensions, namely High-Income and Sustainable Nation, Quality and Inclusive Lives as well as Sustainable Environment. The theme is selected based on the various reforms to be introduced in the Thirteenth Plan to restructure the socioeconomic development of the nation. This restructuring has to be implemented taking cognisance of the needs to accelerate the transition to a value creation-based economy in a sustainable environment as well as to strengthen spiritual and insaniah values in building a strong social system anchored on insan MADANI.

*The formulation of the Thirteenth Plan is based on four pillars, namely Advancing Economic Complexity, Enhancing Social Mobility, Accelerating the Implementation of the Public Service Reform Agenda as well as Enhancing Wellbeing of the Rakyat and Environmental Sustainability. In this regard, comprehensive and significant strategies and initiatives under each of these pillars are aligned with the seven aspirations of the Ekonomi MADANI, as shown in **Figure 6.2**.*

Figure 6.2: The Thirteenth Plan framework is mapped to realise the Ekonomi MADANI aspirations

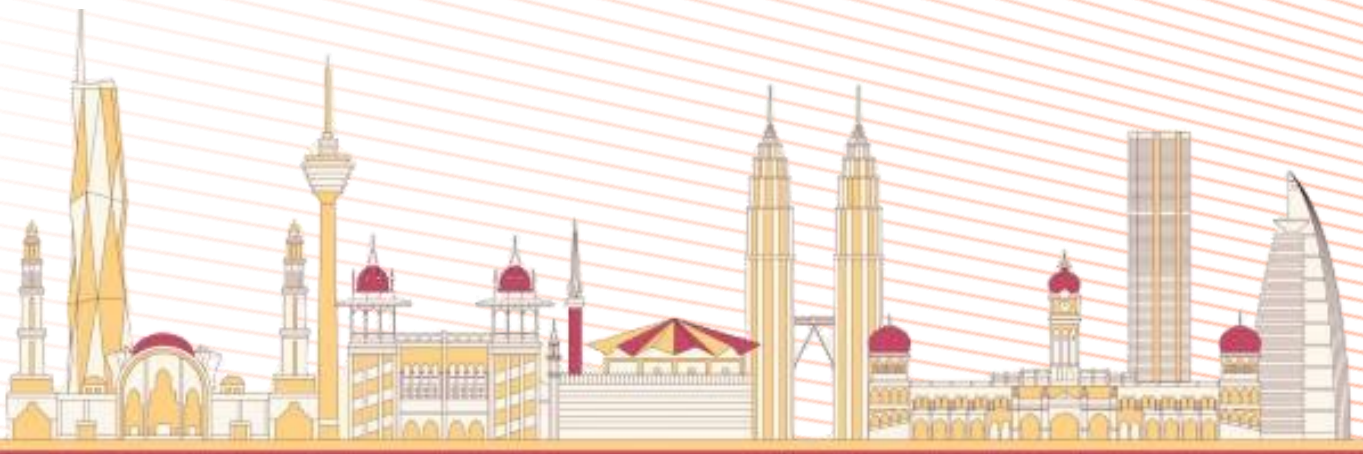


Note:

Source: Ministry of Economy and Ministry of Digital

RENCANA

ARTICLE BOX



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E-Dagang dan Industri Pos dan Kurier: Trend & Prestasi 2019–2025¹

Oleh: Maimunah A.Rahman², Nur Fauzani Ahmad³

^{2,3}Bahagian Perangkaan Perkhidmatan, Jabatan Perangkaan Malaysia

1. PENGENALAN

Perkembangan teknologi digital telah mengubah landskap perniagaan secara menyeluruh khususnya melalui e-dagang. Merujuk kepada definisi daripada *The Organisation for Economic Co-operation and Development (OECD) 2015*, transaksi e-dagang merujuk kepada penjualan atau pembelian bagi barangan atau perkhidmatan melalui rangkaian komputer yang telah direka untuk tujuan berkenaan. Transaksi e-dagang boleh berlaku di antara enterpris, isi rumah, individu, kerajaan dan organisasi awam atau swasta yang lain. Barangan atau perkhidmatan yang telah dipesan melalui kaedah e-dagang, namun pembayaran atau penerimaan barangan atau perkhidmatan berkenaan boleh diterima sama ada melalui *online* atau *offline*. Ini meliputi pesanan yang dilakukan melalui laman sesawang, extranet atau *Electronic Data Interchange (EDI)*. Walau bagaimanapun, transaksi yang dilaksanakan melalui panggilan telefon, faksimili, emel yang ditaip manual dan seumpunya tidak termasuk dalam takrifan sebagai urusan e-dagang.

Di Malaysia, e-dagang berkembang pesat sejak beberapa tahun kebelakangan ini dan dipacu oleh peningkatan akses internet, penggunaan telefon pintar dan kesedaran pengguna terhadap kemudahan membeli-belah secara digital. Pandemik COVID-19 turut mempercepatkan transformasi digital ini apabila pembelian dalam talian menjadi keperluan utama akibat sekatan pergerakan.

Seiring dengan pertumbuhan e-dagang, industri pos dan kurier turut memainkan peranan yang penting sebagai teras utama logistik. Fokus utama perkhidmatan pos dan kurier bukan sahaja menguruskan penghantaran surat dan dokumen tetapi kini lebih tertumpu kepada penghantaran barangan e-dagang. Pertubuhan kurier semakin menekankan penghantaran pantas, tepat dan boleh dijejak bagi memenuhi permintaan pasaran yang meningkat melalui pelaburan dalam teknologi automasi. Perkembangan ini bukan sahaja meningkatkan kecekapan operasi malah turut menyumbang kepada perwujudan peluang pekerjaan.

2. SOROTAN KAJIAN

Pertumbuhan pesat e-dagang di Malaysia telah menjadi pemangkin utama perubahan dalam industri pos dan kurier. Perkembangan teknologi digital, peningkatan penggunaan internet serta perubahan gaya hidup pengguna telah membawa kepada lonjakan mendadak dalam permintaan penghantaran barangan secara dalam talian.

Kajian oleh Mordor Intelligence (2025) menunjukkan pertumbuhan pesat e-dagang di Malaysia dipacu oleh peningkatan *smartphone penetration* (89%) dan *internet usage*. Hasanat et al. (2020) pula menekankan bahawa perubahan tingkah laku pengguna dan dasar kerajaan yang menyokong digitalisasi turut mempercepatkan penggunaan e-dagang terutamanya selepas pandemik COVID-19.

Menurut laporan Bank Negara Malaysia (2021) pula menunjukkan transaksi e-dagang di Malaysia mencatatkan pertumbuhan dua angka sejak tahun 2020 apabila pengguna semakin bergantung kepada platform digital untuk pembelian harian. Keadaan ini memberi kesan langsung kepada sektor pos dan kurier yang memainkan peranan penting dalam memastikan kelancaran rantaian bekalan digital.

Kajian oleh Gulc (2021) dan Tang et al. (2022) membincangkan peranan industri pos dan kurier dalam ekosistem e-dagang terutama dari segi kecekapan dan kebolehpercayaan perkhidmatan penghantaran. Peningkatan volum penghantaran memerlukan pelaburan dalam teknologi automasi dan sistem pengurusan logistik untuk menjamin kepuasan pelanggan. Sementara itu, Bhatti et al. (2023) menunjukkan industri pos dan kurier Malaysia berkembang pesat dengan peningkatan output dan produktiviti. MCMC (2022) melaporkan prestasi penghantaran terjamin mencapai 96% dan kebolehpercayaan 91%, mencerminkan respon positif industri terhadap beban kerja yang bertambah akibat pertumbuhan e-dagang.

Kajian antarabangsa turut menunjukkan trend yang sama. Menurut UNCTAD (2021) dan OECD (2022), perkembangan e-dagang mempunyai hubungan rapat dengan perkembangan perkhidmatan logistik dan pos. McKinsey (2020) pula mendapati bahawa di negara seperti China, Korea Selatan dan Amerika Syarikat, pertumbuhan e-dagang menyumbang lebih 50 peratus kepada peningkatan hasil industri pos dan kurier dalam tempoh lima tahun.

3. METODOLOGI

Analisis ini menggunakan data siri masa hasil e-dagang dan hasil pos dan kurier bagi suku tahun pertama 2020 hingga suku tahun kedua 2025. Data ini diperoleh daripada Penerbitan Perangkaan Perkhidmatan Suku Tahunan, Jabatan Perangkaan Malaysia.

Pendekatan analisis kuantitatif digunakan bagi menilai pola agihan, hubungan serta pertumbuhan arah aliran hasil kedua-dua sektor sepanjang tempoh kajian. Analisis deskriptif digunakan untuk menilai tahap variasi melalui ukuran seperti min, sisihan piawaian, nilai minimum dan maksimum.

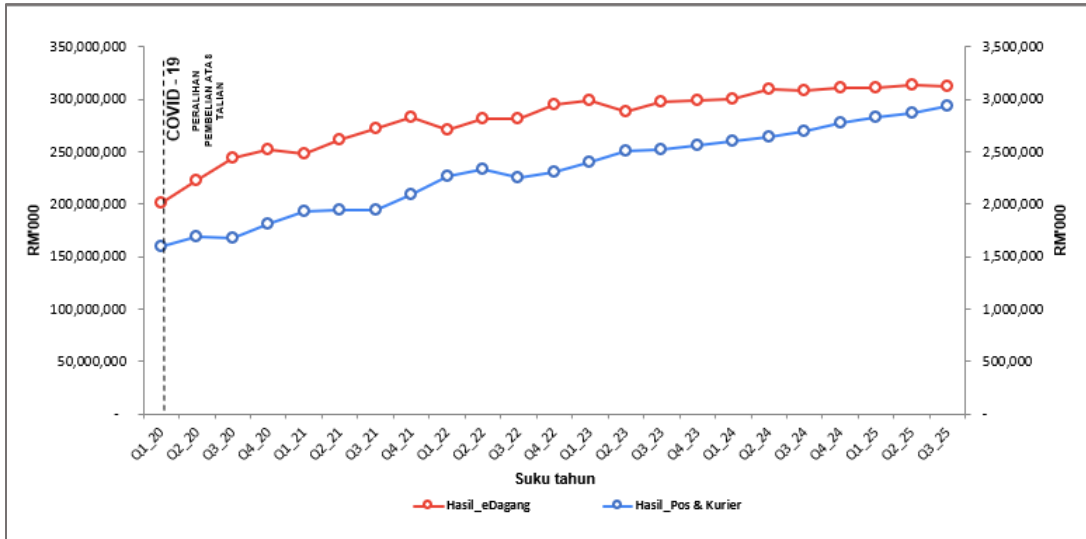
Kajian oleh Arnastauskaitė et al. (2021), bagi menentukan bentuk agihan data, ujian normaliti *Shapiro-Wilk* dan *Kolmogorov-Smirnov* digunakan bagi memastikan ketepatan dan mengesahkan analisis statistik yang dijalankan. Seterusnya, analisis korelasi dilaksanakan bagi mengukur hubungan antara pemboleh ubah hasil e-dagang dan hasil pos dan kurier.

4. HASIL ANALISIS

Secara purata, hasil industri pos dan kurier mencatatkan sebanyak RM2.3 bilion dan hasil e-dagang mencatatkan purata RM279.7 billion (DOSM). Sisihan piawaian yang sederhana menggambarkan data tidak terlalu tersebar daripada nilai min.

Pada tahun 2020, kedua-dua sektor mencatat peningkatan ketara susulan lonjakan aktiviti dalam talian yang dipacu oleh pelaksanaan Perintah Kawalan Pergerakan (PKP) semasa pandemik COVID-19. Industri pos dan kurier merekodkan peningkatan hasil sebanyak 13.7 peratus antara suku pertama dan suku keempat tahun tersebut, sejajar dengan pertumbuhan hasil e-dagang yang meningkat lebih 25.3 peratus dalam tempoh yang sama (DOSM).

Carta 1: Prestasi Hasil E-Dagang dan Industri Pos dan Kurier



Sumber: Jabatan Perangkaan Malaysia

Tahun 2021 merupakan fasa penstabilan apabila pengguna dan perniagaan mula menyesuaikan diri dengan norma baharu. Hasil pos dan kurier terus meningkat kepada RM2.1 bilion, manakala hasil e-dagang kekal kukuh melebihi RM283.1 bilion pada suku tahun keempat. Trend ini mencerminkan tahap adaptasi yang tinggi terhadap ekosistem ekonomi digital yang semakin mapan.

Bagi tempoh 2022 hingga 2024, hasil e-dagang dan industri pos dan kurier menunjukkan pertumbuhan yang lebih stabil dan berterusan. Hasil industri pos dan kurier meningkat daripada RM2.3 bilion kepada RM2.7 bilion, manakala hasil e-dagang kekal dalam julat RM280 bilion hingga RM310 bilion mempamerkan kematangan pasaran serta kestabilan ekosistem digital negara.

Sehingga suku kedua tahun 2025, industri pos dan kurier mencapai paras hasil tertinggi sebanyak RM2.87 bilion, manakala hasil e-dagang mencatat RM314 bilion, mencerminkan momentum pertumbuhan positif yang berterusan.

Jadual 1: Analisis Normaliti Hasil E-Dagang dan Industri Pos dan Kurier

Pemboleh ubah	Statistik <i>Shapiro-Wilk</i>	Sig. (p-value)	Keputusan
Hasil Pos dan Kurier	0.946	0.257	Normal ($p > 0.05$)
Hasil E-Dagang	0.898	0.027	Tidak Normal ($p < 0.05$)

Ujian normaliti *Shapiro-Wilk* telah dijalankan bagi menentukan sama ada data bagi pemboleh ubah hasil pos dan kurier dan hasil e-dagang bertaburan normal. Dapatan menunjukkan bahawa nilai bagi hasil pos ialah 0.257, iaitu melebihi aras signifikan 0.05, menandakan data bertaburan normal. Manakala nilai p bagi hasil e-dagang ialah 0.027, iaitu kurang daripada aras signifikan 0.05, menunjukkan data tidak bertaburan normal.

Sehubungan itu, analisis hubungan antara pemboleh ubah dijalankan menggunakan ujian non-parametrik memandangkan terdapat pemboleh ubah yang tidak mematuhi andaian normaliti.

Jadual 2: Analisis Korelasi Hasil E-Dagang dan Industri Pos dan Kurier

Jenis Korelasi	Pekali Korelasi (r)	Sig. (2-tailed)	Interpretasi
<i>Spearman's rho</i>	0.973**	0.000	Sangat kuat & signifikan
<i>Kendall's tau-b</i>	0.887**	0.000	Sangat kuat & signifikan

Ujian korelasi non parametrik telah dijalankan bagi menilai hubungan antara Hasil Pos dan Hasil E-Dagang. Keputusan ujian menunjukkan pekali korelasi *Spearman's rho* sebanyak 0.973 ($p=0.000$) dan pekali *Kendall's tau-b* sebanyak 0.887 ($p=0.000$). Kedua-dua nilai ini menunjukkan hubungan positif yang sangat kuat dan signifikan antara kedua-dua pemboleh ubah tersebut.

Dapatan ini menunjukkan bahawa peningkatan dalam hasil e-dagang mempunyai hubungan secara langsung dengan peningkatan hasil sektor pos, selaras dengan peningkatan jumlah penghantaran bungkusan dan barangan yang seiring dengan perkembangan pesat aktiviti e-dagang di Malaysia. Kesan ini turut menggambarkan kebergantungan sektor pos terhadap pertumbuhan ekonomi digital.

5. RUMUSAN

Secara keseluruhan, hasil industri pos dan kurier dan e-dagang menunjukkan trend peningkatan yang konsisten sepanjang tempoh 2019 hingga 2025. Tahun 2020 menjadi titik lonjakan utama apabila pelaksanaan PKP mempercepatkan aktiviti ekonomi digital. Mulai tahun 2021, kadar pertumbuhan bagi kedua-dua sektor ini menjadi lebih stabil, mencerminkan tahap kematangan pasaran digital tempatan.

Perkembangan hasil industri pos dan kurier dan e-dagang ini selari dengan aspirasi *MyDIGITAL* yang menekankan pendigitalan perniagaan, pengukuhan infrastruktur digital dan peningkatan keupayaan logistik negara. Kejayaan masa depan industri pos dan kurier bergantung kepada keupayaan pertubuhan untuk terus berinovasi, mendigitalkan operasi serta menawarkan perkhidmatan penghantaran yang pantas, cekap dan bersepadu dalam ekosistem digital (omnichannel). Kerjasama berterusan antara kerajaan dan pemain industri juga amat penting bagi memastikan rantai bekalan logistik kekal berdaya tahan serta mampu menyokong teras *MyDIGITAL* dalam memperkukuh perkhidmatan ekonomi digital negara.

Pada masa yang sama, hala tuju NESR yang memberi fokus kepada kecekapan logistik e-dagang, penyelarasan polisi serta pembangunan ekosistem digital yang lebih mapan turut digerakkan melalui pertumbuhan pesat industri e-dagang. Hubungan korelasi yang kukuh dan trend pertumbuhan yang stabil, kedua-dua sektor ini dijangka terus memainkan peranan penting dalam memperkukuh ekonomi digital negara disamping menggambarkan kejayaan pelaksanaan NESR.

Keberkesanan inisiatif *MyDIGITAL* dan NESR dijangka terus menjadi pemangkin utama kepada pemeraksanaan ekonomi digital negara. Pelaburan berterusan dalam teknologi logistik, automasi, keselamatan data dan infrastruktur penghantaran akan menjadi faktor penting dalam mengekalkan momentum pertumbuhan pada tahun mendatang.

6. RANTAIAN KE HADAPAN

Perkembangan pesat industri pos, kurier dan e-dagang perlu terus disokong oleh dasar nasional seperti Rancangan Malaysia Ke-13 yang memberi tumpuan kepada pendigitalan ekonomi dengan sasaran sumbangan ekonomi digital kepada 30 peratus daripada KDNK menjelang tahun 2030. Bagi memenuhi permintaan pengguna yang semakin tinggi, industri ini perlu mempercepat transformasi teknologi melalui automasi, integrasi digital dan rangkaian penghantaran yang lebih efisien agar tidak ketinggalan. Dengan peningkatan kecekapan dan inovasi berterusan, sektor pos dan kurier mampu kekal kompetitif disamping mampu menggerakkan ekosistem e-dagang negara yang dinamik dan mampan.

Penafian

Pandangan yang dinyatakan adalah pandangan penulis dan tidak semestinya mencerminkan pendirian DOSM.

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Oleh: Maimunah A.Rahman², Nur Fauzani Ahmad³

^{2,3}Service Statistics Division, Department of Statistics Malaysia

1. INTRODUCTION

The advancement of digital technology has fundamentally altered the business landscape, particularly through e-commerce. Referring to the 2025 definition from The Organisation for Economic Co-operation and Development (OECD), e-commerce transactions involve the sale or purchase of goods or services via computer networks specifically designed for that purpose. E-commerce transactions can occur between enterprises, households, individuals, government and other public or private organisations. E-commerce transactions may involve goods or services that are paid for or fulfilled either online or offline. Such transactions include orders placed through websites, extranets, or Electronic Data Interchange (EDI). However, transactions conducted via telephone calls, facsimiles, manually typed emails, and similar methods are not included in the definition of an e-commerce transaction.

In Malaysia, e-commerce has grown rapidly in recent years, driven by internet access, smartphone usage and consumer awareness of the convenience of digital shopping. The COVID-19 pandemic further accelerated this digital transformation as online purchasing became a primary necessity due to movement restrictions.

In line with the growth of e-commerce, the postal and courier industry also plays a critical role as the core of logistics. The main focus of postal and courier services is no longer just managing the delivery of letters and documents but is now concentrated on the delivery of e-commerce goods. Courier companies are increasingly emphasizing fast, accurate and traceable delivery to meet rising market demands through investment in automation technology. This development not only enhances operational efficiency but also contributes to the creation of employment opportunities.

2. LITERATURE REVIEW

The rapid growth of e-commerce in Malaysia has been a key catalyst for change in the postal and courier industry. Digital technology advancements, increased internet usage, and changes in consumer lifestyles have led to a sharp surge in the demand for online goods delivery. A study by Mordor Intelligence (2025) indicates that the rapid growth of e-commerce in Malaysia is driven by increased smartphone penetration (89%) and internet usage. Hasanat et al. (2020) emphasize that changes in consumer behaviour and government policies supporting digitalization have also accelerated the adoption of e-commerce, especially after the COVID-19 pandemic. Furthermore, a Bank Negara Malaysia (2021) report shows that e-commerce transactions in Malaysia have recorded double-digit growth since 2020, as consumers increasingly rely on digital platforms for daily purchases. This situation has a direct impact on the postal and courier sector, which is essential for ensuring the smooth flow of the digital supply chain.

Studies by Gulc (2021) and Tang et al. (2022) discuss the role of the postal and courier industry within the e-commerce ecosystem, particularly in terms of the efficiency and reliability of delivery services. The increasing volume of deliveries necessitates investment in automation technology and logistics management system to guarantee customer satisfaction. Meanwhile, Bhatti et al. (2023) show that the Malaysian postal and courier industry is expanding rapidly with an increase in output and productivity. The MCMC (2022) reported that on-time delivery performance reached 96% and reliability was 91%, reflecting the industry's positive response to the increased workload resulting from e-commerce growth.

International studies show a similar trend. According to UNCTAD (2021) and OECD (2022), the development of e-commerce is closely related to the development of logistics and postal services. McKinsey (2020) found that in countries such as China, South Korea and the United States, e-commerce growth contributed over 50 percent to the increase in postal industry revenue over a five-year period.

3. METHODOLOGY

This analysis utilizes time-series data for e-commerce revenue and postal and courier revenue from the first quarter of 2020 to the second quarter of 2025. This data was sourced from the Quarterly Services Statistics Publication, Department of Statistics Malaysia.

A quantitative analysis approach was employed to evaluate the distribution patterns, relationships and growth trends in the revenue of both sectors throughout the study period. Descriptive analysis was used to access the level of variation through measures such as mean, standard deviation, minimum and maximum values

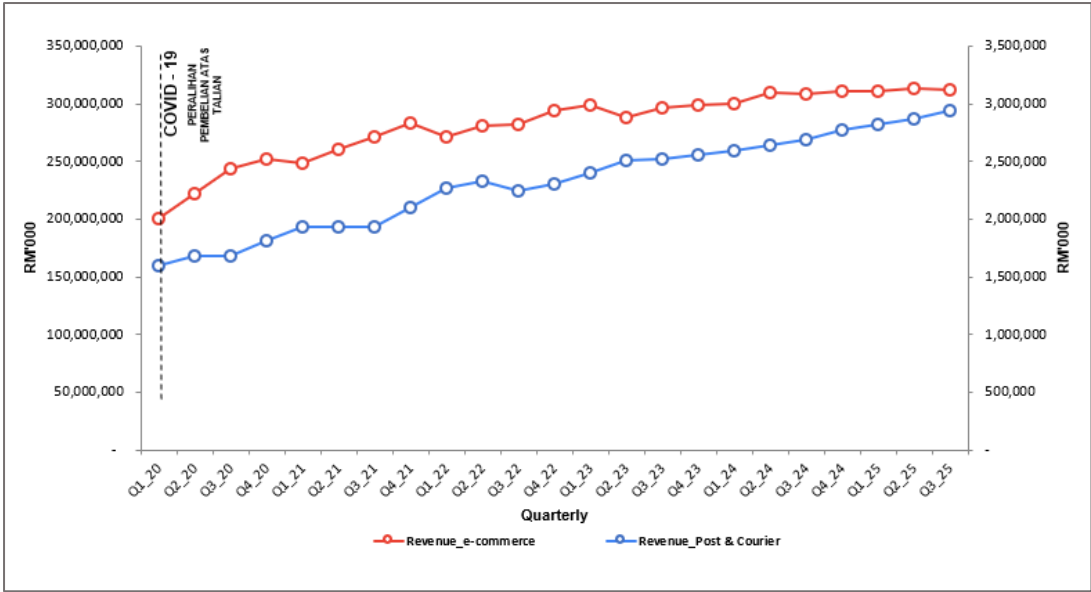
Studies by Arnastauskaitė et al. (2021), to determine the shape of the data distribution, the Shapiro-Wilk and Kolmogorov-Smirnov normality tests were used to ensure the accuracy and validate the statistical analysis conducted. Subsequently, correlation analysis was performed to measure the relationship between the e-commerce revenue and postal and courier revenue variables.

4. ANALYSIS RESULTS

On average, the postal and courier industry revenue recorded RM2.3 billion and e-commerce revenue recorded an average of RM279.7 billion (DOSM). A moderate standard deviation indicates that the data is not overly dispersed from the mean value.

In 2020, both sectors recorded a significant increase following the surge in online activities driven by the implementation of the Movement Control Order (MCO) during the COVID-19 pandemic. The postal and courier industry recorded a revenue increase 13.7 percent between the first and fourth quarters of that year, which aligned with the growth in e-commerce revenue, which increased by more than 25.3 percent during the same period (DOSM).

Chart 1: E-Commerce and Postal and Courier Industry Revenue Performance



Source: Department of Statistic Malaysia

Year 2021 was a stabilization phase as consumers and businesses began to adapt to the new normal. Postal and courier revenue continued to rise to RM2.1 billion, while e-commerce revenue remained strong, exceeding RM283.1 billion in the fourth quarter. This trend reflects a high level of adaptation to the increasingly established digital economy ecosystem.

For the period 2022 to 2024, e-commerce and postal and courier industry revenues showed more stable and continuous growth. Postal and courier industry revenue increased from RM2.3 billion to RM2.7 billion, while e-commerce revenue remained in the range of RM280 billion to RM310 billion, demonstrating market maturity and stability of the national digital ecosystem.

By the second quarter of 2025, the postal and courier industry reached its highest revenue level of RM2.87 billion, while e-commerce revenue recorded RM314 billion, reflecting continuous positive growth momentum

Table 1: Normality Analysis of E-Commerce and Postal and Courier Industry Revenue

Variable	Shapiro-Wilk Statistic	Sig. (p-value)	Decision
Postal and Courier Revenue	0.946	0.257	Normal ($p > 0.05$)
E-Commerce Revenue	0.898	0.027	Not Normal ($p < 0.05$)

The Shapiro-Wilk normality test was conducted to determine whether the data for the postal and courier revenue and e-commerce revenue variables were normally distributed. The findings show that the p-value for postal and courier revenue is 0.257, which is greater than the significance level of 0.05, indicating the data is normally distributed. Meanwhile, the p-value for e-commerce revenue is 0.027, which is less than the significance level of 0.05, indicating the data is not normally distributed.

Consequently, the analysis of the relationship between the variables was performed using a non-parametric test given that one of the variables did not meet the normality assumption.

Table 2: Correlation Analysis of E-Commerce and Postal and Courier Industry Revenue

Correlation Type	Correlation Coefficient (r)	Sig. (2-tailed)	Interpretation
Spearman's rho	0.973**	0.000	Very Strong & significant
Kendall's tau-b	0.887**	0.000	Very Strong & significant

A non-parametric correlation test was conducted to assess the relationship between postal and courier revenue and e-commerce revenue. The test results show a Spearman's rho correlation coefficient of 0.973 ($p=0.000$) and a Kendall's tau-b coefficient of 0.887 ($p=0.000$). Both values indicate a very strong and significant positive relationship between the two variables.

This finding suggests that an increase in e-commerce revenue is directly related to an increase in postal and courier sector revenue. This is in line with the rising volume of parcel and goods delivery corresponding to the rapid development of e-commerce activities in Malaysia. This effect also illustrates the dependency of the postal and courier sector on digital economic growth.

5. CONCLUSION

Overall, the postal and courier industry and e-commerce revenue have shown a consistent upward trend throughout the 2019 to 2025 period. Year 2020 was a major turning point when the implementation of the MCO accelerated the digital economic activity. Starting from 2021, the growth rate for both sectors became more stable, reflecting the maturity of the local digital market.

The growth of the postal and courier and e-commerce industries aligns with the aspirations of MyDIGITAL, which emphasises business digitalisation, strengthening of digital infrastructure and enhancement of the nation's logistics capabilities. The future success of the postal and courier industry depends on the ability of establishments to continue innovating, digitalising their operations and offering fast, efficient and integrated delivery services within a digital (omnichannel) ecosystem. Continuous collaboration between the government and industry players is also crucial to ensure that the logistics supply chain remains resilient and capable of supporting MyDIGITAL's core objective of strengthening the delivery of digital economic services.

Simultaneously, the direction of the NESR, which focuses on enhancing e-commerce logistics efficiency, policy coordination and the development of a sustainable digital ecosystem, is further reinforced by the rapid growth of the e-commerce industry. With strong correlation and stable growth trends, both sectors are expected to continue playing a significant role in strengthening the nation's digital economy, while also reflecting the successful implementation of the NESR.

The effectiveness of the MyDIGITAL and NESR initiatives is expected to remain a key catalyst in strengthening the nation's digital economy. Continued investment in logistics technology, automation, data security and delivery infrastructure will be essential in sustaining growth momentum in the years ahead.

6. MOVING FORWARD

The rapid development of the postal, courier and e-commerce industries should continue to be underpinned by national policies such as the Thirteenth Malaysia Plan, which prioritises economic digitalisation with the goal of achieving 30 per cent GDP contribution from the digital economy by 2030. To keep pace with increasing consumer demand, the industry must expedite technological transformation through automation, digital integration and more efficient delivery networks to remain competitive. By enhancing operational efficiency and fostering continuous innovation, the postal and courier sector will be able to maintain its competitiveness while driving a dynamic and sustainable national e-commerce ecosystem.

Disclaimer

The views expressed are those of the authors and do not necessarily reflect the stance of DOSM.

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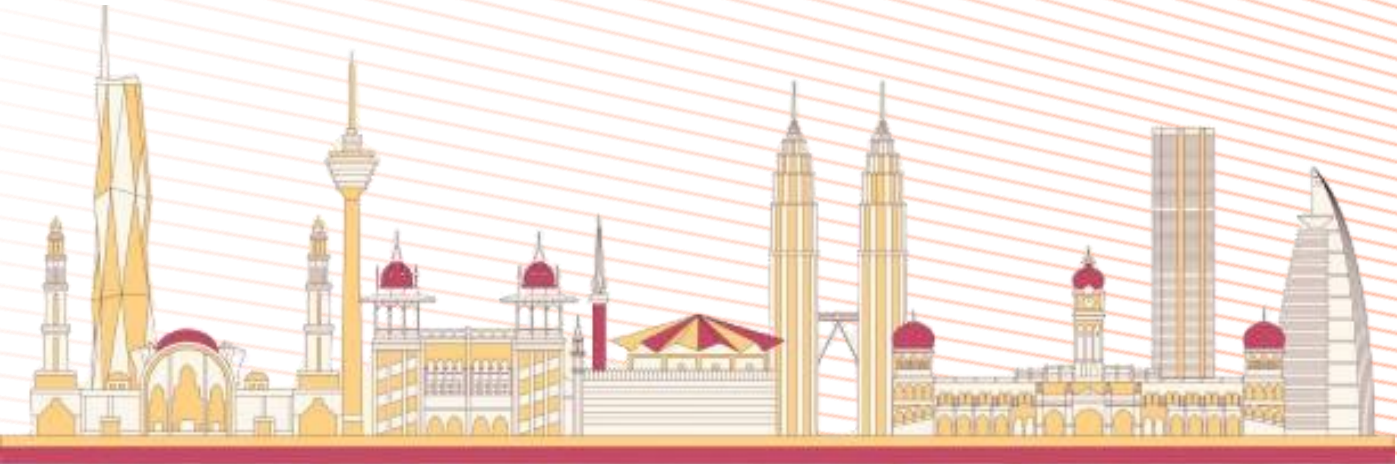
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JADUAL STATISTIK

STATISTICAL TABLE



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Table A1 : ICT Industry and Non ICT Industry that Produce ICT Products

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Jadual A2.1 : Penawaran dan Penggunaan Produk TMK - RM Juta
Table A2.1 : Supply and Use of ICT Products - RM Million

2015					2016			
RM Juta RM Million								
Penawaran/ Supply								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Pengeluaran domestik TMK ICT domestic production	278,948	140,156	25,066	444,169	300,874	157,353	27,800	486,028
Import produk TMK Imports of ICT products	139,893	19,651	4,720	164,264	147,360	20,059	4,722	172,141
Cukai tolak subsidi ke atas produk TMK Taxes less subsidies on ICT products	1,733	3,221	1,413	6,366	1,736	3,414	1,453	6,604
Jumlah penawaran produk TMK Total supply of ICT products	420,574	163,027	31,199	614,800	449,971	180,826	33,975	664,772
Penggunaan/ Use								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Penggunaan perantaraan produk TMK Intermediate use on ICT products	200,382	81,779	15,351	297,513	223,575	92,944	17,468	333,987
Perbelanjaan penggunaan akhir produk TMK Final consumption expenditure on ICT products	16,537	45,805	8,742	71,084	18,023	50,125	9,332	77,480
Pembentukan modal kasar produk TMK Gross capital formation on ICT products	17,689	15,438	381	33,508	19,460	16,813	386	36,659
Eksport produk TMK Exports of ICT products	185,965	20,005	6,725	212,695	188,913	20,944	6,789	216,647
Jumlah penggunaan produk TMK Total use of ICT products	420,574	163,027	31,199	614,800	449,971	180,826	33,975	664,772

Jadual A2.1 : Penawaran dan Penggunaan Produk TMK - RM Juta (samb.)
Table A2.1 : Supply and Use of ICT Products - RM Million (cont'd)

2017					2018			
RM Juta RM Million								
Penawaran/ Supply								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Pengeluaran domestik TMK ICT domestic production	319,666	173,963	31,887	525,516	349,056	192,503	36,330	577,888
Import produk TMK Imports of ICT products	184,867	19,452	4,688	209,008	190,852	19,511	4,601	214,964
Cukai tolak subsidi ke atas produk TMK Taxes less subsidies on ICT products	1,821	2,872	1,327	6,020	1,572	1,508	761	3,841
Jumlah penawaran produk TMK Total supply of ICT products	506,354	196,287	37,902	740,544	541,480	213,521	41,692	796,693
Penggunaan/ Use								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Penggunaan perantaraan produk TMK Intermediate use on ICT products	230,812	100,887	20,528	352,227	231,360	110,274	28,000	369,634
Perbelanjaan penggunaan akhir produk TMK Final consumption expenditure on ICT products	18,369	56,004	10,016	84,389	19,544	61,468	6,334	87,346
Pembentukan modal kasar produk TMK Gross capital formation on ICT products	20,223	17,967	505	38,694	16,660	19,655	493	36,808
Eksport produk TMK Exports of ICT products	236,950	21,429	6,854	265,234	273,915	22,125	6,866	302,905
Jumlah penggunaan produk TMK Total use of ICT products	506,354	196,287	37,902	740,544	541,480	213,521	41,692	796,693

Jadual A2.1 : Penawaran dan Penggunaan Produk TMK - RM Juta (samb.)
Table A2.1 : Supply and Use of ICT Products - RM Million (cont'd)

2019					2020			
RM Juta RM Million								
Penawaran/ Supply								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Pengeluaran domestik TMK ICT domestic production	359,244	207,360	39,543	606,147	376,521	214,721	36,303	627,546
Import produk TMK Imports of ICT products	179,989	20,000	4,619	204,608	189,077	22,671	4,041	215,790
Cukai tolak subsidi ke atas produk TMK Taxes less subsidies on ICT products	2,220	2,925	1,006	6,152	1,285	2,651	560	4,495
Jumlah penawaran produk TMK Total supply of ICT products	541,453	230,286	45,169	816,907	566,883	240,043	40,904	847,831
Penggunaan/ Use								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Penggunaan perantaraan produk TMK Intermediate use on ICT products	242,564	120,075	30,543	393,182	244,337	124,321	27,848	396,505
Perbelanjaan penggunaan akhir produk TMK Final consumption expenditure on ICT products	22,278	66,804	7,255	96,336	23,519	69,901	5,905	99,325
Pembentukan modal kasar produk TMK Gross capital formation on ICT products	10,933	19,900	422	31,255	16,453	20,298	479	37,230
Eksport produk TMK Exports of ICT products	265,677	23,507	6,949	296,133	282,575	25,524	6,672	314,771
Jumlah penggunaan produk TMK Total use of ICT products	541,453	230,286	45,169	816,907	566,883	240,043	40,904	847,831

Jadual A2.1 : Penawaran dan Penggunaan Produk TMK - RM Juta (samb.)
Table A2.1 : Supply and Use of ICT Products - RM Million (cont'd)

2021					2022			
RM Juta RM Million								
Penawaran/ Supply								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Pengeluaran domestik TMK ICT domestic production	414,237	226,782	32,150	673,169	510,722	250,469	35,073	796,264
Import produk TMK Imports of ICT products	228,610	28,187	3,979	260,776	275,804	33,634	4,279	313,717
Cukai tolak subsidi ke atas produk TMK Taxes less subsidies on ICT products	618	3,866	2,145	6,630	619	4,075	2,499	7,192
Jumlah penawaran produk TMK Total supply of ICT products	643,465	258,834	38,274	940,574	787,145	288,178	41,851	1,117,174
Penggunaan/ Use								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Penggunaan perantaraan produk TMK Intermediate use on ICT products	278,290	132,606	27,040	437,935	321,408	150,283	28,613	500,304
Perbelanjaan penggunaan akhir produk TMK Final consumption expenditure on ICT products	25,751	75,656	4,883	106,290	33,783	78,743	7,424	119,950
Pembentukan modal kasar produk TMK Gross capital formation on ICT products	17,936	21,917	505	40,357	17,897	24,252	589	42,738
Eksport produk TMK Exports of ICT products	321,489	28,656	5,846	355,992	414,056	34,901	5,225	454,182
Jumlah penggunaan produk TMK Total use of ICT products	643,465	258,834	38,274	940,574	787,145	288,178	41,851	1,117,174

Jadual A2.1 : Penawaran dan Penggunaan Produk TMK - RM Juta (samb.)
Table A2.1 : Supply and Use of ICT Products - RM Million (cont'd)

2023 ^e					2024 ^p			
RM Juta RM Million								
Penawaran/ Supply								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Pengeluaran domestik TMK ICT domestic production	513,552	258,350	37,410	809,312	538,347	270,908	38,930	848,184
Import produk TMK Imports of ICT products	226,722	38,862	4,291	269,875	283,852	41,777	4,244	329,872
Cukai tolak subsidi ke atas produk TMK Taxes less subsidies on ICT products	672	4,292	2,702	7,666	714	4,889	3,644	9,248
Jumlah penawaran produk TMK Total supply of ICT products	740,946	301,505	44,403	1,086,853	822,913	317,574	46,818	1,187,305
Penggunaan/ Use								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Penggunaan perantaraan produk TMK Intermediate use on ICT products	293,112	159,082	31,923	484,117	357,106	164,392	33,431	554,929
Perbelanjaan penggunaan akhir produk TMK Final consumption expenditure on ICT products	35,551	82,003	7,665	125,218	37,144	85,230	8,058	130,433
Pembentukan modal kasar produk TMK Gross capital formation on ICT products	20,983	25,328	631	46,942	25,016	26,556	656	52,228
Eksport produk TMK Exports of ICT products	391,300	35,093	4,184	430,576	403,647	41,395	4,674	449,715
Jumlah penggunaan produk TMK Total use of ICT products	740,946	301,505	44,403	1,086,853	822,913	317,574	46,818	1,187,305

Jadual A2.2 : Penawaran dan Penggunaan Produk TMK - Perubahan Peratusan Tahunan
Table A2.2 : Supply and Use of ICT Products - Annual Percentage Change

2016					2017			
Perubahan peratusan tahunan (%) Annual percentage change (%)								
Penawaran/ Supply								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Pengeluaran domestik TMK ICT domestic production	7.9	12.3	10.9	9.4	6.3	10.6	14.7	8.1
Import produk TMK Imports of ICT products	5.3	2.1	0.0	4.8	25.5	-3.0	-0.7	21.4
Cukai tolak subsidi ke atas produk TMK Taxes less subsidies on ICT products	0.2	6.0	2.8	3.7	4.9	-15.9	-8.7	-8.8
Jumlah penawaran produk TMK Total supply of ICT products	7.0	10.9	8.9	8.1	12.5	8.6	11.6	11.4
Penggunaan/ Use								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Penggunaan perantaraan produk TMK Intermediate use on ICT products	11.6	13.7	13.8	12.3	3.2	8.6	17.5	5.5
Perbelanjaan penggunaan akhir produk TMK Final consumption expenditure on ICT products	9.0	9.4	6.8	9.0	1.9	11.7	7.3	8.9
Pembentukan modal kasar produk TMK Gross capital formation on ICT products	10.0	8.9	1.3	9.4	3.9	6.9	30.8	5.6
Eksport produk TMK Exports of ICT products	1.6	4.7	1.0	1.9	25.4	2.3	1.0	22.4
Jumlah penggunaan produk TMK Total use of ICT products	7.0	10.9	8.9	8.1	12.5	8.6	11.6	11.4

Jadual A2.2 : Penawaran dan Penggunaan Produk TMK - Perubahan Peratusan Tahunan (samb.)
Table A2.2 : Supply and Use of ICT Products - Annual Percentage Change (cont'd)

2018					2019			
Perubahan peratusan tahunan (%) Annual percentage change (%)								
Penawaran/ Supply								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Pengeluaran domestik TMK ICT domestic production	9.2	10.7	13.9	10.0	2.9	7.7	8.9	4.9
Import produk TMK Imports of ICT products	3.2	0.3	-1.9	2.9	-5.7	2.5	0.4	-4.8
Cukai tolak subsidi ke atas produk TMK Taxes less subsidies on ICT products	-13.7	-47.5	-42.6	-36.2	41.3	94.0	32.2	60.1
Jumlah penawaran produk TMK Total supply of ICT products	6.9	8.8	10.0	7.6	0.0	7.9	8.3	2.5

Penggunaan/ Use								
Komponen <i>Components</i>	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	<i>ICT goods</i>	<i>ICT services</i>	<i>Content and media products</i>	<i>Total</i>	<i>ICT goods</i>	<i>ICT services</i>	<i>Content and media products</i>	<i>Total</i>
Penggunaan perantaraan produk TMK <i>Intermediate use on ICT products</i>	0.2	9.3	36.4	4.9	4.8	8.9	9.1	6.4
Perbelanjaan penggunaan akhir produk TMK <i>Final consumption expenditure on ICT products</i>	6.4	9.8	-36.8	3.5	14.0	8.7	14.5	10.3
Pembentukan modal kasar produk TMK <i>Gross capital formation on ICT products</i>	-17.6	9.4	-2.3	-4.9	-34.4	1.2	-14.4	-15.1
Eksport produk TMK <i>Exports of ICT products</i>	15.6	3.2	0.2	14.2	-3.0	6.3	1.2	-2.2
Jumlah penggunaan produk TMK <i>Total use of ICT products</i>	6.9	8.8	10.0	7.6	0.0	7.9	8.3	2.5

Jadual A2.2 : Penawaran dan Penggunaan Produk TMK - Perubahan Peratusan Tahunan (samb.)
Table A2.2 : Supply and Use of ICT Products - Annual Percentage Change (cont'd)

2020					2021			
Perubahan peratusan tahunan (%) Annual percentage change (%)								
Penawaran/ Supply								
Komponen Components	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Pengeluaran domestik TMK ICT domestic production	4.8	3.6	-8.2	3.5	10.0	5.6	-11.4	7.3
Import produk TMK Imports of ICT products	5.1	13.4	-12.5	5.5	20.9	24.3	-1.5	20.9
Cukai tolak subsidi ke atas produk TMK Taxes less subsidies on ICT products	-42.1	-9.4	-44.4	-26.9	-51.9	45.9	283.2	47.5
Jumlah penawaran produk TMK Total supply of ICT products	4.7	4.2	-9.4	3.8	13.5	7.8	-6.4	10.9

Penggunaan/ Use								
Komponen <i>Components</i>	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	<i>ICT goods</i>	<i>ICT services</i>	<i>Content and media products</i>	<i>Total</i>	<i>ICT goods</i>	<i>ICT services</i>	<i>Content and media products</i>	<i>Total</i>
Penggunaan perantaraan produk TMK <i>Intermediate use on ICT products</i>	0.7	3.5	-8.8	0.9	13.9	6.7	-2.9	10.5
Perbelanjaan penggunaan akhir produk TMK <i>Final consumption expenditure on ICT products</i>	5.6	4.6	-18.6	3.1	9.5	8.2	-17.3	7.0
Pembentukan modal kasar produk TMK <i>Gross capital formation on ICT products</i>	50.5	2.0	13.6	19.1	9.0	8.0	5.3	8.4
Eksport produk TMK <i>Exports of ICT products</i>	6.4	8.6	-4.0	6.3	13.8	12.3	-12.4	13.1
Jumlah penggunaan produk TMK <i>Total use of ICT products</i>	4.7	4.2	-9.4	3.8	13.5	7.8	-6.4	10.9

Jadual A2.2 : Penawaran dan Penggunaan Produk TMK - Perubahan Peratusan Tahunan (samb.)
Table A2.2 : Supply and Use of ICT Products - Annual Percentage Change (cont'd)

2022					2023 ^e			
Perubahan peratusan tahunan (%) Annual percentage change (%)								
Penawaran/ Supply								
Komponen Component	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Pengeluaran domestik TMK ICT domestic production	23.3	10.5	9.1	18.3	0.6	3.2	6.7	1.6
Import produk TMK Imports of ICT products	20.6	19.3	7.5	20.3	-17.8	15.5	0.3	-14.0
Cukai tolak subsidi ke atas produk TMK Taxes less subsidies on ICT products	0.1	5.4	16.5	8.5	8.5	5.3	8.1	6.6
Jumlah penawaran produk TMK Total supply of ICT products	22.3	11.3	9.3	18.8	-5.9	4.6	6.1	-2.7
Penggunaan/ Use								
Komponen Component	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	ICT goods	ICT services	Content and media products	Total	ICT goods	ICT services	Content and media products	Total
Penggunaan perantaraan produk TMK Intermediate use on ICT products	15.5	13.3	5.8	14.2	-8.8	5.9	11.6	-3.2
Perbelanjaan penggunaan akhir produk TMK Final consumption expenditure on ICT products	31.2	4.1	52.0	12.9	5.2	4.1	3.2	4.4
Pembentukan modal kasar produk TMK Gross capital formation on ICT products	-0.2	10.7	16.7	5.9	17.2	4.4	7.2	9.8
Eksport produk TMK Exports of ICT products	28.8	21.8	-10.6	27.6	-5.5	0.6	-19.9	-5.2
Jumlah penggunaan produk TMK Total use of ICT products	22.3	11.3	9.3	18.8	-5.9	4.6	6.1	-2.7

Jadual A2.2 : Penawaran dan Penggunaan Produk TMK - Perubahan Peratusan Tahunan (samb.)
Table A2.2 : Supply and Use of ICT Products - Annual Percentage Change (cont'd)

2024 ^p				
Perubahan peratusan tahunan (%) <i>Annual percentage change (%)</i>				
Penawaran/ Supply				
Komponen <i>Components</i>	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	<i>ICT goods</i>	<i>ICT services</i>	<i>Content and media products</i>	<i>Total</i>
Pengeluaran domestik TMK <i>ICT domestic production</i>	4.8	4.9	4.1	4.8
Import produk TMK <i>Imports of ICT products</i>	25.2	7.5	-1.1	22.2
Cukai tolak subsidi ke atas produk TMK <i>Taxes less subsidies on ICT products</i>	6.3	13.9	34.9	20.6
Jumlah penawaran produk TMK <i>Total supply of ICT products</i>	6.3	13.9	34.9	20.6
Penggunaan/ Use				
Komponen <i>Components</i>	Barangan TMK	Perkhidmatan TMK	Produk kandungan dan media	Jumlah
	<i>ICT goods</i>	<i>ICT services</i>	<i>Content and media products</i>	<i>Total</i>
Penggunaan perantaraan produk TMK <i>Intermediate use on ICT products</i>	21.8	3.3	4.7	14.6
Perbelanjaan penggunaan akhir produk TMK <i>Final consumption expenditure on ICT products</i>	4.5	3.9	5.1	4.2
Pembentukan modal kasar produk TMK <i>Gross capital formation on ICT products</i>	19.2	4.9	3.9	11.3
Eksport produk TMK <i>Exports of ICT products</i>	3.2	18.0	11.7	4.4
Jumlah penggunaan produk TMK <i>Total use of ICT products</i>	6.3	13.9	34.9	20.6

Table A2.3 : Supply and Use of ICT Products - Percentage Share

[illegible][illegible]

Table A2.3 : Supply and Use of ICT Products - Percentage Share (cont'd)

[illegible][illegible]

Table A2.3 : Supply and Use of ICT Products - Percentage Share (cont'd)

[illegible][illegible]

Table A2.3 : Supply and Use of ICT Products - Percentage Share (cont'd)

[illegible][illegible]

Table A2.3 : Supply and Use of ICT Products - Percentage Share (cont'd)

[illegible]

Jadual A3 : Eksport Produk TMK
Table A3 : Exports of ICT Products

Produk TMK <i>ICT products</i>	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 ^p
RM Juta <i>RM Million</i>										
1. Barangan TMK <i>ICT goods</i>	185,965	188,913	236,950	273,915	265,677	282,575	321,489	414,056	391,300	403,647
2. Perkhidmatan TMK <i>ICT services</i>	20,005	20,944	21,429	22,125	23,507	25,524	28,656	34,901	35,093	41,395
3. Produk kandungan dan media <i>Content and media products</i>	6,725	6,789	6,854	6,866	6,949	6,672	5,846	5,225	4,184	4,674
Jumlah eksport produk TMK <i>Total exports of ICT products</i>	212,695	216,647	265,234	302,905	296,133	314,771	355,992	454,182	430,576	449,715
Jumlah eksport <i>Total exports</i>	817,370	834,491	960,778	992,511	987,481	873,477	1,093,895	1,378,618	1,252,717	1,378,518
Perubahan peratusan tahunan (%) <i>Annual percentage change (%)</i>										
1. Barangan TMK <i>ICT goods</i>		1.6	25.4	15.6	-3.0	6.4	13.8	28.8	-5.5	3.2
2. Perkhidmatan TMK <i>ICT services</i>		4.7	2.3	3.2	6.2	8.6	12.3	21.8	0.6	18.0
3. Produk kandungan dan media <i>Content and media products</i>		1.0	0.9	0.2	1.2	-4.0	-12.4	-10.6	-19.9	11.7
Jumlah eksport produk TMK <i>Total exports of ICT products</i>		1.9	22.4	14.2	-2.2	6.3	13.1	27.6	-5.2	4.4
Jumlah eksport <i>Total exports</i>		2.1	15.1	3.3	-0.5	-11.5	25.2	26.0	-9.1	10.0
Peratus sumbangan jumlah eksport produk TMK (%) <i>Percentage share total exports of ICT products (%)</i>										
1. Barangan TMK <i>ICT goods</i>	87.4	87.2	89.3	90.4	89.7	89.8	90.3	91.2	90.9	89.8
2. Perkhidmatan TMK <i>ICT services</i>	9.4	9.7	8.1	7.3	7.9	8.1	8.1	7.7	8.2	9.2
3. Produk kandungan dan media <i>Content and media products</i>	3.2	3.1	2.6	2.3	2.4	2.1	1.6	1.1	1.0	1.0
Jumlah eksport produk TMK <i>Total exports of ICT products</i>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Peratus sumbangan jumlah eksport (%) <i>Percentage share total exports (%)</i>										
Jumlah eksport produk TMK <i>Total exports of ICT products</i>	26.0	26.0	27.6	30.5	30.0	36.0	32.5	32.9	34.4	32.6

Jadual A4 : Import Produk TMK
Table A4 : Imports of ICT Products

Produk TMK <i>ICT products</i>	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 ^p
RM Juta <i>RM Million</i>										
1. Barangan TMK <i>ICT goods</i>	139,893	147,360	184,867	190,852	179,989	189,077	228,610	275,804	226,722	283,852
2. Perkhidmatan TMK <i>ICT services</i>	19,651	20,059	19,452	19,511	20,000	22,671	28,187	33,634	38,862	41,777
3. Produk kandungan dan media <i>Content and media products</i>	4,720	4,722	4,688	4,601	4,619	4,041	3,979	4,279	4,291	4,244
Jumlah import produk TMK <i>Total imports of ICT products</i>	164,264	172,141	209,008	214,964	204,608	215,790	260,776	313,717	269,875	329,872
Jumlah import <i>Total imports</i>	728,778	751,363	866,524	895,405	873,618	783,152	981,922	1,249,547	1,165,812	1,275,728
Perubahan peratusan tahunan (%) <i>Annual percentage change (%)</i>										
1. Barangan TMK <i>ICT goods</i>		5.3	25.5	3.2	-5.7	5.0	20.9	20.6	-17.8	25.2
2. Perkhidmatan TMK <i>ICT services</i>		2.1	-3.0	0.3	2.5	13.4	24.3	19.3	15.5	7.5
3. Produk kandungan dan media <i>Content and media products</i>		0.0	-0.7	-1.9	0.4	-12.5	-1.5	7.5	0.3	-1.1
Jumlah import produk TMK <i>Total imports of ICT products</i>		4.8	21.4	2.8	-4.8	5.5	20.8	20.3	-14.0	22.2
Jumlah import <i>Total imports</i>		3.1	15.3	3.3	-2.4	-10.4	25.4	27.3	-6.7	9.4
Peratus sumbangan jumlah import produk TMK (%) <i>Percentage share total imports of ICT products (%)</i>										
1. Barangan TMK <i>ICT goods</i>	85.1	85.6	88.5	88.8	88.0	87.6	87.7	87.9	84.0	86.0
2. Perkhidmatan TMK <i>ICT services</i>	12.0	11.7	9.3	9.1	9.8	10.5	10.8	10.7	14.4	12.7
3. Produk kandungan dan media <i>Content and media products</i>	2.9	2.7	2.2	2.1	2.2	1.9	1.5	1.4	1.6	1.3
Jumlah import produk TMK <i>Total imports of ICT products</i>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Peratus sumbangan jumlah import (%) <i>Percentage share total imports (%)</i>										
Jumlah import produk TMK <i>Total imports of ICT products</i>	22.5	22.9	24.1	24.0	23.4	27.6	26.6	25.1	23.1	25.9

Table A5 : Income Components of ICT Industry

[illegible]

	Perubahan peratusan tahunan (%) Annual percentage change (%)								
Pampasan pekerja <i>Compensation of employees</i>	7.7	10.1	5.2	4.6	-0.1	6.6	11.1	2.7	1.0
Lebihan kendalian kasar <i>Gross operating surplus</i>	8.5	8.8	9.7	6.5	6.8	8.7	16.2	4.1	7.6
Cukai tolak subsidi ke atas pengeluaran dan import <i>Taxes less subsidies on production and imports</i>	4.8	-10.6	-39.0	52.6	-35.7	28.5	-62.2	26.5	7.1
Jumlah <i>Total</i>	8.1	8.6	6.4	6.6	3.1	8.3	12.9	3.7	5.3

[illegible]

Jadual A6 : Guna Tenaga dalam Industri TMK
Table A6 : Employment in the ICT Industry

Jenis aktiviti ekonomi <i>Kind of economic activity</i>	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Bilangan orang ('000) <i>Number of persons ('000)</i>										
1. Pembuatan TMK <i>ICT manufacturing</i>	408	407	412	415	416	409	433	439	441	441
2. Perdagangan TMK <i>ICT trade</i>	218	220	224	234	238	252	263	264	277	290
3. Perkhidmatan TMK <i>ICT services</i>	286	290	302	316	325	341	352	357	361	362
4. Kandungan dan media <i>Content and media</i>	152	155	155	156	156	156	157	158	158	158
Jumlah guna tenaga dalam industri TMK <i>Total employment in the ICT industry</i>	1,064	1,072	1,094	1,122	1,136	1,158	1,206	1,217	1,237	1,251
Jumlah guna tenaga <i>Total employment</i>	14,068	14,164	14,477	14,776	15,073	14,719	14,825	15,155	15,813	16,369
Perubahan peratusan tahunan (%) <i>Annual percentage change (%)</i>										
1. Pembuatan TMK <i>ICT manufacturing</i>		-0.2	1.2	0.7	0.2	-1.6	5.8	1.4	0.4	0.1
2. Perdagangan TMK <i>ICT trade</i>		0.8	2.2	4.3	1.6	5.8	4.6	0.3	4.8	4.9
3. Perkhidmatan TMK <i>ICT services</i>		1.2	4.1	5.0	2.8	4.9	3.3	1.2	1.3	0.2
4. Kandungan dan media <i>Content and media</i>		2.0	0.3	0.3	0.2	-0.1	0.6	0.4	0.2	0.1
Jumlah guna tenaga dalam industri TMK <i>Total employment in the ICT industry</i>		0.7	2.1	2.5	1.2	2.0	4.1	1.0	1.6	1.2
Jumlah guna tenaga <i>Total employment</i>		0.7	2.2	2.1	2.0	-2.4	0.7	2.2	4.3	3.5
Peratus sumbangan jumlah guna tenaga dalam industri TMK (%) <i>Percentage share total employment in the ICT industry (%)</i>										
1. Pembuatan TMK <i>ICT manufacturing</i>	38.4	38.0	37.7	37.0	36.6	35.3	35.9	36.1	35.6	35.3
2. Perdagangan TMK <i>ICT trade</i>	20.5	20.5	20.5	20.9	21.0	21.7	21.8	21.7	22.4	23.2
3. Perkhidmatan TMK <i>ICT services</i>	26.9	27.0	27.6	28.2	28.6	29.5	29.2	29.3	29.2	28.9
4. Kandungan dan media <i>Content and media</i>	14.3	14.5	14.2	13.9	13.8	13.5	13.0	12.9	12.8	12.6
Jumlah guna tenaga dalam industri TMK <i>Total employment in the ICT industry</i>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Peratus sumbangan jumlah guna tenaga (%) <i>Percentage share total employment (%)</i>										
Jumlah guna tenaga dalam industri TMK <i>Total employment in the ICT industry</i>	7.6	7.6	7.6	7.6	7.5	7.9	8.1	8.0	7.8	7.6

Jadual A7.1 : Nilai Ditambah Kasar Industri TMK - RM Juta
Table A7.1 : Gross Value Added of ICT Industry - RM Million

Jenis aktiviti ekonomi <i>Kind of economic activity</i>	2015	2016	2017	2018	2019	2020	2021	2022	2023 ^e	2024 ^p
RM Juta RM Million										
1. Pembuatan TMK <i>ICT manufacturing</i>	52,076	56,287	60,598	62,064	65,686	69,485	77,748	94,132	96,352	103,478
1.1 Komputer dan kelengkapan peranti <i>Computers and peripheral equipment</i>	5,339	5,549	5,162	5,247	5,651	6,038	6,564	6,697	7,122	9,018
1.2 Komponen & papan elektronik, peralatan komunikasi dan elektronik pengguna <i>Electronic components & boards, communication equipment and consumer electronics</i>	46,737	50,737	55,436	56,817	60,035	63,447	71,184	87,436	89,229	94,461
2. Perdagangan TMK <i>ICT trade</i>	22,430	24,361	26,430	28,189	30,085	28,489	30,418	38,111	39,463	41,259
2.1 Perdagangan borong <i>Wholesale trade</i>	7,768	8,251	8,740	9,163	9,638	9,215	9,635	11,003	11,546	12,154
2.2 Perdagangan runcit <i>Retail trade</i>	14,661	16,110	17,690	19,026	20,447	19,274	20,784	27,108	27,917	29,105
3. Perkhidmatan TMK <i>ICT services</i>	60,803	65,681	72,076	79,240	84,976	90,553	97,150	99,703	104,205	107,692
3.1 Telekomunikasi <i>Telecommunications</i>	41,012	45,090	49,520	53,973	57,819	63,054	68,090	70,811	73,161	75,381
3.2 Pengaturcaraan komputer, perundingan, maklumat dan aktiviti yang berkaitan <i>Computer programming, consultancy, information and related activities</i>	14,219	15,147	16,323	17,639	18,740	19,446	19,947	21,278	22,042	22,780
3.3 Perkhidmatan TMK lain <i>Other ICT services</i>	5,572	5,444	6,233	7,629	8,417	8,053	9,113	7,614	9,002	9,530
4. Kandungan dan media <i>Content and media</i>	11,263	12,070	12,924	13,585	14,443	12,737	12,562	14,098	15,184	16,262
4.1 Aktiviti penerbitan buku, terbitan berkala dan penerbitan lain <i>Publishing of books, periodicals and other publishing activities</i>	5,446	5,757	6,013	6,122	6,500	5,931	5,840	6,313	6,624	7,054
4.2 Aktiviti wayang gambar, video, program televisyen, fotografi dan kreatif <i>Motion picture, video, television programme, photographic and creative activities</i>	2,209	2,428	2,673	2,813	3,101	2,210	1,997	2,709	3,242	3,674
4.3 Kandungan dan media lain <i>Other content and media</i>	3,608	3,885	4,238	4,650	4,842	4,596	4,724	5,077	5,319	5,535
Nilai Ditambah Kasar Industri TMK <i>Gross Value Added of ICT Industry</i>	146,571	158,399	172,029	183,078	195,191	201,263	217,878	246,044	255,204	268,691
Keluaran Dalam Negeri Kasar <i>Gross Domestic Product</i>	1,176,941	1,249,698	1,372,310	1,447,760	1,512,738	1,418,491	1,548,701	1,794,893	1,824,019	1,932,291

Jadual A7.2 : Nilai Ditambah Kasar Industri TMK - Perubahan Peratusan Tahunan
Table A7.2 : Gross Value Added of ICT Industry - Annual Percentage Change

Jenis aktiviti ekonomi <i>Kind of economic activity</i>	2016	2017	2018	2019	2020	2021	2022	2023 ^e	2024 ^p
Perubahan peratusan tahunan (%) <i>Annual percentage change (%)</i>									
1. Pembuatan TMK <i>ICT manufacturing</i>	8.1	7.7	2.4	5.8	5.8	11.9	21.1	2.4	7.4
1.1 Komputer dan kelengkapan peranti <i>Computers and peripheral equipment</i>	3.9	-7.0	1.6	7.7	6.8	8.7	2.0	6.4	26.6
1.2 Komponen & papan elektronik, peralatan komunikasi dan elektronik pengguna <i>Electronic components & boards, communication equipment and consumer electronics</i>	8.6	9.3	2.5	5.7	5.7	12.2	22.8	2.1	5.9
2. Perdagangan TMK <i>ICT trade</i>	8.6	8.5	6.7	6.7	-5.3	6.8	25.3	3.5	4.6
2.1 Perdagangan borong <i>Wholesale trade</i>	6.2	5.9	4.8	5.2	-4.4	4.6	14.2	4.9	5.3
2.2 Perdagangan runcit <i>Retail trade</i>	9.9	9.8	7.6	7.5	-5.7	7.8	30.4	3.0	4.3
3. Perkhidmatan TMK <i>ICT services</i>	8.0	9.7	9.9	7.2	6.6	7.3	2.6	4.5	3.3
3.1 Telekomunikasi <i>Telecommunications</i>	9.9	9.8	9.0	7.1	9.1	8.0	4.0	3.3	3.0
3.2 Pengaturcaraan komputer, perundingan, maklumat dan aktiviti yang berkaitan <i>Computer programming, consultancy, information and related activities</i>	6.5	7.8	8.1	6.2	3.8	2.6	6.7	3.6	3.4
3.3 Perkhidmatan TMK lain <i>Other ICT services</i>	-2.3	14.5	22.4	10.3	-4.3	13.2	-16.4	18.2	5.9
4. Kandungan dan media <i>Content and media</i>	7.2	7.1	5.1	6.3	-11.8	-1.4	12.2	7.7	7.1
4.1 Aktiviti penerbitan buku, terbitan berkala dan penerbitan lain <i>Publishing of books, periodicals and other publishing activities</i>	5.7	4.4	1.8	6.2	-8.8	-1.5	8.1	4.9	6.5
4.2 Aktiviti wayang gambar, video, program televisyen, fotografi dan kreatif <i>Motion picture, video, television programme, photographic and creative activities</i>	9.9	10.1	5.2	10.2	-28.7	-9.6	35.6	19.7	13.3
4.3 Kandungan dan media lain <i>Other content and media</i>	7.7	9.1	9.7	4.1	-5.1	2.8	7.5	4.8	4.1
Nilai Ditambah Kasar Industri TMK <i>Gross Value Added of ICT Industry</i>	8.1	8.6	6.4	6.6	3.1	8.3	12.9	3.7	5.3
Keluaran Dalam Negeri Kasar <i>Gross Domestic Product</i>	6.2	9.8	5.5	4.5	-6.2	9.2	15.9	1.6	5.9

Jadual A7.3 : Nilai Ditambah Kasar Industri TMK - Peratus Sumbangan
Table A7.3 : Gross Value Added of ICT Industry - Percentage Share

Jenis aktiviti ekonomi <i>Kind of economic activity</i>	2015	2016	2017	2018	2019	2020	2021	2022	2023 ^e	2024 ^p
Peratus sumbangan Nilai Ditambah Kasar Industri TMK (%) <i>Percentage share Gross Value Added of ICT Industry (%)</i>										
1. Pembuatan TMK <i>ICT manufacturing</i>	35.5	35.5	35.2	33.9	33.7	34.5	35.7	38.3	37.8	38.5
1.1 Komputer dan kelengkapan peranti <i>Computers and peripheral equipment</i>	3.6	3.5	3.0	2.9	2.9	3.0	3.0	2.7	2.8	3.4
1.2 Komponen & papan elektronik, peralatan komunikasi dan elektronik pengguna <i>Electronic components & boards, communication equipment and consumer electronics</i>	31.9	32.0	32.2	31.0	30.8	31.5	32.7	35.5	35.0	35.2
2. Perdagangan TMK <i>ICT trade</i>	15.3	15.4	15.4	15.4	15.4	14.2	14.0	15.5	15.5	15.4
2.1 Perdagangan borong <i>Wholesale trade</i>	5.3	5.2	5.1	5.0	4.9	4.6	4.4	4.5	4.5	4.5
2.2 Perdagangan runcit <i>Retail trade</i>	10.0	10.2	10.3	10.4	10.5	9.6	9.5	11.0	10.9	10.8
3. Perkhidmatan TMK <i>ICT services</i>	41.5	41.5	41.9	43.3	43.5	45.0	44.6	40.5	40.8	40.1
3.1 Telekomunikasi <i>Telecommunications</i>	28.0	28.5	28.8	29.5	29.6	31.3	31.3	28.8	28.7	28.1
3.2 Pengaturcaraan komputer, perundingan, maklumat dan aktiviti yang berkaitan <i>Computer programming, consultancy, information and related activities</i>	9.7	9.6	9.5	9.6	9.6	9.7	9.2	8.6	8.6	8.5
3.3 Perkhidmatan TMK lain <i>Other ICT services</i>	3.8	3.4	3.6	4.2	4.3	4.0	4.2	3.1	3.5	3.6
4. Kandungan dan media <i>Content and media</i>	7.7	7.6	7.5	7.4	7.4	6.3	5.8	5.7	5.9	6.1
4.1 Aktiviti penerbitan buku, terbitan berkala dan penerbitan lain <i>Publishing of books, periodicals and other publishing activities</i>	3.7	3.6	3.5	3.3	3.3	2.9	2.7	2.6	2.6	2.6
4.2 Aktiviti wayang gambar, video, program televisyen, fotografi dan kreatif <i>Motion picture, video, television programme, photographic and creative activities</i>	1.5	1.5	1.6	1.5	1.6	1.1	0.9	1.1	1.3	1.4
4.3 Kandungan dan media lain <i>Other content and media</i>	2.5	2.5	2.5	2.5	2.5	2.3	2.2	2.1	2.1	2.1
Nilai Ditambah Kasar Industri TMK <i>Gross Value Added of ICT Industry</i>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Peratus sumbangan kepada KDNK (%) <i>Percentage share to GDP (%)</i>										
Nilai Ditambah Kasar Industri TMK <i>Gross Value Added of ICT Industry</i>	12.5	12.7	12.5	12.6	12.9	14.2	14.1	13.7	14.0	13.9

Jadual A8.1 : Nilai Ditambah Kasar E-Dagang mengikut Industri TMK
Table A8.1 : Gross Value Added of E-Commerce by ICT Industry

Jenis aktiviti ekonomi <i>Kind of economic activity</i>	2015	2016	2017	2018	2019	2020	2021	2022	2023 ^e	2024 ^p
RM Juta <i>RM Million</i>										
Industri TMK/ ICT industry	22,712	26,013	28,520	30,341	34,507	44,854	58,689	70,646	72,458	75,588
1. Pembuatan TMK <i>ICT manufacturing</i>	16,319	18,749	20,044	20,504	22,449	27,758	35,713	43,713	44,676	46,850
2. Perdagangan TMK <i>ICT trade</i>	1,771	2,086	2,805	3,668	4,824	7,433	10,195	12,670	13,010	13,626
3. Perkhidmatan TMK <i>ICT services</i>	3,825	4,156	4,588	5,044	6,033	8,126	10,979	12,084	12,384	12,501
4. Kandungan dan media <i>Content and media</i>	797	1,022	1,082	1,126	1,201	1,536	1,802	2,179	2,388	2,611
Industri bukan TMK/ Non ICT industry	66,434	69,631	78,783	87,106	94,844	119,007	142,090	168,794	174,118	182,602
Nilai Ditambah Kasar e-dagang <i>Gross Value Added of e-commerce</i>	89,145	95,644	107,303	117,448	129,351	163,860	200,780	239,439	246,576	258,190
Perubahan peratusan tahunan (%) <i>Annual percentage change (%)</i>										
Industri TMK/ ICT industry		14.5	9.6	6.4	13.7	30.0	30.8	20.4	2.6	4.3
1. Pembuatan TMK <i>ICT manufacturing</i>		14.9	6.9	2.3	9.5	23.6	28.7	22.4	2.2	4.9
2. Perdagangan TMK <i>ICT trade</i>		17.8	34.5	30.8	31.5	54.1	37.2	24.3	2.7	4.7
3. Perkhidmatan TMK <i>ICT services</i>		8.7	10.4	9.9	19.6	34.7	35.1	10.1	2.5	0.9
4. Kandungan dan media <i>Content and media</i>		28.3	5.9	4.1	6.6	27.9	17.4	20.9	9.6	9.3
Industri bukan TMK/ Non ICT industry		4.8	13.1	10.6	8.9	25.5	19.4	18.8	3.2	4.9
Nilai Ditambah Kasar e-dagang <i>Gross Value Added of e-commerce</i>		7.3	12.2	9.5	10.1	26.7	22.5	19.3	3.0	4.7
Peratus sumbangan Nilai Ditambah Kasar E-Dagang (%) <i>Percentage share Gross Value Added of E-Commerce (%)</i>										
Industri TMK/ ICT industry	25.5	27.2	26.6	25.8	26.7	27.4	29.2	29.5	29.4	29.3
1. Pembuatan TMK <i>ICT manufacturing</i>	18.3	19.6	18.7	17.5	17.4	17.0	17.8	18.3	18.1	18.1
2. Perdagangan TMK <i>ICT trade</i>	2.0	2.2	2.6	3.1	3.7	4.5	5.1	5.3	5.3	5.3
3. Perkhidmatan TMK <i>ICT services</i>	4.3	4.3	4.3	4.3	4.7	5.0	5.5	5.0	5.0	4.8
4. Kandungan dan media <i>Content and media</i>	0.9	1.1	1.0	1.0	0.9	0.9	0.9	0.9	1.0	1.0
Industri bukan TMK/ Non ICT industry	74.5	72.8	73.4	74.2	73.3	72.6	70.8	70.5	70.6	70.7
Nilai Ditambah Kasar e-dagang <i>Gross Value Added of e-commerce</i>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Peratus sumbangan kepada KDNK (%) <i>Percentage share to GDP (%)</i>										
Industri TMK/ ICT industry	1.9	2.1	2.1	2.1	2.3	3.2	3.8	3.9	4.0	3.9
Industri bukan TMK/ Non ICT industry	5.6	5.6	5.7	6.0	6.3	8.4	9.2	9.4	9.6	9.5
Nilai Ditambah Kasar e-dagang <i>Gross Value Added of e-commerce</i>	7.6	7.7	7.8	8.1	8.6	11.6	13.0	13.3	13.5	13.4

Jadual A8.2 : Nilai Ditambah Kasar E-Dagang mengikut Sektor Utama
Table A8.2 : Gross Value Added of E-Commerce by Main Sector

Jenis aktiviti ekonomi <i>Kind of economic activity</i>	2015	2016	2017	2018	2019	2020	2021	2022	2023 ^e	2024 ^p
RM Juta <i>RM Million</i>										
1. Pertanian <i>Agriculture</i>	155	170	276	276	293	347	415	444	433	466
2. Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	3,743	3,537	4,160	4,875	4,942	5,577	7,081	7,999	6,909	6,838
3. Pembuatan <i>Manufacturing</i>	57,855	60,865	66,933	69,382	73,703	89,030	115,736	127,162	127,336	133,485
4. Pembinaan <i>Construction</i>	64	77	76	76	76	98	101	113	117	135
5. Perkhidmatan <i>Services</i>	27,328	30,995	35,858	42,840	50,336	68,808	77,447	103,721	111,781	117,267
Nilai Ditambah Kasar e-dagang <i>Gross Value Added of e-commerce</i>	89,145	95,644	107,303	117,448	129,351	163,860	200,780	239,439	246,576	258,190
Perubahan peratusan tahunan (%) <i>Annual percentage change (%)</i>										
1. Pertanian <i>Agriculture</i>		9.5	62.7	-0.2	6.4	18.2	19.7	6.9	-2.4	7.5
2. Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>		-5.5	17.6	17.2	1.4	12.8	27.0	13.0	-13.6	-1.0
3. Pembuatan <i>Manufacturing</i>		5.2	10.0	3.7	6.2	20.8	30.0	9.9	0.1	4.8
4. Pembinaan <i>Construction</i>		19.7	-1.0	-0.7	-0.1	30.0	2.9	12.1	3.3	15.1
5. Perkhidmatan <i>Services</i>		13.4	15.7	19.5	17.5	36.7	12.6	33.9	7.8	4.9
Nilai Ditambah Kasar e-dagang <i>Gross Value Added of e-commerce</i>		7.3	12.2	9.5	10.1	26.7	22.5	19.3	3.0	4.7
Peratus sumbangan Nilai Ditambah Kasar e-dagang (%) <i>Percentage share Gross Value Added of e-commerce (%)</i>										
1. Pertanian <i>Agriculture</i>	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2. Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	4.2	3.7	3.9	4.1	3.8	3.4	3.5	3.3	2.8	2.6
3. Pembuatan <i>Manufacturing</i>	64.9	63.6	62.4	59.1	57.0	54.3	57.6	53.1	51.6	51.7
4. Pembinaan <i>Construction</i>	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1
5. Perkhidmatan <i>Services</i>	30.7	32.4	33.4	36.5	38.9	42.0	38.6	43.3	45.3	45.4
Nilai Ditambah Kasar e-dagang <i>Gross Value Added of e-commerce</i>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Peratus sumbangan kepada KDNK (%) <i>Percentage share to GDP (%)</i>										
1. Pertanian <i>Agriculture</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.4
3. Pembuatan <i>Manufacturing</i>	4.9	4.9	4.9	4.8	4.9	6.3	7.5	7.1	7.0	6.9
4. Pembinaan <i>Construction</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. Perkhidmatan <i>Services</i>	2.3	2.5	2.6	3.0	3.3	4.9	5.0	5.8	6.1	6.1
Nilai Ditambah Kasar e-dagang <i>Gross Value Added of e-commerce</i>	7.6	7.7	7.8	8.1	8.6	11.6	13.0	13.3	13.5	13.4

Jadual A9 : Sumbangan TMK kepada Ekonomi
Table A9 : ICT Contribution to Economy

Jenis aktiviti ekonomi <i>Kind of economic activity</i>	2015	2016	2017	2018	2019	2020	2021	2022	2023 ^e	2024 ^p
RM Juta <i>RM Million</i>										
Industri TMK <i>ICT industry</i>	146,571	158,399	172,029	183,078	195,191	201,263	217,878	246,044	255,204	268,691
1. Pembuatan TMK <i>ICT manufacturing</i>	52,076	56,287	60,598	62,064	65,686	69,485	77,748	94,132	96,352	103,478
2. Perdagangan TMK <i>ICT trade</i>	22,430	24,361	26,430	28,189	30,085	28,489	30,418	38,111	39,463	41,259
3. Perkhidmatan TMK <i>ICT services</i>	60,803	65,681	72,076	79,240	84,976	90,553	97,150	99,703	104,205	107,692
4. Kandungan dan media <i>Content and media</i>	11,263	12,070	12,924	13,585	14,443	12,737	12,562	14,098	15,184	16,262
E-dagang industri bukan TMK <i>E-commerce of non ICT industry</i>	66,434	69,631	78,783	87,106	94,844	119,007	142,090	168,794	174,118	182,602
Jumlah TMK dan e-dagang <i>Total ICT and e-commerce</i>	213,005	228,030	250,812	270,185	290,035	320,270	359,969	414,838	429,322	451,293
Perubahan peratusan tahunan (%) <i>Annual percentage change (%)</i>										
Industri TMK <i>ICT industry</i>		8.1	8.6	6.4	6.6	3.1	8.3	12.9	3.7	5.3
1. Pembuatan TMK <i>ICT manufacturing</i>		8.1	7.7	2.4	5.8	5.8	11.9	21.1	2.4	7.4
2. Perdagangan TMK <i>ICT trade</i>		8.6	8.5	6.7	6.7	-5.3	6.8	25.3	3.5	4.6
3. Perkhidmatan TMK <i>ICT services</i>		8.0	9.7	9.9	7.2	6.6	7.3	2.6	4.5	3.3
4. Kandungan dan media <i>Content and media</i>		7.2	7.1	5.1	6.3	-11.8	-1.4	12.2	7.7	7.1
E-dagang industri bukan TMK <i>E-commerce of non ICT industry</i>		4.8	13.1	10.6	8.9	25.5	19.4	18.8	3.2	4.9
Jumlah TMK dan e-dagang <i>Total ICT and e-commerce</i>		7.1	10.0	7.7	7.3	10.4	12.4	15.2	3.5	5.1
Peratus sumbangan jumlah TMK dan e-dagang (%) <i>Percentage share of total ICT and e-commerce (%)</i>										
Industri TMK <i>ICT industry</i>	68.8	69.5	68.6	67.8	67.3	62.8	60.5	59.3	59.4	59.5
1. Pembuatan TMK <i>ICT manufacturing</i>	24.4	24.7	24.2	23.0	22.6	21.7	21.6	22.7	22.4	22.9
2. Perdagangan TMK <i>ICT trade</i>	10.5	10.7	10.5	10.4	10.4	8.9	8.5	9.2	9.2	9.1
3. Perkhidmatan TMK <i>ICT services</i>	28.5	28.8	28.7	29.3	29.3	28.3	27.0	24.0	24.3	23.9
4. Kandungan dan media <i>Content and media</i>	5.3	5.3	5.2	5.0	5.0	4.0	3.5	3.4	3.5	3.6
E-dagang industri bukan TMK <i>E-commerce of non ICT industry</i>	31.2	30.5	31.4	32.2	32.7	37.2	39.5	40.7	40.6	40.5
Jumlah TMK dan e-dagang <i>Total ICT and e-commerce</i>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Peratus sumbangan kepada KDNK (%) <i>Percentage share to GDP (%)</i>										
Industri TMK <i>ICT industry</i>	12.5	12.7	12.5	12.6	12.9	14.2	14.1	13.7	14.0	13.9
E-dagang industri bukan TMK <i>E-commerce of non ICT industry</i>	5.6	5.6	5.7	6.0	6.3	8.4	9.2	9.4	9.5	9.5
Sumbangan TMK kepada ekonomi <i>ICT contribution to economy</i>	18.1	18.2	18.3	18.7	19.2	22.6	23.2	23.1	23.5	23.4

Jadual B : Perangkaan Utama Perkhidmatan Maklumat & Komunikasi 2020-2025
Jadual B : Principal Statistics of Information & Communication Services 2020-2025

Tahun Year	Suku Tahun Quarter	Hasil* Revenue* (RM'000)	YoY %	QoQ	Bilangan Pekerja Number of Persons Engaged	YoY %	QoQ	Gaji & Upah Salaries & Wages (RM'000)	YoY %	QoQ
Maklumat dan Komunikasi <i>Information and Communication</i>										
2020		146,100,766	5.2		133,583	-0.6		8,887,021	-4.3	
2021		153,347,247	5.0		138,660	3.8		8,277,499	-6.9	
2022		161,886,256	5.6		141,433	2.0		8,789,676	6.2	
2023		170,490,771	5.3		142,770	0.9		9,135,463	3.9	
2024		176,231,650	3.4		145,544	1.9		9,344,554	2.3	
2020	1	35,712,749	6.5	-2.1	134,257	-1.1	-0.1	2,172,232	-0.3	-9.9
	2	36,096,109	3.7	1.1	137,086	-2.3	2.1	2,183,728	-7.0	0.5
	3	35,553,458	4.5	-1.5	139,758	0.1	1.9	2,278,388	-2.9	4.3
	4	38,738,450	6.2	9.0	133,583	-0.6	-4.4	2,252,673	-6.5	-1.1
2021	1	37,660,336	5.5	-2.8	133,088	-0.9	-0.4	2,024,357	-6.8	-10.1
	2	37,749,506	4.6	0.2	133,690	-2.5	0.5	2,015,575	-7.7	-0.4
	3	37,885,046	6.6	0.4	138,540	-0.9	3.6	2,102,592	-7.7	4.3
	4	40,052,360	3.4	5.7	138,660	3.8	0.1	2,134,974	-5.2	1.5
2022	1	40,161,014	6.6	0.3	139,450	4.8	0.6	2,152,002	6.3	0.8
	2	40,212,495	6.5	0.1	139,977	4.7	0.4	2,154,787	6.9	0.1
	3	40,258,938	6.3	0.1	140,992	1.8	0.7	2,222,881	5.7	3.2
	4	41,253,808	3.0	2.5	141,433	2.0	0.3	2,260,007	5.9	1.7
2023	1	42,073,114	4.8	2.0	141,774	1.7	0.2	2,273,762	5.7	0.6
	2	42,502,656	5.7	1.0	142,084	1.5	0.2	2,275,645	5.6	0.1
	3	42,787,068	6.3	0.7	142,387	1.0	0.2	2,286,210	2.8	0.5
	4	43,127,933	4.5	0.8	142,770	0.9	0.3	2,299,846	1.8	0.6
2024	1	43,388,608	3.1	0.6	143,018	0.9	0.2	2,307,859	1.5	0.3
	2	43,861,939	3.2	1.1	143,597	1.1	0.4	2,319,823	1.9	0.5
	3	44,152,770	3.2	0.7	144,703	1.6	0.8	2,342,210	2.4	1.0
	4	44,828,332	3.9	1.5	145,544	1.9	0.6	2,374,662	3.3	1.4
2025	1	44,834,467	3.3	0.0	145,728	1.9	0.1	2,379,510	3.1	0.2
	2^r	45,309,121	3.3	1.1	146,214	1.8	0.3	2,393,713	3.2	0.6
	3^p	45,898,220	4.0	1.3	146,537	1.3	0.2	2,410,991	2.9	0.7

Jadual C1: Penggunaan Komputer, Internet dan Web Presence mengikut Sektor/ Subsektor, 2015, 2022 dan 2023
Table C1: Usage of Computer, Internet and Web Presence by Sector/ Sub-sector, 2015, 2022 and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Penggunaan komputer <i>Computer usage</i>	Penggunaan internet <i>Internet usage</i>	Penggunaan web presence <i>Web presence owned</i>
		%	%	%
Jumlah <i>Total</i>	2023	96.6	94.0	72.7
	2022	95.9	93.3	71.4
	2015	73.5	61.5	28.4
Pertanian <i>Agriculture</i>	2023	92.2	88.8	58.9
	2022	89.9	85.0	54.8
	2015	69.2	49.4	8.5
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023	94.2	94.2	58.7
	2022	93.0	91.0	55.4
	2015	88.3	75.5	25.0
Pembuatan <i>Manufacturing</i>	2023	95.0	95.0	76.0
	2022	94.8	94.6	74.4
	2015	91.8	88.1	16.6
Pembinaan <i>Construction</i>	2023	97.1	96.0	71.5
	2022	96.8	95.7	70.8
	2015	73.4	67.7	12.2
Perkhidmatan <i>Services</i>	2023	96.7	93.9	72.9
	2022	96.0	93.1	71.6
	2015	72.4	59.8	30.2
Utiliti <i>Utility</i>	2023	100.0	100.0	76.6
	2022	98.2	97.9	70.4
	2015	78.7	71.5	17.3
Perdagangan Borong dan Runcit <i>Wholesale and Retail Trade</i>	2023	96.7	95.4	67.5
	2022	96.3	95.0	67.4
	2015	87.0	74.3	46.2
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023	91.9	89.7	68.2
	2022	91.7	88.6	65.3
	2015	33.7	38.5	22.2
Penginapan <i>Accommodation</i>	2023	100.0	99.8	93.3
	2022	99.6	99.5	92.8
	2015	90.9	76.1	28.6
Makanan dan Minuman <i>Food and Beverages</i>	2023	93.4	78.7	69.8
	2022	91.0	77.5	66.8
	2015	41.3	20.2	11.8
Maklumat dan Komunikasi <i>Information and Communication</i>	2023	100.0	100.0	100.0
	2022	100.0	100.0	100.0
	2015	100.0	100.0	89.7
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023	100.0	100.0	100.0
	2022	100.0	100.0	100.0
	2015	100.0	100.0	26.2

Jadual C1: Penggunaan Komputer, Internet dan Web Presence mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table C1: Usage of Computer, Internet and Web Presence by Sector/ Sub-sector, 2015, 2022 and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Penggunaan komputer <i>Computer usage</i>	Penggunaan internet <i>Internet usage</i>	Penggunaan web presence <i>Web presence owned</i>
		%	%	%
Hartanah <i>Real Estate</i>	2023	100.0	100.0	73.6
	2022	100.0	100.0	70.1
	2015	99.8	99.7	12.3
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023	100.0	99.0	78.9
	2022	100.0	97.9	75.8
	2015	98.5	93.8	17.5
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023	99.7	99.7	73.1
	2022	99.6	99.6	72.7
	2015	84.9	75.2	11.5
Pendidikan <i>Education</i>	2023	98.8	98.8	77.9
	2022	98.5	98.1	76.4
	2015	86.8	74.4	18.0
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023	99.1	99.1	83.2
	2022	99.0	99.0	82.4
	2015	82.8	68.4	12.7
Kesenian, Hiburan dan Rekreasi <i>Arts, Entertainment and Recreation</i>	2023	98.1	96.2	79.1
	2022	96.0	94.8	77.4
	2015	81.7	76.0	15.1
Perkhidmatan Lain <i>Other Services</i>	2023	96.3	96.3	85.0
	2022	95.2	95.2	80.3
	2015	38.7	23.5	10.2

Jadual C2: Jenis Web Presence yang Dimiliki mengikut Sektor/ Subsektor, 2015, 2022 dan 2023
Table C2: Type of Web Presence Owned by Sector/ Sub-sector, 2015, 2022, and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Laman web kepunyaan sendiri <i>Website owned by establishment</i>	Laman web di entiti lain <i>Presence on another entity's website</i>	Media sosial <i>Social media</i>	E-Pasaran <i>E-Marketplace</i>
		%	%	%	%
Jumlah <i>Total</i>	2023	57.2	35.7	79.1	43.8
	2022	55.2	34.0	78.0	39.6
	2015	-	-	-	-
Pertanian <i>Agriculture</i>	2023	60.1	30.4	87.8	8.2
	2022	57.9	28.6	83.2	6.6
	2015	-	-	-	-
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023	48.1	41.1	62.5	2.4
	2022	45.4	40.4	60.7	1.1
	2015	-	-	-	-
Pembuatan <i>Manufacturing</i>	2023	72.6	30.7	87.2	15.6
	2022	62.9	24.2	86.7	13.8
	2015	-	-	-	-
Pembinaan <i>Construction</i>	2023	58.4	23.8	57.2	7.9
	2022	57.6	22.6	57.1	7.5
	2015	-	-	-	-
Perkhidmatan <i>Services</i>	2023	55.9	37.3	80.5	49.6
	2022	54.5	35.5	79.0	43.9
	2015	-	-	-	-
Utiliti <i>Utility</i>	2023	41.5	18.4	95.6	2.6
	2022	38.4	14.1	94.3	1.9
	2015	-	-	-	-
Perdagangan Borong dan Runcit <i>Wholesale and Retail Trade</i>	2023	52.2	31.5	79.9	70.0
	2022	52.0	31.4	79.6	60.0
	2015	-	-	-	-
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023	64.3	40.7	68.7	52.3
	2022	56.6	31.0	57.8	43.6
	2015	-	-	-	-
Penginapan <i>Accommodation</i>	2023	69.4	49.6	85.7	61.5
	2022	68.1	48.6	84.8	59.8
	2015	-	-	-	-
Makanan dan Minuman <i>Food and Beverages</i>	2023	51.2	57.2	92.2	66.1
	2022	47.4	52.4	90.4	61.1
	2015	-	-	-	-
Maklumat dan Komunikasi <i>Information and Communication</i>	2023	85.6	58.0	96.5	36.6
	2022	84.4	53.4	95.3	33.7
	2015	-	-	-	-
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023	67.0	31.6	82.2	13.5
	2022	66.7	31.2	82.1	12.4
	2015	-	-	-	-

Jadual C2: Jenis Web Presence yang Dimiliki mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table C2: Type of Web Presence Owned by Sector/ Sub-sector, 2015, 2022, and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Laman web kepunyaan sendiri <i>Website owned by establishment</i>	Laman web di entiti lain <i>Presence on another entity's website</i>	Media sosial <i>Social media</i>	E-Pasaran <i>E-Marketplace</i>
		%	%	%	%
Hartanah <i>Real Estate</i>	2023	54.1	41.6	81.6	20.2
	2022	50.1	39.6	77.1	17.0
	2015	-	-	-	-
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023	60.3	52.7	72.0	12.7
	2022	59.3	49.5	70.2	11.4
	2015	-	-	-	-
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023	47.2	43.2	77.2	15.0
	2022	46.9	42.6	76.0	8.0
	2015	-	-	-	-
Pendidikan <i>Education</i>	2023	47.6	22.9	75.7	5.8
	2022	46.6	20.3	74.3	4.2
	2015	-	-	-	-
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023	51.0	30.4	80.8	8.6
	2022	50.7	29.2	80.6	8.0
	2015	-	-	-	-
Kesenian, Hiburan dan Rekreasi <i>Arts, Entertainment and Recreation</i>	2023	78.3	34.7	94.3	53.9
	2022	77.1	31.8	91.3	24.9
	2015	-	-	-	-
Perkhidmatan Lain <i>Other Services</i>	2023	63.6	20.1	70.3	13.3
	2022	61.7	17.4	67.5	10.8
	2015	-	-	-	-

Nota .

'-' merujuk kepada data tidak tersedia

Notes.

'-' refers to data not available

Jadual C3: Jenis Rangkaian Komputer yang Digunakan mengikut Sektor/ Subsektor, 2015, 2022 dan 2023
Table C3: Type of Computer Network Infrastructure Used by Sector/ Sub-sector, 2015, 2022, and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Intranet <i>Intranet</i>	Extranet <i>Extranet</i>	Rangkaian kawasan setempat <i>Local area network (LAN)</i>	Rangkaian kawasan setempat tanpa wayar <i>Wireless local area network (WLAN)</i>	Rangkaian kawasan luas <i>Wide area network (WAN)</i>	Lain- lain <i>Others</i>
		%	%	%	%	%	%
Jumlah <i>Total</i>	2023	52.0	25.7	76.9	71.1	88.9	7.5
	2022	49.8	24.0	75.8	69.5	88.0	5.0
	2015	24.1	9.5	54.2	-	26.1	7.9
Pertanian <i>Agriculture</i>	2023	62.1	19.1	89.4	57.0	56.0	11.9
	2022	58.6	16.7	84.2	54.9	53.0	10.4
	2015	23.2	4.5	54.2	-	26.4	10.8
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023	56.2	22.8	87.4	68.5	56.1	26.2
	2022	53.2	21.4	84.5	64.4	53.1	23.4
	2015	28.9	7.7	57.8	-	35.5	7.5
Pembuatan <i>Manufacturing</i>	2023	77.2	58.9	91.2	72.3	58.9	18.3
	2022	70.0	52.5	89.0	69.0	52.5	12.8
	2015	46.1	36.0	61.8	-	22.6	8.8
Pembinaan <i>Construction</i>	2023	41.4	14.1	62.7	57.5	81.9	6.7
	2022	40.5	13.2	62.4	57.2	81.4	5.8
	2015	16.8	2.6	50.8	-	34.1	11.8
Perkhidmatan <i>Services</i>	2023	51.1	24.6	77.1	72.5	92.3	6.7
	2022	49.2	23.2	75.9	70.7	91.0	4.4
	2015	22.5	7.6	53.7	-	26.0	7.5
Utiliti <i>Utility</i>	2023	57.0	26.0	69.8	69.8	98.6	2.6
	2022	50.4	20.3	61.4	69.3	98.1	1.9
	2015	26.4	8.0	50.8	-	36.6	11.9
Perdagangan Borong dan Runcit <i>Wholesale and Retail Trade</i>	2023	45.2	20.9	77.3	72.5	96.9	6.9
	2022	45.0	20.8	77.1	72.4	96.7	4.0
	2015	17.3	9.0	48.8	-	24.6	8.6
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023	84.4	33.1	79.1	77.9	99.5	13.0
	2022	76.7	25.5	75.7	69.9	97.6	5.3
	2015	50.8	4.0	43.5	-	19.9	8.3
Penginapan <i>Accommodation</i>	2023	53.8	29.9	83.3	71.3	65.8	8.3
	2022	52.4	28.8	80.6	68.8	65.3	8.0
	2015	16.3	6.5	60.2	-	35.9	7.9
Makanan dan Minuman <i>Food and Beverages</i>	2023	52.3	36.9	69.9	55.8	68.7	7.4
	2022	49.7	33.5	66.9	51.6	66.4	6.8
	2015	20.6	3.6	68.0	-	32.0	3.0
Maklumat dan Komunikasi <i>Information and Communication</i>	2023	78.3	27.0	82.2	81.9	96.0	6.8
	2022	75.9	23.3	79.8	79.8	95.8	4.8
	2015	29.0	7.2	61.8	-	29.0	4.4
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023	95.6	34.5	82.3	94.4	95.1	3.7
	2022	95.2	34.3	82.1	93.9	94.5	3.4
	2015	64.5	18.4	79.3	-	54.4	3.4

Jadual C3: Jenis Rangkaian Komputer yang Digunakan mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table C3: Type of Computer Network Infrastructure Used by Sector/ Sub-sector, 2015, 2022, and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Intranet <i>Intranet</i>	Extranet <i>Extranet</i>	Rangkaian kawasan setempat <i>Local area network (LAN)</i>	Rangkaian kawasan setempat tanpa wayar <i>Wireless local area network (WLAN)</i>	Rangkaian kawasan luas <i>Wide area network (WAN)</i>	Lain- lain <i>Others</i>
		%	%	%	%	%	%
Hartanah <i>Real Estate</i>	2023	46.1	16.6	98.5	68.8	88.4	10.2
	2022	43.4	12.5	97.5	65.4	85.6	7.2
	2015	26.9	2.0	88.1	-	9.2	1.2
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023	51.4	22.3	77.2	74.4	97.0	5.5
	2022	49.0	19.7	75.9	73.8	96.0	4.4
	2015	31.9	3.1	63.3	-	24.7	6.4
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023	48.3	29.8	78.9	79.3	96.9	3.0
	2022	47.9	28.9	78.1	78.1	96.9	2.6
	2015	24.6	3.8	56.9	-	25.6	8.3
Pendidikan <i>Education</i>	2023	45.5	34.8	73.5	64.5	81.6	2.5
	2022	44.3	32.4	73.4	63.7	80.8	0.2
	2015	27.3	4.0	49.5	-	26.0	9.1
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023	41.4	25.0	75.0	91.9	82.2	8.4
	2022	40.9	24.6	74.7	91.1	81.5	8.2
	2015	25.9	5.8	52.6	-	29.8	8.8
Kesenian, Hiburan dan Rekreasi <i>Arts, Entertainment and Recreation</i>	2023	40.2	17.9	84.9	82.1	72.4	2.7
	2022	38.9	12.1	78.5	70.4	71.2	1.3
	2015	27.5	4.3	49.6	-	23.2	9.1
Perkhidmatan Lain <i>Other Services</i>	2023	37.6	18.4	70.7	69.6	94.0	4.8
	2022	35.5	16.8	68.2	67.8	92.4	2.2
	2015	19.3	4.5	42.0	-	36.9	8.4

Nota .

'-' merujuk kepada data tidak tersedia

Notes.

'-' refers to data not available

Jadual C4: Jenis Capaian Internet mengikut Sektor/ Subsektor, 2015, 2022 dan 2023
Table C4: Type of Internet Access by Sector/ Sub-sector, 2015, 2022, and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Jalur lebar tetap <i>Fixed Broadband</i>	Jalur lebar mudah alih <i>Mobile Broadband</i>	Kedua-dua jalur lebar <i>Both types of broadband</i>
		%	%	%
Jumlah <i>Total</i>	2023	93.0	78.8	75.0
	2022	92.3	77.9	72.9
	2015	74.8	28.5	-
Pertanian <i>Agriculture</i>	2023	97.2	75.1	73.2
	2022	96.4	74.8	69.1
	2015	78.4	28.0	-
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023	96.8	60.9	57.7
	2022	93.5	59.2	57.6
	2015	79.4	30.5	-
Pembuatan <i>Manufacturing</i>	2023	96.8	80.9	79.0
	2022	94.9	75.8	72.1
	2015	72.6	54.4	-
Pembinaan <i>Construction</i>	2023	99.6	74.9	74.9
	2022	99.5	74.1	74.1
	2015	70.1	36.3	-
Perkhidmatan <i>Services</i>	2023	92.1	79.1	74.8
	2022	91.6	78.3	72.9
	2015	75.2	25.8	-
Utiliti <i>Utility</i>	2023	92.6	67.0	67.0
	2022	91.3	65.1	62.1
	2015	82.2	27.2	-
Perdagangan Borong dan Runcit <i>Wholesale and Retail Trade</i>	2023	91.8	76.0	71.3
	2022	91.5	75.6	70.5
	2015	71.1	25.7	-
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023	91.8	92.9	90.2
	2022	90.5	86.5	85.0
	2015	75.9	23.6	-
Penginapan <i>Accommodation</i>	2023	96.9	70.6	70.4
	2022	95.4	69.4	69.0
	2015	86.3	22.3	-
Makanan dan Minuman <i>Food and Beverages</i>	2023	88.7	87.5	84.7
	2022	88.5	87.3	81.7
	2015	87.1	30.0	-
Maklumat dan Komunikasi <i>Information and Communication</i>	2023	100.0	96.5	96.5
	2022	100.0	95.4	86.8
	2015	81.1	30.3	-
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023	95.7	69.3	68.5
	2022	95.3	69.1	66.1
	2015	93.5	46.4	-

Jadual C4: Jenis Capaian Internet mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table C4: Type of Internet Access by Sector/ Sub-sector, 2015, 2022, and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Jalur lebar tetap <i>Fixed Broadband</i>	Jalur lebar mudah alih <i>Mobile Broadband</i>	Kedua-dua jalur lebar <i>Both types of broadband</i>
		%	%	%
Hartanah <i>Real Estate</i>	2023	98.5	73.7	73.7
	2022	97.5	71.1	69.6
	2015	92.0	8.0	-
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023	94.2	77.4	72.4
	2022	93.0	76.6	69.6
	2015	79.6	20.3	-
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023	99.0	97.1	97.1
	2022	98.1	96.5	96.5
	2015	78.5	24.8	-
Pendidikan <i>Education</i>	2023	95.4	89.1	89.1
	2022	94.2	88.9	82.6
	2015	77.1	25.1	-
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023	96.8	70.8	70.2
	2022	96.7	63.9	66.1
	2015	76.7	26.8	-
Kesenian, Hiburan dan Rekreasi <i>Arts, Entertainment and Recreation</i>	2023	100.0	76.3	76.3
	2022	99.5	75.6	75.5
	2015	84.1	19.7	-
Perkhidmatan Lain <i>Other Services</i>	2023	84.0	77.2	62.3
	2022	82.2	76.4	58.6
	2015	66.7	35.6	-

Nota .

'-' merujuk kepada data tidak tersedia

Notes.

'-' refers to data not available

Jadual C5: Tujuan Penggunaan Internet mengikut Sektor/ Subsektor, 2015, 2022 dan 2023
Table C5: Purpose of Internet Usage by Sector/ Sub-sector, 2015, 2022, and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Menghantar atau menerima e-mel <i>Sending or receiving e-mail</i>	Telefon melalui internet <i>Telephoning over the internet</i>	Menghantar informasi atau pesanan dengan segera <i>Posting information or instant messaging</i>	Mendapatkan maklumat berkenaan barangan atau perkhidmatan <i>Getting information about goods or services</i>
		%	%	%	%
Jumlah <i>Total</i>	2023	96.3	76.3	81.9	82.4
	2022	95.7	75.1	81.2	81.6
	2015	70.6	18.6	36.6	38.9
Pertanian <i>Agriculture</i>	2023	98.6	79.5	82.3	80.8
	2022	98.1	75.1	81.2	78.5
	2015	89.7	13.5	40.1	37.3
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023	99.5	73.6	83.3	79.8
	2022	98.2	65.3	81.6	75.9
	2015	93.5	14.2	45.2	43.4
Pembuatan <i>Manufacturing</i>	2023	98.1	76.2	85.6	82.5
	2022	96.5	75.8	80.8	81.6
	2015	93.6	12.3	47.0	66.1
Pembinaan <i>Construction</i>	2023	94.1	69.9	76.8	80.0
	2022	93.2	68.4	76.3	78.6
	2015	90.0	18.6	42.2	38.9
Perkhidmatan <i>Services</i>	2023	96.4	76.8	82.2	82.7
	2022	95.9	75.6	81.6	81.9
	2015	67.2	19.2	35.3	36.5
Utiliti <i>Utility</i>	2023	100.0	59.3	75.7	79.8
	2022	98.6	57.0	73.7	73.5
	2015	94.1	25.8	45.6	45.7
Perdagangan Borong dan Runcit <i>Wholesale and Retail Trade</i>	2023	96.3	75.4	82.4	83.9
	2022	96.0	75.0	82.0	83.6
	2015	54.3	20.1	30.7	36.1
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023	98.8	89.7	89.0	83.3
	2022	98.1	86.6	88.5	79.8
	2015	91.5	16.1	29.9	20.2
Penginapan <i>Accommodation</i>	2023	99.8	57.7	82.9	89.5
	2022	99.7	56.8	81.8	88.6
	2015	93.3	20.3	41.6	36.5
Makanan dan Minuman <i>Food and Beverages</i>	2023	94.1	84.4	86.3	82.2
	2022	93.5	82.0	85.5	80.8
	2015	78.9	10.8	22.8	31.7
Maklumat dan Komunikasi <i>Information and Communication</i>	2023	100.0	94.1	91.7	85.7
	2022	99.0	92.1	90.3	82.2
	2015	100.0	29.0	99.9	42.0
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023	100.0	69.4	66.6	71.2
	2022	99.9	69.0	66.4	70.8
	2015	99.6	12.1	39.1	13.6

Jadual C5: Tujuan Penggunaan Internet mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table C5: Purpose of Internet Usage by Sector/ Sub-sector, 2015, 2022, and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Menghantar atau menerima e-mel <i>Sending or receiving e-mail</i>	Telefon melalui internet <i>Telephoning over the internet</i>	Menghantar informasi atau pesanan dengan segera <i>Posting information or instant messaging</i>	Mendapatkan maklumat berkenaan barangan atau perkhidmatan <i>Getting information about goods or services</i>
		%	%	%	%
Hartanah <i>Real Estate</i>	2023	96.3	74.8	73.6	75.8
	2022	95.4	71.2	72.9	74.3
	2015	94.0	24.3	40.1	83.3
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023	98.4	74.1	89.9	84.5
	2022	97.7	73.2	88.8	83.8
	2015	94.3	29.9	48.7	41.8
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023	93.1	76.2	85.1	91.2
	2022	92.8	75.2	84.1	90.1
	2015	91.4	31.3	48.1	36.1
Pendidikan <i>Education</i>	2023	97.5	97.5	81.2	82.6
	2022	97.0	96.1	80.2	82.4
	2015	89.5	17.9	37.2	32.3
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023	95.7	73.3	80.5	78.5
	2022	94.5	73.3	79.8	78.2
	2015	90.2	20.9	43.7	35.1
Kesenian, Hiburan dan Rekreasi <i>Arts, Entertainment and Recreation</i>	2023	97.3	67.9	76.4	92.7
	2022	96.0	64.5	73.1	90.5
	2015	70.0	21.5	34.3	24.0
Perkhidmatan Lain <i>Other Services</i>	2023	95.1	67.3	72.0	76.5
	2022	93.6	65.1	69.8	74.5
	2015	83.8	19.8	52.6	37.9

Jadual C5: Tujuan Penggunaan Internet mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table C5: Purpose of Internet Usage by Sector/ Sub-sector, 2015, 2022, and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Mendapatkan maklumat dari organisasi kerajaan <i>Getting information from government organisations</i>	Berhubung dengan organisasi kerajaan <i>Interacting with government organisations</i>	Perbankan melalui Internet <i>Internet banking</i>	Mengakses perkhidmatan kewangan yang lain <i>Accessing other financial services</i>
		%	%	%	%
Jumlah <i>Total</i>	2023	69.3	63.8	91.4	43.9
	2022	68.6	63.2	90.2	42.3
	2015	23.5	16.5	41.3	9.9
Pertanian <i>Agriculture</i>	2023	75.6	68.9	93.9	49.5
	2022	73.2	65.8	90.1	43.3
	2015	42.6	31.6	34.2	6.8
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023	70.4	70.4	79.8	45.9
	2022	65.2	64.0	79.3	44.0
	2015	39.5	26.5	43.4	9.9
Pembuatan <i>Manufacturing</i>	2023	70.8	66.5	94.5	45.6
	2022	69.9	66.4	90.3	44.2
	2015	48.4	23.4	76.1	9.8
Pembinaan <i>Construction</i>	2023	72.6	60.6	86.9	39.5
	2022	72.5	59.9	86.3	38.9
	2015	30.8	22.6	44.5	7.1
Perkhidmatan <i>Services</i>	2023	68.8	63.9	91.7	44.2
	2022	68.2	63.3	90.6	42.4
	2015	20.6	15.4	38.1	10.1
Utiliti <i>Utility</i>	2023	78.8	66.8	80.6	37.4
	2022	74.1	64.2	77.5	33.4
	2015	41.7	28.0	43.0	11.2
Perdagangan Borong dan Runcit <i>Wholesale and Retail Trade</i>	2023	65.9	61.4	90.5	38.3
	2022	65.6	61.2	90.0	38.2
	2015	14.6	8.7	32.3	9.2
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023	79.2	77.8	91.2	50.7
	2022	75.8	74.9	90.1	44.9
	2015	16.4	14.0	27.8	4.6
Penginapan <i>Accommodation</i>	2023	83.9	79.6	92.2	27.7
	2022	81.3	78.2	91.4	26.6
	2015	35.5	28.8	51.1	10.1
Makanan dan Minuman <i>Food and Beverages</i>	2023	70.3	58.9	93.7	40.9
	2022	69.8	58.2	90.9	39.9
	2015	12.1	9.2	26.2	8.9
Maklumat dan Komunikasi <i>Information and Communication</i>	2023	76.5	71.9	97.9	72.7
	2022	74.0	71.0	95.6	68.9
	2015	23.4	20.1	61.1	12.7
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023	54.9	48.4	100.0	97.1
	2022	54.6	48.2	100.0	96.8
	2015	49.7	47.4	96.2	40.3

Jadual C5: Tujuan Penggunaan Internet mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table C5: Purpose of Internet Usage by Sector/ Sub-sector, 2015, 2022, and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Mendapatkan maklumat dari organisasi kerajaan <i>Getting information from government organisations</i>	Berhubung dengan organisasi kerajaan <i>Interacting with government organisations</i>	Perbankan melalui Internet <i>Internet banking</i>	Mengakses perkhidmatan kewangan yang lain <i>Accessing other financial services</i>
		%	%	%	%
Hartanah <i>Real Estate</i>	2023	77.8	74.2	99.2	45.8
	2022	75.1	72.3	98.1	43.2
	2015	29.9	73.9	90.4	7.5
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023	82.3	77.5	92.1	45.0
	2022	80.9	75.6	90.4	43.7
	2015	34.5	29.0	46.2	13.0
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023	73.1	80.1	90.9	51.1
	2022	72.1	79.9	90.7	50.4
	2015	24.4	21.3	39.2	8.8
Pendidikan <i>Education</i>	2023	74.8	72.7	90.4	48.4
	2022	74.1	70.9	89.3	47.2
	2015	29.0	20.4	33.3	8.9
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023	76.2	74.2	91.1	64.7
	2022	75.6	73.6	90.3	63.8
	2015	31.1	22.5	47.9	8.0
Kesenian, Hiburan dan Rekreasi <i>Arts, Entertainment and Recreation</i>	2023	76.7	68.1	87.4	44.9
	2022	73.5	66.0	85.0	40.0
	2015	15.8	11.0	34.8	6.1
Perkhidmatan Lain <i>Other Services</i>	2023	62.3	53.2	88.1	31.2
	2022	60.1	51.9	86.2	29.5
	2015	27.7	23.4	41.4	4.2

Jadual C5: Tujuan Penggunaan Internet mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table C5: Purpose of Internet Usage by Sector/ Sub-sector, 2015, 2022, and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Penyediaan perkhidmatan pelanggan <i>Providing customer services</i>	Penghantaran produk secara atas talian <i>Delivering products online</i>	Pemberitahuan jawatan kosong dalaman atau luaran <i>Internal or external recruitment</i>	Latihan untuk kakitangan (aplikasi e-pembelajaran) <i>Staff training (e-learning application)</i>	Lain- lain <i>Others</i>
		%	%	%	%	%
Jumlah <i>Total</i>	2023	47.9	37.8	53.9	25.0	12.4
	2022	46.8	36.8	53.1	24.2	11.6
	2015	10.3	5.7	10.8	2.5	12.5
Pertanian <i>Agriculture</i>	2023	28.8	26.2	19.0	23.3	16.9
	2022	26.3	24.6	17.3	20.0	15.4
	2015	4.9	1.6	6.8	3.3	20.9
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023	32.0	28.0	54.1	25.5	9.9
	2022	29.5	27.9	53.8	23.3	7.9
	2015	7.1	7.4	9.5	4.6	19.2
Pembuatan <i>Manufacturing</i>	2023	49.4	34.3	58.1	20.0	13.3
	2022	48.0	32.3	52.6	19.8	11.2
	2015	11.0	14.9	10.2	3.2	12.8
Pembinaan <i>Construction</i>	2023	37.0	24.0	37.6	17.0	11.9
	2022	36.7	23.5	36.9	16.9	11.8
	2015	3.3	1.5	6.5	2.4	24.0
Perkhidmatan <i>Services</i>	2023	49.2	39.6	55.7	26.1	12.4
	2022	47.8	38.3	54.9	25.1	11.5
	2015	10.7	5.1	11.2	2.4	11.7
Utiliti <i>Utility</i>	2023	39.0	33.6	59.8	26.9	12.4
	2022	38.1	29.2	57.6	21.8	11.1
	2015	9.5	2.4	8.0	1.5	20.2
Perdagangan Borong dan Runcit <i>Wholesale and Retail Trade</i>	2023	47.8	40.6	51.6	25.8	11.2
	2022	47.5	40.0	51.4	25.7	11.0
	2015	6.6	5.6	7.7	1.3	12.2
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023	61.3	45.5	59.1	35.2	13.7
	2022	51.9	42.3	50.9	31.1	9.0
	2015	5.5	1.8	3.6	1.6	9.6
Penginapan <i>Accommodation</i>	2023	62.4	38.1	55.3	23.6	5.1
	2022	60.2	37.5	53.3	20.6	4.2
	2015	22.4	14.4	9.4	3.1	16.9
Makanan dan Minuman <i>Food and Beverages</i>	2023	46.4	42.8	62.5	32.4	20.2
	2022	45.9	40.2	61.1	30.1	19.6
	2015	10.1	5.9	10.4	1.4	8.5
Maklumat dan Komunikasi <i>Information and Communication</i>	2023	77.6	51.8	62.3	39.7	17.1
	2022	74.8	45.3	61.5	36.8	15.3
	2015	16.7	7.3	12.2	7.2	13.9
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023	62.7	35.2	55.5	11.7	16.1
	2022	62.5	34.7	55.4	11.6	16.0
	2015	76.3	4.7	32.9	23.3	0.9

Jadual C5: Tujuan Penggunaan Internet mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table C5: Purpose of Internet Usage by Sector/ Sub-sector, 2015, 2022, and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Penyediaan perkhidmatan pelanggan <i>Providing customer services</i>	Penghantaran produk secara atas talian <i>Delivering products online</i>	Pemberitahuan jawatan kosong dalaman atau luaran <i>Internal or external recruitment</i>	Latihan untuk kakitangan (aplikasi e-pembelajaran) <i>Staff training (e-learning application)</i>	Lain- lain <i>Others</i>
		%	%	%	%	%
Hartanah <i>Real Estate</i>	2023	31.3	37.3	47.2	13.7	10.7
	2022	29.2	35.1	44.9	10.1	9.3
	2015	10.5	4.3	29.3	0.5	0.4
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023	52.7	33.4	57.5	22.5	5.2
	2022	51.2	32.9	56.3	20.1	4.2
	2015	13.5	4.1	9.7	3.7	15.3
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023	51.2	36.2	54.9	21.7	16.0
	2022	50.2	35.3	54.9	21.0	15.6
	2015	12.3	2.9	6.6	2.0	18.3
Pendidikan <i>Education</i>	2023	52.1	32.1	66.0	52.7	12.9
	2022	51.3	30.6	65.4	51.0	11.1
	2015	11.7	4.1	11.2	5.6	13.7
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023	54.8	47.9	65.8	19.1	12.3
	2022	54.4	47.0	65.6	18.7	11.7
	2015	14.1	2.2	8.3	3.4	15.9
Kesenian, Hiburan dan Rekreasi <i>Arts, Entertainment and Recreation</i>	2023	43.5	33.6	43.7	23.2	27.9
	2022	41.2	30.9	40.4	21.3	25.9
	2015	16.5	5.2	4.0	1.4	26.1
Perkhidmatan Lain <i>Other Services</i>	2023	35.7	31.0	69.3	23.3	7.0
	2022	32.5	27.9	67.9	20.5	5.2
	2015	21.5	2.3	16.9	1.5	11.6

Jadual C6: Penggunaan Teknologi Digital mengikut Sektor/ Subsektor, 2022 dan 2023
Table C6: Usage of Digital Technology by Sector/ Sub-sector, 2022 and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Laman web <i>Website</i>	Media sosial <i>Social media</i>	Internet mudah alih dan teknologi <i>Mobile internet and technologies</i>	Pengkomputeran awan <i>Cloud computing</i>
		%	%	%	%
Jumlah <i>Total</i>	2023 2022	56.2 54.7	70.6 70.2	73.6 72.4	59.8 58.5
Pertanian <i>Agriculture</i>	2023 2022	57.8 56.9	67.8 67.0	68.3 64.0	66.2 63.9
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023 2022	62.3 55.5	64.4 56.8	60.8 56.2	70.9 67.7
Pembuatan <i>Manufacturing</i>	2023 2022	72.7 66.2	79.8 81.9	69.2 68.1	58.8 55.6
Pembinaan <i>Construction</i>	2023 2022	58.1 57.8	54.7 54.6	63.7 63.7	58.9 58.6
Perkhidmatan <i>Services</i>	2023 2022	54.9 53.8	71.6 70.7	75.0 73.4	59.8 58.5
Utiliti <i>Utility</i>	2023 2022	42.3 41.5	88.6 86.4	75.2 72.7	62.1 59.8
Perdagangan borong dan runcit <i>Wholesale and retail trade</i>	2023 2022	52.6 52.3	69.7 69.3	75.5 75.0	58.9 58.7
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023 2022	79.7 73.8	63.0 57.0	87.5 83.6	79.2 71.8
Penginapan <i>Accommodation</i>	2023 2022	55.0 52.7	80.1 79.2	63.5 59.3	53.6 52.2
Makanan dan Minuman <i>Food and Beverages</i>	2023 2022	53.1 50.7	92.9 90.3	67.8 66.5	41.0 40.3
Maklumat dan Komunikasi <i>Information and Communication</i>	2023 2022	92.8 89.2	96.5 95.3	97.6 95.4	71.9 70.3
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023 2022	50.1 50.0	50.9 50.5	82.6 82.3	65.0 65.0
Hartanah <i>Real Estate</i>	2023 2022	51.3 48.5	73.2 71.5	79.8 76.6	59.9 58.8
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023 2022	63.7 62.8	66.2 65.9	80.4 78.0	76.6 74.5
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023 2022	21.0 20.6	82.2 81.5	77.2 76.3	69.2 68.2
Pendidikan <i>Education</i>	2023 2022	66.7 65.8	81.7 80.0	88.7 86.7	72.5 70.8
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023 2022	60.9 60.3	67.8 67.1	79.3 79.2	86.8 86.4
Kesenian, Hiburan dan Rekreasi <i>Art, Entertainment and Recreation</i>	2023 2022	67.6 65.4	75.5 73.5	63.9 61.5	66.9 64.6
Perkhidmatan Lain <i>Other Services</i>	2023 2022	55.8 52.1	56.1 54.5	48.4 47.3	42.6 41.2

Jadual C6: Penggunaan Teknologi Digital mengikut Sektor/ Subsektor, 2022 dan 2023 (samb.)
Table C6: Usage of Digital Technology by Sector/ Sub-sector, 2022 and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Tahun <i>Year</i>	Analitik data <i>Data analytics</i>	Perisian pengurusan <i>Management software</i>	Platform kolaborasi atas talian <i>Online collaborative platforms</i>	Lain-lain <i>Others</i>
		%	%	%	%
Jumlah <i>Total</i>	2023 2022	24.2 23.7	51.4 50.7	25.7 24.7	4.0 2.4
Pertanian <i>Agriculture</i>	2023 2022	18.5 17.2	49.7 48.1	30.8 27.1	5.0 3.4
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023 2022	26.2 25.1	54.7 53.6	42.1 41.9	4.9 0.2
Pembuatan <i>Manufacturing</i>	2023 2022	19.7 17.3	57.2 53.9	28.9 27.1	4.2 2.9
Pembinaan <i>Construction</i>	2023 2022	20.7 20.3	47.4 47.3	30.2 30.2	1.2 1.2
Perkhidmatan <i>Services</i>	2023 2022	24.9 24.4	51.4 50.8	24.9 24.1	4.3 2.5
Utiliti <i>Utility</i>	2023 2022	27.9 25.2	44.3 40.4	34.7 29.8	8.0 1.4
Perdagangan borong dan runcit <i>Wholesale and retail trade</i>	2023 2022	21.1 21.0	50.8 50.7	21.8 21.7	2.8 2.6
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023 2022	39.4 37.0	55.1 54.4	38.7 35.1	12.5 0.0
Penginapan <i>Accommodation</i>	2023 2022	29.1 28.1	63.9 60.3	37.8 36.7	5.3 0.8
Makanan dan Minuman <i>Food and Beverages</i>	2023 2022	32.6 30.4	40.2 39.9	28.7 28.0	6.4 2.5
Maklumat dan Komunikasi <i>Information and Communication</i>	2023 2022	32.4 30.6	88.4 85.2	35.7 30.7	6.3 0.0
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023 2022	15.1 15.0	52.6 52.0	35.3 35.0	5.8 4.7
Hartanah <i>Real Estate</i>	2023 2022	30.1 28.8	52.1 50.2	35.7 32.2	5.7 0.3
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023 2022	20.9 19.4	58.9 57.6	15.7 14.4	7.2 2.2
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023 2022	26.2 25.2	46.2 45.8	23.2 22.0	10.0 8.2
Pendidikan <i>Education</i>	2023 2022	20.3 19.6	54.9 53.6	29.8 28.2	7.0 0.1
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023 2022	44.5 43.8	48.3 48.1	23.5 23.3	5.5 1.2
Kesenian, Hiburan dan Rekreasi <i>Art, Entertainment and Recreation</i>	2023 2022	51.5 49.7	59.0 57.5	19.5 14.0	6.1 1.6
Perkhidmatan Lain <i>Other Services</i>	2023 2022	26.4 25.8	52.8 50.8	24.5 22.3	7.1 2.8

Nota.
Lain-lain merujuk kepada selain daripada penggunaan teknologi digital yang dinyatakan.

Notes.
Others refers to other than the stated use of digital technology.

Jadual D1.1 : Peratusan Capaian Telefon Bimbit oleh Isi Rumah mengikut Negeri, Jenis dan Strata, Malaysia, 2024

Table D1.1 : Percentage of Households with Access to Mobile Phone by State, Type and Strata, Malaysia, 2024

Negeri State	Telefon bimbit Mobile phone			Telefon biasa Feature phone			Telefon pintar Smartphone			(%)
	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	
MALAYSIA	99.5	99.7	98.7	16.0	13.3	25.1	97.9	98.9	94.5	
Johor	99.4	99.5	99.0	20.7	21.0	19.6	99.3	99.5	98.9	
Kedah	99.3	99.4	99.1	21.1	15.4	32.9	96.4	97.3	94.6	
Kelantan	99.3	99.5	99.0	25.4	21.3	28.9	95.0	96.7	93.7	
Melaka	99.9	99.9	99.5	19.5	19.0	24.0	97.8	97.9	96.6	
Negeri Sembilan	99.6	99.9	98.9	12.2	9.2	19.7	98.3	99.8	94.4	
Pahang	99.4	99.4	99.4	16.7	15.7	17.9	95.4	96.3	94.4	
Pulau Pinang	99.9	99.9	100.0	13.9	13.8	14.7	98.5	98.5	99.1	
Perak	99.3	99.2	99.5	19.1	16.4	26.6	96.5	96.7	96.1	
Perlis	99.6	99.7	99.6	22.8	22.8	22.8	97.4	97.1	97.8	
Selangor	99.9	99.9	99.3	8.9	8.6	16.9	99.8	99.9	97.4	
Terengganu	98.8	99.2	98.1	15.8	13.0	20.6	97.9	98.4	96.9	
Sabah	99.5	99.8	99.1	20.0	13.9	27.6	97.8	99.3	95.9	
Sarawak	98.1	99.8	95.7	21.1	14.0	30.8	93.7	99.5	85.8	
W.P. Kuala Lumpur	100.0	100.0	n.a.	7.7	7.7	n.a.	100.0	100.0	n.a.	
W.P. Labuan	99.5	99.5	100.0	4.8	4.0	12.5	99.5	99.5	100.0	
W.P. Putrajaya	100.0	100.0	n.a.	10.0	10.0	n.a.	100.0	100.0	n.a.	

Nota: Telefon bimbit meliputi telefon biasa dan telefon pintar
Note: Mobile phone includes feature phone and smartphone

Jadual D1.2 : Peratusan Capaian Internet oleh Isi Rumah mengikut Negeri, Jenis Perkhidmatan dan Strata, Malaysia, 2024
Table D1.2 : Percentage of Households with Internet Access by State, Type of Service and Strata, Malaysia, 2024

Negeri State	Internet			Jalur lebar mudah alih Mobile broadband			Jalur lebar tetap Fixed (wired) broadband			(%)
	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	
MALAYSIA	96.8	98.8	90.3	95.7	97.8	88.9	47.6	54.4	24.7	
Johor	99.0	99.3	97.9	97.9	98.3	96.4	53.9	57.5	40.4	
Kedah	96.4	97.8	93.5	95.7	97.0	93.0	34.9	43.4	17.2	
Kelantan	94.9	96.0	94.1	94.0	94.7	93.4	25.2	34.6	17.4	
Melaka	96.8	97.0	94.6	96.0	96.2	93.6	55.7	57.6	36.2	
Negeri Sembilan	96.4	98.7	90.8	95.2	97.8	88.8	47.8	53.8	33.1	
Pahang	95.8	96.7	94.7	93.9	94.4	93.4	32.3	40.1	23.1	
Pulau Pinang	99.7	99.7	99.1	97.7	97.8	96.7	55.8	56.5	45.8	
Perak	95.6	97.0	91.8	92.3	94.1	87.4	40.8	45.9	26.4	
Perlis	96.2	98.8	92.9	95.4	97.7	92.4	32.6	38.9	24.6	
Selangor	99.5	99.6	97.7	99.4	99.5	97.7	60.2	60.8	44.3	
Terengganu	95.2	96.3	93.3	93.4	95.0	90.6	28.9	30.2	26.7	
Sabah	91.0	98.2	82.1	90.9	98.2	81.8	31.7	43.0	17.6	
Sarawak	91.1	98.9	80.4	90.3	98.9	78.5	33.4	44.7	18.0	
W.P. Kuala Lumpur	100.0	100.0	n.a.	97.7	97.7	n.a.	74.3	74.3	n.a.	
W.P. Labuan	99.7	100.0	96.9	94.9	95.0	93.8	42.2	42.0	43.8	
W.P. Putrajaya	100.0	100.0	n.a.	100.0	100.0	n.a.	76.0	76.0	n.a.	

Nota: Internet meliputi jalur lebar mudah alih dan jalur lebar tetap
Note: Internet includes mobile broadband and fixed (wired) broadband

Jadual D1.3 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Strata, Malaysia, 2024

Table D1.3 : Percentage of Households with Access to ICT Equipment and Services by State and Strata, Malaysia, 2024

Negeri State	Komputer Computer			Siaran TV berbayar Pay TV channel			Televisyen Television			(%)
	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	
MALAYSIA	92.2	94.9	83.2	67.1	69.5	59.2	99.5	99.7	98.8	
Johor	93.1	94.6	87.5	63.6	65.2	57.6	99.7	99.8	99.2	
Kedah	86.8	89.8	80.6	57.3	60.2	51.5	99.4	99.7	99.0	
Kelantan	88.1	91.0	85.7	56.7	56.8	56.6	99.2	99.5	99.0	
Melaka	92.6	92.6	92.8	77.3	77.8	72.1	100.0	100.0	99.5	
Negeri Sembilan	90.3	96.3	75.3	77.3	77.9	75.8	100.0	100.0	100.0	
Pahang	88.5	92.3	84.1	76.6	78.0	75.0	99.2	99.5	98.8	
Pulau Pinang	96.4	96.3	97.7	73.9	74.6	64.1	99.8	99.8	100.0	
Perak	91.4	90.8	93.1	75.9	77.5	71.4	99.5	99.7	99.0	
Perlis	89.9	91.8	87.5	67.5	71.1	62.9	99.5	99.4	99.6	
Selangor	96.4	96.7	90.9	68.3	68.6	60.6	99.9	99.9	99.7	
Terengganu	90.3	93.2	85.3	69.7	67.7	73.3	99.8	99.9	99.7	
Sabah	84.4	92.8	73.9	58.2	63.3	51.9	98.1	98.2	98.1	
Sarawak	88.7	94.3	81.1	63.0	77.0	43.9	98.6	99.1	97.9	
W.P. Kuala Lumpur	99.8	99.8	n.a.	67.0	67.0	n.a.	100.0	100.0	n.a.	
W.P. Labuan	97.3	98.0	90.6	86.7	87.0	84.4	100.0	100.0	100.0	
W.P. Putrajaya	100.0	100.0	n.a.	65.5	65.5	n.a.	100.0	100.0	n.a.	

Jadual D1.3 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Strata, Malaysia, 2024 (samb.)

Table D1.3 : Percentage of Households with Access to ICT Equipment and Services by State and Strata, Malaysia, 2024 (cont'd)

Negeri State	Radio				Telefon talian tetap Fixed-line telephone			Luar bandar Rural
	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural		
MALAYSIA	99.5	99.8	98.4	27.9	31.4	16.5		
Johor	99.9	100.0	99.7	31.2	32.7	25.6		
Kedah	99.7	99.9	99.3	16.3	18.9	11.0		
Kelantan	99.6	99.8	99.5	16.8	21.0	13.3		
Melaka	100.0	100.0	99.5	54.1	56.7	26.6		
Negeri Sembilan	99.8	99.8	99.7	49.2	58.0	27.3		
Pahang	99.7	99.9	99.5	22.3	24.5	19.8		
Pulau Pinang	99.9	99.9	99.4	29.8	29.3	36.4		
Perak	98.3	98.7	97.2	20.5	20.4	20.8		
Perlis	100.0	100.0	100.0	35.4	44.4	23.7		
Selangor	99.9	99.9	99.4	29.8	30.1	21.7		
Terengganu	99.9	100.0	99.8	23.9	22.7	26.1		
Sabah	98.4	99.2	97.4	18.0	26.5	7.5		
Sarawak	98.0	99.8	95.6	17.5	24.7	7.7		
W.P. Kuala Lumpur	100.0	100.0	n.a.	43.6	43.6	n.a.		
W.P. Labuan	99.7	100.0	96.9	37.8	38.5	31.3		
W.P. Putrajaya	100.0	100.0	n.a.	55.0	55.0	n.a.		

Jadual D2.1 : Peratusan Penggunaan dan Pemilikan Telefon Bimbit oleh Individu mengikut Negeri dan Strata, Malaysia, 2024

Table D2.1 : Percentage of Individuals Using and Owning Mobile Phone by State and Strata, Malaysia, 2024

Negeri State	Penggunaan / Usage			Pemilikan / Ownership			Luar bandar Rural
	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	
MALAYSIA	99.5	99.8	98.9	98.3	99.0	96.4	
Johor	99.8	99.9	99.6	99.5	99.8	99.0	
Kedah	99.5	99.7	99.1	98.1	98.7	97.1	
Kelantan	99.6	99.9	99.4	96.7	98.5	95.2	
Melaka	99.8	99.8	99.8	99.5	99.6	98.3	
Negeri Sembilan	99.4	99.9	98.4	98.0	99.3	95.5	
Pahang	99.7	99.8	99.6	98.9	99.4	98.3	
Pulau Pinang	99.9	99.9	99.4	98.8	98.8	98.5	
Perak	99.0	99.3	98.4	97.3	98.2	95.3	
Perlis	99.3	99.6	99.0	96.7	97.6	95.6	
Selangor	99.9	99.9	99.8	99.3	99.4	98.2	
Terengganu	99.4	99.6	99.0	97.7	97.7	97.6	
Sabah	99.3	99.5	99.1	96.6	96.9	96.2	
Sarawak	98.2	99.6	96.7	96.6	99.3	93.4	
W.P. Kuala Lumpur	99.9	99.9	n.a.	99.9	99.9	n.a.	
W.P. Labuan	99.9	99.9	99.7	99.6	99.6	98.9	
W.P. Putrajaya	99.7	99.7	n.a.	99.7	99.7	n.a.	

Jadual D2.2 : Peratusan Pemilikan Telefon Bimbit mengikut Negeri dan Jantina, Malaysia, 2024
Table D2.2 : Percentage of Mobile Phone Ownership by State and Sex, Malaysia, 2024

Negeri State	Jumlah Total	Lelaki Male	Perempuan Female	(%)
MALAYSIA	98.3	98.6	98.0	
Johor	99.5	99.5	99.6	
Kedah	98.1	98.7	97.5	
Kelantan	96.7	97.5	95.9	
Melaka	99.5	99.5	99.4	
Negeri Sembilan	98.0	98.1	98.0	
Pahang	98.9	99.2	98.5	
Pulau Pinang	98.8	99.2	98.4	
Perak	97.3	97.7	96.9	
Perlis	96.7	97.3	96.2	
Selangor	99.3	99.1	99.6	
Terengganu	97.7	98.0	97.3	
Sabah	96.6	97.2	95.9	
Sarawak	96.6	97.7	95.4	
W.P. Kuala Lumpur	99.9	100.0	99.8	
W.P. Labuan	99.6	100.0	99.1	
W.P. Putrajaya	99.7	99.5	100.0	

Jadual D2.3 : Peratusan Individu Menggunakan Komputer mengikut Negeri dan Strata, Malaysia, 2024

Table D2.3 : Percentage of Individuals Using Computer by State and Strata, Malaysia, 2024

Negeri State	Jumlah Total	Bandar Urban	Luar bandar Rural	(%)
MALAYSIA	80.7	86.5	64.3	
Johor	84.6	88.1	74.9	
Kedah	73.5	77.5	66.0	
Kelantan	74.4	82.2	68.1	
Melaka	86.6	87.5	78.4	
Negeri Sembilan	76.8	82.3	65.7	
Pahang	78.1	84.4	71.1	
Pulau Pinang	85.7	86.4	79.0	
Perak	78.2	81.6	70.6	
Perlis	75.2	76.0	74.3	
Selangor	91.9	92.3	85.4	
Terengganu	80.9	84.9	73.7	
Sabah	61.0	74.1	45.4	
Sarawak	67.9	79.6	54.5	
W.P. Kuala Lumpur	95.9	95.9	n.a.	
W.P. Labuan	88.6	89.6	78.1	
W.P. Putrajaya	97.8	97.8	n.a.	

Jadual D2.4 : Peratusan Individu Menggunakan Komputer mengikut Negeri, Jenis Kemahiran ICT dan Strata, Malaysia, 2024

Table D2.4 : Percentage of Individuals Using Computer by State, Type of ICT Skills and Strata, Malaysia, 2024

Negeri State	Menggunakan teknik menyalin & menampal untuk pendua atau memindahkan maklumat di dalam satu dokumen Using copy & paste tools to duplicate or move information within a document						Menghantar e-mel berserta fail Sending an e-mail with attached files		
	Menyalin atau memindahkan fail atau folder Copying or moving a file or folder			Membuat atau memindahkan fail atau folder Creating or moving a file or folder			Menggunakan teknik menyalin & menampal untuk pendua atau memindahkan maklumat di dalam satu dokumen Using copy & paste tools to duplicate or move information within a document		
	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural
	97.9	98.0	97.4	97.0	97.5	95.2	90.4	90.6	89.3
MALAYSIA									
Johor	97.1	96.8	98.2	95.0	95.0	95.0	93.1	93.1	93.0
Kedah	99.3	99.0	99.9	99.8	99.9	99.6	94.9	95.3	94.0
Kelantan	99.1	98.6	99.5	96.3	93.1	99.5	91.5	92.3	90.6
Melaka	100.0	100.0	99.6	95.7	96.0	92.7	86.0	86.4	81.8
Negeri Sembilan	98.9	99.8	96.6	95.1	96.6	91.3	97.0	99.6	90.4
Pahang	97.7	99.4	95.5	97.6	98.2	96.9	91.7	93.0	89.9
Pulau Pinang	95.8	95.5	99.2	97.8	97.8	98.0	80.2	80.1	81.2
Perak	95.1	95.6	93.9	96.5	98.8	90.4	86.3	87.7	82.7
Perlis	98.3	97.1	99.8	97.8	97.2	98.6	97.4	97.3	97.6
Selangor	97.8	97.9	95.1	97.0	97.0	97.8	92.0	92.2	89.4
Terengganu	99.1	99.2	98.9	95.6	98.5	89.6	78.7	78.2	79.6
Sabah	98.0	98.9	96.2	97.8	98.7	96.1	89.7	86.7	95.6
Sarawak	98.1	98.3	97.9	95.7	98.6	90.8	82.1	81.8	82.6
W.P. Kuala Lumpur	99.8	99.8	n.a	100.0	100.0	n.a	97.5	97.5	n.a
W.P. Labuan	99.6	99.6	100.0	99.7	100.0	96.4	93.2	94.0	84.1
W.P. Putrajaya	99.5	99.5	n.a	99.8	99.8	n.a	96.5	96.5	n.a

Jadual D2.4 : Peratusan Individu Menggunakan Komputer mengikut Negeri, Jenis Kemahiran ICT dan Strata, Malaysia, 2024 (samb.)

Table D2.4 : Percentage of Individuals Using Computer by State, Type of ICT Skills and Strata, Malaysia, 2024 (cont'd)

Negeri State	Menggunakan teknik aritmetik asas di dalam lembaran kerja <i>Using basic arithmetic formulas in a spreadsheet</i>				Menghubungkan & memasang peranti baru <i>Connecting & installing new devices</i>			Mencari, memuat turun, memasang & mengkonfigurasi perisian <i>Searching, downloading, installing & configuring software</i>			(%)
	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural		
MALAYSIA	68.1	69.0	64.6	79.9	80.9	76.5	73.4	74.3	70.2		
Johor	72.6	71.7	75.6	74.4	75.5	70.7	71.0	72.3	66.7		
Kedah	73.5	77.0	65.5	83.0	84.0	81.0	78.9	79.1	78.4		
Kelantan	52.6	56.5	48.8	75.4	73.0	77.6	70.9	68.2	73.5		
Melaka	71.8	71.8	71.5	76.2	76.4	73.8	76.3	77.6	63.6		
Negeri Sembilan	76.1	77.8	71.7	76.5	75.9	78.0	76.0	74.0	81.2		
Pahang	70.1	75.1	63.6	74.3	74.5	74.1	70.9	73.9	67.0		
Pulau Pinang	64.4	64.5	63.5	80.5	80.1	85.2	70.6	70.4	73.2		
Perak	54.9	54.7	55.3	80.1	81.3	77.0	65.0	66.4	61.4		
Perlis	48.4	51.7	44.3	74.7	76.8	72.0	66.3	68.5	63.4		
Selangor	68.3	69.0	56.7	84.2	84.5	78.4	74.7	75.5	59.6		
Terengganu	59.8	58.7	62.0	72.8	72.6	73.1	64.3	61.9	69.2		
Sabah	73.7	69.8	81.4	79.8	80.0	79.3	74.2	72.3	78.0		
Sarawak	62.7	64.3	59.9	77.8	78.6	76.5	71.7	73.2	69.1		
W.P. Kuala Lumpur	77.4	77.4	n.a	86.1	86.1	n.a	84.8	84.8	n.a		
W.P. Labuan	91.2	92.1	81.0	89.6	91.2	72.1	77.0	77.1	76.6		
W.P. Putrajaya	78.7	78.7	n.a	90.8	90.8	n.a	87.4	87.4	n.a		

Jadual D2.4 : Peratusan Individu Menggunakan Komputer mengikut Negeri, Jenis Kemahiran ICT dan Strata, Malaysia, 2024 (samb.)

Table D2.4 : Percentage of Individuals Using Computer by State, Type of ICT Skills and Strata, Malaysia, 2024 (cont'd)

Negeri State	Membuat persembahan elektronik dengan menggunakan perisian komputer <i>Creating electronic presentations using computer software</i>				Memindahkan fail di antara komputer & peranti mudah alih lain <i>Transferring files between a computer & other devices</i>				Menulis program komputer menggunakan bahasa pengaturcaraan yang khusus <i>Writing a computer program using a specialised programming language</i>			
	Jumlah Total		Bandar Urban		Jumlah Total		Bandar Urban		Jumlah Total		Bandar Urban	
	Luar bandar Rural		Luar bandar Rural		Luar bandar Rural		Luar bandar Rural		Luar bandar Rural		Luar bandar Rural	
MALAYSIA	63.7	64.2	62.0	83.9	84.5	81.8	24.3	25.4	20.0			
Johor	65.0	65.3	64.3	81.8	81.5	82.9	23.2	25.2	16.7			
Kedah	61.0	64.2	54.0	87.6	90.1	81.8	22.5	24.7	17.7			
Kelantan	63.9	66.9	61.1	87.6	88.8	86.5	25.2	26.1	24.3			
Melaka	60.9	62.5	45.2	85.3	85.3	85.0	26.8	27.3	21.0			
Negeri Sembilan	75.3	79.2	65.4	85.4	87.0	81.4	27.5	30.3	20.4			
Pahang	60.2	64.3	54.8	88.0	87.8	88.3	22.7	24.4	20.4			
Pulau Pinang	54.5	54.8	50.6	73.0	72.9	74.2	26.2	25.9	29.5			
Perak	48.3	49.3	45.9	72.7	74.3	68.8	23.9	25.9	19.0			
Perlis	51.3	51.2	51.4	88.9	84.6	94.4	19.1	24.6	12.1			
Selangor	60.2	60.9	46.9	88.0	88.4	81.3	21.6	21.6	21.9			
Terengganu	69.8	67.7	74.1	72.0	70.7	74.6	24.8	25.3	23.7			
Sabah	74.9	71.4	81.5	85.0	82.6	89.8	24.8	25.3	23.9			
Sarawak	66.6	64.8	69.5	75.7	76.3	74.7	18.7	21.4	14.1			
W.P. Kuala Lumpur	77.1	77.1	n.a	93.0	93.0	n.a	37.6	37.6	n.a			
W.P. Labuan	92.9	92.2	100.0	98.4	99.0	91.6	23.3	24.1	14.4			
W.P. Putrajaya	90.8	90.8	n.a	99.5	99.5	n.a	36.5	36.5	n.a			

Jadual D2.5 : Peratusan Belia Menggunakan Komputer mengikut Negeri, Jenis Kemahiran ICT dan Strata, Malaysia, 2024

Table D2.5 : Percentage of Youth Using Computer by State, Type of ICT Skills and Strata, Malaysia, 2024

Negeri State	Menggunakan teknik menyalin & menampal untuk pendua atau memindahkan maklumat di dalam satu dokumen <i>Using copy & paste tools to duplicate or move information within a document</i>						Menghantar e-mel berserta fail <i>Sending an e-mail with attached files</i>		
	Menyalin atau memindahkan fail atau folder <i>Copying or moving a file or folder</i>			Jumlah Total			Jumlah Total		
	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural
MALAYSIA	99.0	99.0	99.0	97.9	97.8	98.1	94.6	95.3	92.4
Johor	99.3	99.1	99.9	97.6	98.5	94.7	96.4	97.0	94.6
Kedah	99.4	99.2	100.0	99.9	99.9	100.0	98.5	99.9	95.5
Kelantan	99.5	99.6	99.5	95.7	91.5	99.5	90.7	91.0	90.4
Melaka	99.9	100.0	99.1	96.3	96.5	93.6	89.0	89.7	82.3
Negeri Sembilan	99.2	100.0	97.0	97.0	99.0	91.7	97.3	100.0	90.2
Pahang	99.5	99.5	99.5	97.7	97.1	98.6	77.5	82.8	70.6
Pulau Pinang	99.6	99.8	98.1	100.0	100.0	100.0	95.3	95.0	98.3
Perak	98.7	98.7	98.8	97.9	97.6	98.8	94.5	93.5	97.3
Perlis	100.0	100.0	100.0	99.7	99.4	100.0	100.0	100.0	100.0
Selangor	97.5	97.6	97.3	96.0	96.0	97.3	94.8	94.8	94.2
Terengganu	100.0	100.0	100.0	100.0	100.0	100.0	99.3	99.6	98.8
Sabah	99.0	99.8	97.6	98.6	98.7	98.5	99.0	99.0	98.9
Sarawak	99.1	99.3	98.8	99.1	99.6	98.5	93.1	93.5	92.5
W.P. Kuala Lumpur	100.0	100.0	n.a	100.0	100.0	n.a	96.5	96.5	n.a
W.P. Labuan	100.0	100.0	100.0	100.0	100.0	100.0	97.4	97.1	100.0
W.P. Putrajaya	100.0	100.0	n.a	100.0	100.0	n.a	100.0	100.0	n.a

Jadual D2.5 : Peratusan Belia Menggunakan Komputer mengikut Negeri, Jenis Kemahiran ICT dan Strata, Malaysia, 2024 (samb.)

Table D2.5 : Percentage of Youth Using Computer by State, Type of ICT Skills and Strata, Malaysia, 2024 (cont'd)

Negeri State	Menggunakan teknik aritmetik asas di dalam lembaran kerja <i>Using basic arithmetic formulas in a spreadsheet</i>				Menghubungkan & memasang peranti baru <i>Connecting & installing new devices</i>				Mencari, memuat turun, memasang & mengkonfigurasi perisian <i>Searching, downloading, installing & configuring software</i>			
	Jumlah Total		Bandar Urban		Luar bandar Rural		Jumlah Total		Bandar Urban		Luar bandar Rural	
	80.2	80.3	80.3	79.7	79.7	89.8	91.1	85.6	88.5	88.5	88.6	88.6
Johor	83.5	82.0	82.0	88.2	88.2	85.2	89.9	70.7	85.0	87.8	76.0	76.0
Kedah	89.7	92.9	92.9	82.8	82.8	95.1	99.9	84.8	98.5	99.9	95.4	95.4
Kelantan	62.3	67.4	67.4	57.8	57.8	74.6	72.0	77.0	83.0	78.9	86.5	86.5
Melaka	87.1	87.0	87.0	88.3	88.3	78.9	78.8	80.2	92.0	93.3	78.0	78.0
Negeri Sembilan	93.9	97.1	97.1	85.7	85.7	80.5	81.1	79.0	92.9	91.2	97.2	97.2
Pahang	64.3	63.0	63.0	66.0	66.0	90.2	85.5	96.3	88.3	84.6	93.1	93.1
Pulau Pinang	76.6	77.9	77.9	64.1	64.1	91.5	90.8	98.6	86.4	85.9	91.4	91.4
Perak	92.2	91.9	91.9	92.9	92.9	91.0	89.6	94.8	89.9	88.0	94.8	94.8
Perlis	66.2	67.8	67.8	64.0	64.0	76.2	78.8	72.8	73.0	76.7	68.2	68.2
Selangor	79.5	79.3	79.3	84.2	84.2	93.9	94.2	84.2	84.6	84.6	85.6	85.6
Terengganu	71.4	64.7	64.7	85.0	85.0	91.5	92.3	89.9	95.9	96.9	94.0	94.0
Sabah	90.2	89.8	89.8	90.9	90.9	96.1	96.3	95.7	93.9	94.3	93.1	93.1
Sarawak	69.4	61.7	61.7	80.6	80.6	87.9	89.5	85.5	85.5	85.6	85.4	85.4
W.P. Kuala Lumpur	77.7	77.7	77.7	n.a	n.a	96.1	96.1	n.a	92.2	92.2	n.a	n.a
W.P. Labuan	96.6	100.0	100.0	66.6	66.6	96.6	100.0	66.4	96.6	96.2	100.0	100.0
W.P. Putrajaya	82.9	82.9	82.9	n.a	n.a	100.0	100.0	n.a	94.2	94.2	n.a	n.a

Jadual D2.5 : Peratusan Belia Menggunakan Komputer mengikut Negeri, Jenis Kemahiran ICT dan Strata, Malaysia, 2024 (samb.)

Table D2.5 : Percentage of Youth Using Computer by State, Type of ICT Skills and Strata, Malaysia, 2024 (cont'd)

Negeri State	Membuat persembahan elektronik dengan menggunakan perisian komputer <i>Creating electronic presentations using computer software</i>				Memindahkan fail di antara komputer & peranti mudah alih lain <i>Transferring files between a computer & other devices</i>				Menulis program komputer menggunakan bahasa pengaturcaraan yang khusus <i>Writing a computer program using a specialised programming language</i>			
	Jumlah Total		Bandar Urban		Jumlah Total		Bandar Urban		Jumlah Total		Bandar Urban	
	Luar bandar Rural		Luar bandar Rural		Luar bandar Rural		Luar bandar Rural		Luar bandar Rural		Luar bandar Rural	
MALAYSIA	85.3	85.9	83.3	83.3	92.1	92.5	90.9	90.9	51.0	56.6	32.8	32.8
Johor	85.0	85.8	82.5	82.5	87.0	88.3	82.8	82.8	27.4	25.7	32.7	32.7
Kedah	87.5	92.3	77.1	77.1	90.5	92.9	85.3	85.3	47.2	57.1	25.8	25.8
Kelantan	82.3	83.3	81.4	81.4	86.9	87.3	86.5	86.5	42.2	55.3	30.7	30.7
Melaka	82.6	84.5	62.0	62.0	88.7	88.9	86.6	86.6	55.0	58.3	19.6	19.6
Negeri Sembilan	95.6	99.2	86.3	86.3	87.3	89.5	81.5	81.5	52.0	59.9	31.6	31.6
Pahang	83.1	79.1	88.3	88.3	92.0	89.8	95.0	95.0	42.3	36.4	50.2	50.2
Pulau Pinang	87.2	88.2	77.5	77.5	92.3	92.3	92.8	92.8	47.8	49.0	35.4	35.4
Perak	89.0	87.7	92.6	92.6	96.1	95.5	97.9	97.9	68.1	83.3	27.2	27.2
Perlis	60.4	66.5	52.6	52.6	84.8	73.0	100.0	100.0	37.8	43.9	29.8	29.8
Selangor	82.3	82.5	76.8	76.8	92.7	92.8	88.8	88.8	87.7	88.3	67.1	67.1
Terengganu	91.7	92.7	89.7	89.7	98.1	99.1	95.9	95.9	25.3	24.2	27.4	27.4
Sabah	89.9	90.9	87.8	87.8	97.0	96.5	97.9	97.9	28.9	22.5	41.1	41.1
Sarawak	79.0	78.3	80.0	80.0	91.6	91.6	91.7	91.7	21.4	24.7	16.5	16.5
W.P. Kuala Lumpur	86.5	86.5	n.a	n.a	96.5	96.5	n.a	n.a	64.5	64.5	n.a	n.a
W.P. Labuan	100.0	100.0	100.0	100.0	96.6	100.0	66.8	66.8	32.2	35.8	0.0	0.0
W.P. Putrajaya	100.0	100.0	n.a	n.a	100.0	100.0	n.a	n.a	60.1	60.1	n.a	n.a

Jadual D2.6 : Peratusan Individu Menggunakan Komputer mengikut Jenis Kemahiran ICT dan Jantina, Malaysia, 2024

Table D2.6 : Percentage of Individuals Using Computer by Type of ICT Skills and Sex, Malaysia, 2024

Jenis Kemahiran ICT Type of ICT Skills	Jantina / sex			(%)
	Jumlah Total	Lelaki Male	Perempuan Female	
Jumlah / Total	80.7	80.9	80.4	
Menyalin atau memindahkan fail atau folder Copying or moving a file or folder	97.9	97.9	97.9	
Menggunakan teknik menyalin & menampal untuk pendua atau memindahkan maklumat di dalam satu dokumen Using copy & paste tools to duplicate or move information within a document	97.0	96.9	97.1	
Menghantar e-mel beserta fail Sending an e-mail with attached files	90.4	89.8	91.0	
Menggunakan teknik aritmetik asas di dalam lembaran kerja Using basic arithmetic formulas in a spreadsheet	68.1	71.7	64.1	
Menghubungkan & memasang peranti baru Connecting & installing new devices	79.9	81.8	77.8	
Mencari, memuat turun, memasang & mengkonfigurasi perisian Searching, downloading, installing & configuring software	73.4	74.1	72.7	
Membuat persembahan elektronik dengan menggunakan perisian komputer Creating electronic presentations using computer software	63.7	69.0	57.8	
Memindahkan fail di antara komputer & peranti mudah alih lain Transferring files between a computer & other devices	83.9	84.6	83.1	
Menulis program komputer menggunakan bahasa pengaturcaraan yang khusus Writing a computer program using a specialised programming language	24.3	25.7	22.7	

Jadual D2.7 : Peratusan Individu Menggunakan Komputer mengikut Jenis Kemahiran ICT dan Kumpulan Umur, Malaysia, 2024

Table D2.7 : Percentage of Individuals Using Computer by Type of ICT Skills and Age Group, Malaysia, 2024

Jenis Kemahiran ICT Type of ICT Skills	Kumpulan Umur / Age Group												60+
	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	79.2	79.5	79.2	72.2
Jumlah / Total	81.2	82.9	83.2	81.5	83.0	83.6	81.6	79.5	79.2	79.2	79.5	79.2	72.2
Menyalin atau memindahkan fail atau folder Copying or moving a file or folder	99.0	98.9	98.4	98.9	99.0	98.6	98.1	97.5	97.2	97.2	97.5	97.2	93.3
Menggunakan teknik menyalin & menampal untuk pendua atau memindahkan maklumat di dalam satu dokumen Using copy & paste tools to duplicate or move information within a document	97.9	97.8	97.4	96.4	96.9	96.9	97.5	96.3	94.6	94.6	96.3	94.6	96.9
Menghantar e-mel beserta fail Sending an e-mail with attached files	94.2	94.9	88.5	88.2	90.2	90.6	90.9	89.8	87.9	87.9	89.8	87.9	87.6
Menggunakan teknik aritmetik asas di dalam lembaran kerja Using basic arithmetic formulas in a spreadsheet	80.3	80.1	69.3	70.1	69.0	68.7	67.8	64.7	63.2	63.2	64.7	63.2	46.4
Menghubungkan & memasang peranti baru Connecting & installing new devices	90.0	89.7	80.4	80.2	81.6	81.4	81.5	79.7	75.8	75.8	79.7	75.8	59.7
Mencari, memuat turun, memasang & mengkonfigurasi perisian Searching, downloading, installing & configuring software	87.5	89.4	70.5	72.8	74.4	74.0	71.8	71.7	67.6	67.6	71.7	67.6	53.4
Membuat persembahan elektronik dengan menggunakan perisian komputer Creating electronic presentations using computer software	82.0	88.1	73.8	72.1	65.2	62.6	60.8	55.4	50.0	50.0	55.4	50.0	19.6
Memindahkan fail di antara komputer & peranti mudah alih lain Transferring files between a computer & other devices	90.8	93.2	88.1	88.1	89.2	87.2	87.3	84.0	80.1	80.1	84.0	80.1	53.1
Menulis program komputer menggunakan bahasa pengaturcaraan yang khusus Writing a computer program using a specialised programming language	47.6	53.9	21.4	21.4	21.1	18.5	15.4	14.3	14.0	14.0	14.3	14.0	5.5

Jadual D2.8 : Peratusan Individu Menggunakan Internet mengikut Negeri dan Strata, Malaysia, 2024
Table D2.8 : Percentage of Individuals Using the Internet by State and Strata, Malaysia, 2024

Negeri State	Jumlah Total	Bandar Urban	Luar bandar Rural	(%)
MALAYSIA	98.0	99.0	95.3	
Johor	98.9	99.5	97.1	
Kedah	97.4	98.3	95.6	
Kelantan	97.3	98.6	96.2	
Melaka	98.5	98.5	98.1	
Negeri Sembilan	98.6	99.7	96.4	
Pahang	97.3	98.3	96.3	
Pulau Pinang	99.4	99.6	97.2	
Perak	96.7	97.0	96.0	
Perlis	96.6	97.0	96.1	
Selangor	99.2	99.3	97.3	
Terengganu	97.6	97.7	97.5	
Sabah	97.4	98.7	95.9	
Sarawak	94.2	99.0	88.7	
W.P. Kuala Lumpur	100.0	100.0	n.a.	
W.P. Labuan	97.7	98.3	91.3	
W.P. Putrajaya	100.0	100.0	n.a.	

Jadual D2.9 : Peratusan Individu Menggunakan Internet mengikut Negeri dan Jantina, Malaysia, 2024
Table D2.9 : Percentage of Individuals Using the Internet by State and Sex, Malaysia, 2024

Negeri State	Jumlah Total	Lelaki Male	Perempuan Female
MALAYSIA	98.0	98.4	97.6
Johor	98.9	99.0	98.7
Kedah	97.4	98.0	96.8
Kelantan	97.3	98.2	96.4
Melaka	98.5	98.6	98.2
Negeri Sembilan	98.6	98.8	98.4
Pahang	97.3	97.7	96.9
Pulau Pinang	99.4	99.6	99.1
Perak	96.7	97.1	96.2
Perlis	96.6	96.3	96.8
Selangor	99.2	99.2	99.2
Terengganu	97.6	98.4	96.8
Sabah	97.4	97.6	97.3
Sarawak	94.2	95.6	92.8
W.P. Kuala Lumpur	100.0	100.0	100.0
W.P. Labuan	97.7	97.1	98.2
W.P. Putrajaya	100.0	100.0	100.0

Jadual D2.10 : Peratusan Individu Menggunakan Internet mengikut Strata dan Jantina, Malaysia, 2024

Table D2.10 : Percentage of Individuals Using the Internet by Strata and Sex, Malaysia, 2024

Jantina Sex	Jumlah Total	Bandar Urban	Luar bandar Rural
Jumlah / Total	98.0	99.0	95.3
Lelaki / Male	98.4	99.1	96.2
Perempuan / Female	97.6	98.8	94.2

Jadual D2.11 : Peratusan Individu Menggunakan Internet mengikut Negeri, Jenis Peranti Mudah Alih yang Digunakan danStrata, Malaysia, 2024

Table D2.11 : Percentage of Individuals Using the Internet by State, Type of Portable Devices Used and Strata, Malaysia, 2024

Negeri State	Telefon bimbit Mobile phone			Papan elektronik mudah alih Tablet			Komputer mudah alih Portable computer			Lain-lain peranti mudah alih Other portable devices			(%)
	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	Jumlah Total	Bandar Urban	Luar bandar Rural	
MALAYSIA	99.3	99.3	99.2	26.9	29.7	18.7	39.0	43.3	26.7	14.0	16.2	7.6	
Johor	99.7	99.7	99.9	24.2	24.0	24.7	44.9	46.4	40.7	15.1	15.6	13.6	
Kedah	99.9	99.9	99.8	20.7	25.0	12.4	30.1	35.3	20.0	5.9	7.1	3.6	
Kelantan	98.2	97.8	98.6	21.4	28.1	15.8	31.8	36.8	27.8	3.2	4.2	2.4	
Melaka	99.4	99.3	99.9	22.2	23.4	11.0	31.2	32.4	20.7	6.1	6.5	2.7	
Negeri Sembilan	99.9	100.0	99.8	21.9	24.9	15.4	31.5	36.2	21.6	2.6	2.8	2.1	
Pahang	99.1	99.9	98.1	23.7	30.0	16.5	32.7	38.3	26.3	4.0	5.3	2.6	
Pulau Pinang	99.9	99.9	100.0	32.4	32.7	28.6	44.5	45.2	36.8	6.5	6.7	4.3	
Perak	99.6	99.9	98.7	18.3	18.3	18.3	37.1	38.4	34.1	23.1	25.5	17.8	
Perlis	91.7	92.9	90.1	34.8	39.1	29.6	27.2	31.8	21.5	19.2	20.7	17.3	
Selangor	100.0	100.0	99.3	37.7	38.0	31.5	50.4	50.8	43.1	25.8	26.0	22.1	
Terengganu	99.8	99.9	99.5	28.7	26.6	32.5	25.1	25.9	23.6	3.7	4.0	3.1	
Sabah	99.5	99.3	99.7	17.4	19.6	14.7	25.9	31.2	19.3	11.5	15.7	6.3	
Sarawak	99.5	99.6	99.3	19.9	22.3	16.7	29.9	38.3	19.0	7.1	8.7	4.9	
W.P. Kuala Lumpur	95.9	95.9	n.a.	38.4	38.4	n.a.	50.8	50.8	n.a.	16.4	16.4	n.a.	
W.P. Labuan	93.7	95.2	77.7	35.6	35.6	35.6	72.2	77.8	13.8	10.7	11.3	4.3	
W.P. Putrajaya	98.4	98.4	n.a.	57.0	57.0	n.a.	75.3	75.3	n.a.	22.6	22.6	n.a.	

Jadual D2.12 : Peratusan Individu Menggunakan Internet mengikut Negeri dan Jenis Aktiviti, Malaysia, 2024
Table D2.12 : Percentage of Individuals Using the Internet by State and Type of Activity, Malaysia, 2024

Negeri State	Mendapatkan Maklumat Access to Information		Professional		Bekerja dari rumah Work from home
	Mendapatkan maklumat barangan atau perkhidmatan Finding information about goods or services	Membaca akhbar atau majalah atas talian Reading newspaper or magazines online	Memohon pekerjaan Applying for jobs	Menyertai rangkaian profesional Participating in professional networks	
MALAYSIA	93.0	69.2	36.9	13.5	17.0
Johor	98.4	67.7	35.6	10.4	9.5
Kedah	94.8	72.0	32.4	6.1	4.8
Kelantan	91.2	68.4	39.8	3.5	5.8
Melaka	95.3	72.2	35.5	32.6	5.5
Negeri Sembilan	91.7	67.6	41.4	10.6	6.4
Pahang	91.7	70.3	36.5	4.8	6.0
Pulau Pinang	96.5	75.2	33.6	12.5	21.1
Perak	96.6	72.9	35.8	3.2	19.8
Perlis	78.7	57.0	30.1	4.4	6.5
Selangor	98.7	73.0	33.4	21.3	29.4
Terengganu	98.0	71.6	36.4	25.2	20.0
Sabah	78.9	56.6	46.4	11.3	14.3
Sarawak	80.3	56.9	40.3	12.0	18.5
W.P. Kuala Lumpur	94.8	80.9	37.4	20.3	22.9
W.P. Labuan	96.9	83.5	37.4	8.2	15.9
W.P. Putrajaya	97.2	90.1	30.8	17.0	28.5

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.12 : Peratusan Individu Menggunakan Internet mengikut Negeri dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.12 : Percentage of Individuals Using the Internet by State and Type of Activity, Malaysia, 2024 (cont'd)

Negeri	Komunikasi Communication						Mengkases perbincangan atas talian Accessing online discussion
	Menyertai dalam rangkaian sosial Participating in social networks	Menghantar e-mel Sending e-mail	Membuat panggilan telefon melalui Internet Telephoning over the Internet	Memuat naik kandungan ke laman web Uploading content to a website	Mengurus laman web persendirian Managing personal homepage	Menguruskan blog Managing blog	
MALAYSIA	99.7	82.4	86.3	19.1	11.4	6.6	40.3
Johor	99.6	80.9	85.9	22.8	5.3	6.6	35.2
Kedah	99.9	86.7	88.4	17.3	1.5	1.8	23.3
Kelantan	99.9	80.1	90.7	27.3	6.7	4.1	37.2
Melaka	99.7	84.3	88.3	19.7	3.0	3.1	48.5
Negeri Sembilan	99.9	78.1	88.2	21.6	8.0	8.4	43.6
Pahang	99.5	82.0	88.4	16.0	2.9	2.7	29.7
Pulau Pinang	100.0	77.1	83.7	15.8	17.4	5.5	28.1
Perak	99.2	73.4	79.2	16.0	18.2	5.5	28.5
Perlis	99.6	78.5	83.8	9.4	1.3	1.6	32.9
Selangor	99.6	88.7	86.1	23.9	16.1	12.2	53.3
Terengganu	99.8	92.3	90.9	9.7	11.4	1.6	19.9
Sabah	99.5	78.9	93.2	11.2	15.2	3.9	38.9
Sarawak	99.6	74.8	75.1	8.6	2.7	2.6	36.2
W.P. Kuala Lumpur	100.0	86.5	87.5	29.3	23.5	10.8	67.4
W.P. Labuan	99.9	85.3	98.7	24.5	30.9	23.6	35.3
W.P. Putrajaya	100.0	98.6	98.6	23.2	22.4	11.3	65.6

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.12 : Peratusan Individu Menggunakan Internet mengikut Negeri dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.12 : Percentage of Individuals Using the Internet by State and Type of Activity, Malaysia, 2024 (cont'd)

Lain-lain Perkhidmatan Atas Talian Other Online Services								(%)
Negeri State	Melaksanakan tugasan jana pendapatan Performing tasks to generate income	Menggunakan perkhidmatan berkaitan perjalanan atau penginapan Using services related to travel or accommodation	Menjual barangan atau perkhidmatan selain E-Dagang Selling goods or services other than E-Commerce	Membuat pesanan barangan atau perkhidmatan atas talian selain E-Dagang Ordering goods or services online other than E-Commerce	Menggunakan perbankan Internet Using Internet banking	Menggunakan perisian untuk menyunting teks Using software for editing texts	Memuat turun perisian atau aplikasi Downloading software or applications	
MALAYSIA	16.4	37.4	15.7	51.4	75.5	36.7	90.0	
Johor	17.0	38.8	13.7	53.5	76.4	34.2	86.4	
Kedah	13.0	20.3	12.4	47.6	74.4	26.6	97.7	
Kelantan	13.5	23.9	12.8	39.3	67.7	25.5	86.3	
Melaka	16.8	24.9	18.7	51.9	75.2	28.4	86.1	
Negeri Sembilan	18.2	18.9	10.8	47.2	73.7	46.7	94.0	
Pahang	13.9	31.1	11.6	41.3	74.4	22.4	86.2	
Pulau Pinang	11.1	36.5	9.5	53.7	79.3	32.9	87.4	
Perak	14.9	32.5	13.9	41.8	68.6	33.2	81.1	
Perlis	7.5	26.3	9.9	41.6	54.5	13.7	73.1	
Selangor	19.2	53.5	23.0	69.2	90.4	57.0	95.5	
Terengganu	22.4	50.1	24.6	71.2	84.2	38.7	90.6	
Sabah	12.9	31.1	16.4	41.4	54.2	24.2	98.1	
Sarawak	13.0	25.4	12.4	28.8	60.5	24.7	84.7	
W.P. Kuala Lumpur	25.5	52.9	10.7	51.3	86.7	43.2	84.2	
W.P. Labuan	30.4	34.7	11.8	40.1	88.2	22.6	51.2	
W.P. Putrajaya	22.8	34.4	17.5	73.5	91.9	43.4	96.5	

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti

Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.12 : Peratusan Individu Menggunakan Internet mengikut Negeri dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.12 : Percentage of Individuals Using the Internet by State and Type of Activity, Malaysia, 2024 (cont'd)

Negeri State	Aktiviti Pembelajaran Learning Activities			Hiburan Entertainment		
	Menjalani kursus formal atas talian Doing a formal online course	Merujuk laman web untuk pembelajaran formal Consulting websites for formal learning purposes	Menjalani kursus tidak formal atas talian Doing an informal online course	Mendengar radio secara atas talian Listening to radio online	Menonton televisyen secara atas talian Watching television online	Muat turun gambar, filem atau permainan Downloading pictures, movie or games
MALAYSIA	27.4	53.8	27.1	73.4	68.8	94.3
Johor	23.6	54.0	23.6	81.3	65.9	93.7
Kedah	20.8	49.7	18.7	80.1	69.1	98.4
Kelantan	22.5	40.3	24.0	68.2	64.3	91.9
Melaka	23.2	58.7	23.3	79.6	78.8	95.8
Negeri Sembilan	23.5	49.2	20.2	79.8	71.2	96.7
Pahang	23.1	50.1	22.9	65.8	59.8	89.4
Pulau Pinang	17.2	56.9	16.8	83.1	89.6	93.9
Perak	25.2	47.1	30.7	61.3	68.5	87.6
Perlis	22.3	43.5	27.1	72.2	35.8	87.0
Selangor	38.6	63.9	40.8	78.3	72.2	97.9
Terengganu	44.8	54.0	39.2	97.3	79.9	98.1
Sabah	21.3	46.9	18.9	55.0	58.0	95.9
Sarawak	21.3	48.8	13.2	57.5	69.4	87.1
W.P. Kuala Lumpur	33.9	58.7	35.2	80.0	66.2	94.6
W.P. Labuan	18.9	61.5	15.0	86.5	54.6	100.0
W.P. Putrajaya	32.4	68.6	21.8	97.5	82.8	99.2

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.12 : Peratusan Individu Menggunakan Internet mengikut Negeri dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.12 : Percentage of Individuals Using the Internet by State and Type of Activity, Malaysia, 2024 (cont'd)

Negeri State	Ruang Penyimpanan Storage Space	e-Kesihatan e-Health		e-Kerajaan e-Government	
	Menggunakan ruang simpanan di Internet Using storage space on the internet	Mendapatkan maklumat kesihatan Seeking health information	Membuat temujanji kesihatan Making a medical appointment	Mendapatkan maklumat daripada organisasi kerajaan Getting information from government organisations	Berinteraksi dengan organisasi kerajaan Interacting with government organisations
MALAYSIA	52.2	63.4	32.9	55.7	38.9
Johor	52.5	66.8	25.9	68.1	48.3
Kedah	52.0	68.8	18.2	85.4	46.9
Kelantan	42.6	51.9	20.7	40.4	30.1
Melaka	45.9	55.5	19.5	57.1	31.4
Negeri Sembilan	56.2	53.6	23.6	44.9	29.0
Pahang	41.9	52.4	18.2	36.1	31.0
Pulau Pinang	47.9	58.5	22.4	60.3	44.8
Perak	56.1	63.4	28.4	52.5	43.2
Perlis	26.9	47.3	10.6	47.2	36.1
Selangor	58.8	66.6	50.3	55.1	42.9
Terengganu	50.2	72.0	65.5	65.0	70.4
Sabah	47.1	77.4	42.6	58.1	25.0
Sarawak	51.9	46.0	25.5	33.0	21.7
W.P. Kuala Lumpur	56.7	64.6	24.7	55.6	39.3
W.P. Labuan	29.2	50.1	24.2	49.7	40.4
W.P. Putrajaya	78.2	82.5	16.1	62.7	57.4

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.12 : Peratusan Individu Menggunakan Internet mengikut Negeri dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.12 : Percentage of Individuals Using the Internet by State and Type of Activity, Malaysia, 2024 (cont'd)

Keselamatan, Perlindungan Atas Talian dan Kesedaran				
Sivik dan Politik <i>Civic and Politics</i>		E-Dagang <i>E-Commerce</i>		<i>Safety, Online Protection and Awareness</i>
Negeri <i>State</i>	Memberi pendapat atau undi <i>Posting opinions or voting</i>	Membeli barangan atau perkhidmatan melalui E-Dagang <i>Purchasing goods or services via E-Commerce</i>	Menjual barangan atau perkhidmatan melalui E-Dagang <i>Selling goods or services via E-Commerce</i>	Mempunyai perisian keselamatan & perlindungan dalam talian <i>Owning online security software & protection</i>
MALAYSIA				
Johor	44.0	70.8	9.3	75.4
Kedah	44.2	70.0	9.1	84.2
Kelantan	30.6	76.1	7.3	72.1
Melaka	52.6	66.9	5.8	78.1
Negeri Sembilan	58.7	78.8	4.4	81.1
Pahang	31.0	73.8	4.1	67.4
Pulau Pinang	35.5	72.3	3.4	73.9
Perak	44.1	67.5	6.7	88.1
Perlis	27.2	55.3	6.7	73.0
Selangor	28.1	53.4	5.4	68.7
Terengganu	62.6	88.3	15.4	79.9
Sabah	72.7	82.7	5.6	73.6
Sarawak	25.9	49.4	8.9	59.4
W.P. Kuala Lumpur	37.0	48.6	6.7	59.6
W.P. Labuan	37.7	80.8	13.5	87.2
W.P. Putrajaya	44.9	93.7	25.7	60.8
	50.8	97.3	6.3	94.4

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti

Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.12 : Peratusan Individu Menggunakan Internet mengikut Negeri dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.12 : Percentage of Individuals Using the Internet by State and Type of Activity, Malaysia, 2024 (cont'd)

Keselamatan, Perlindungan Atas Talian dan Kesedaran <i>Safety, Online Protection and Awareness</i>					
Negeri <i>State</i>	Mengesahkan kebolehpercayaan maklumat yang terdapat dalam talian <i>Verifying the reliability of information found online</i>	Menetapkan langkah keselamatan yang berkesan untuk melindungi peranti & akaun dalam talian <i>Setting up effective measure to protect devices & online accounts</i>	Mengubah tetapan privasi pada peranti, akaun atau aplikasi <i>Changing privacy settings on your devices, accounts or app</i>	Kesedaran jenayah siber <i>Cyber crime awareness</i>	
MALAYSIA	29.5	80.0	78.7	66.2	
Johor	25.9	87.3	83.8	64.5	
Kedah	28.6	79.5	76.8	68.6	
Kelantan	25.7	79.4	77.7	67.1	
Melaka	24.9	82.6	79.8	58.0	
Negeri Sembilan	27.5	66.8	64.1	59.3	
Pahang	25.8	69.8	76.1	57.5	
Pulau Pinang	38.7	90.1	80.8	63.8	
Perak	29.4	78.2	77.0	68.5	
Perlis	27.1	73.8	66.8	64.2	
Selangor	37.1	84.4	83.7	70.5	
Terengganu	27.0	69.4	75.3	68.1	
Sabah	20.5	74.2	78.7	65.1	
Sarawak	21.5	71.9	65.5	65.6	
W.P. Kuala Lumpur	37.7	82.9	81.5	66.1	
W.P. Labuan	25.4	80.9	77.9	66.1	
W.P. Putrajaya	38.2	92.9	85.0	61.8	

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti

Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.13 : Peratusan Individu Menggunakan Internet mengikut Jantina dan Jenis Aktiviti, Malaysia, 2024

Table D2.13 : Percentage of Individuals Using the Internet by Sex and Type of Activity, Malaysia, 2024

Jantina Sex	Mendapatkan Maklumat to Information			Access		Professional		(%)
	Jumlah Total	Mendapatkan maklumat barangan atau perkhidmatan Finding information about goods or services	Membaca akhbar atau majalah atas talian Reading newspaper or magazines online	Memohon pekerjaan Applying for jobs	Menyertai rangkaian profesional Participating in professional networks	Bekerja dari rumah Work from home		
Jumlah / Total	98.0	93.0	69.2	36.9	13.5	17.0		
Lelaki / Male	98.4	93.1	69.3	39.7	13.8	17.6		
Perempuan / Female	97.6	93.0	69.1	33.8	13.1	16.3		

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.13 : Peratusan Individu Menggunakan Internet mengikut Jantina dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.13 : Percentage of Individuals Using the Internet by Sex and Type of Activity, Malaysia, 2024 (cont'd)

Jantina Sex	Komunikasi Communication						(%)
	Menyertai dalam rangkaian sosial Participating in social networks	Menghantar e-mel Sending e-mail	Membuat panggilan telefon melalui Internet Telephoning over the Internet	Memuat naik kandungan ke laman web Uploading content to a website	Mengurus laman web persendirian Managing personal homepage	Menguruskan blog Managing blog	Mengakses perbincangan atas talian Accessing online discussion
Jumlah / Total	99.7	82.4	86.3	19.1	11.4	6.6	40.3
Lelaki / Male	99.7	82.9	87.0	19.3	11.5	6.7	40.5
Perempuan / Female	99.6	81.8	85.6	18.9	11.4	6.5	40.1

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.13 : Peratusan Individu Menggunakan Internet mengikut Jantina dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.13 : Percentage of Individuals Using the Internet by Sex and Type of Activity, Malaysia, 2024 (cont'd)

Jantina Sex	Lain-lain Perkhidmatan Atas Talian Other Online Services						(%)
	Melaksanakan tugas jana pendapatan Performing tasks to generate income	Menggunakan perkhidmatan berkaitan perjalanan atau penginapan Using services related to travel or accommodation	Menjual barangan atau perkhidmatan selain E-Dagang Selling goods or services other than E-Commerce	Menggunakan perbankan Internet Using Internet banking	Menggunakan perisian untuk menyunting teks Using software for editing texts	Memuat turun perisian atau aplikasi Downloading software or applications	Membuat pesanan barangan atau perkhidmatan atas talian selain E-Dagang Ordering goods or services online other than E-Commerce
Jumlah / Total	16.4	37.4	15.7	75.5	36.7	90.1	51.4
Lelaki / Male	16.3	38.7	15.4	75.4	37.2	90.4	50.4
Perempuan / Female	16.5	35.8	16.1	75.5	36.1	89.7	52.4

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.13 : Peratusan Individu Menggunakan Internet mengikut Jantina dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.13 : Percentage of Individuals Using the Internet by Sex and Type of Activity, Malaysia, 2024 (cont'd)

Jantina Sex	Aktiviti Pembelajaran Learning Activities			Hiburan Entertainment			(%)
	Menjalani kursus formal atas talian Doing a formal online course	Merujuk laman web untuk pembelajaran formal Consulting websites for formal learning purposes	Menjalani kursus tidak formal atas talian Doing an informal online course	Mendengar radio secara atas talian Listening to radio online	Menonton televisyen secara atas talian Watching television online	Muat turun gambar, filem atau permainan Downloading pictures, movie or games	
Jumlah / Total	27.4	53.8	27.1	73.4	68.8	94.3	
Lelaki / Male	27.9	56.6	27.2	74.5	69.3	94.7	
Perempuan / Female	26.9	50.7	27.0	72.0	68.4	93.8	

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.13 : Peratusan Individu Menggunakan Internet mengikut Jantina dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.13 : Percentage of Individuals Using the Internet by Sex and Type of Activity, Malaysia, 2024 (cont'd)

Jantina Sex	Ruang Penyimpanan Storage Space	e-Kesihatan e-Health		e-Kerajaan e-Government	
		Mendapatkan maklumat kesihatan Seeking health information	Membuat temujanji kesihatan Making a medical appointment	Mendapatkan maklumat daripada organisasi kerajaan Getting information from government organisations	Berinteraksi dengan organisasi kerajaan Interacting with government organisations
Jumlah / Total	52.2	63.4	32.9	55.7	38.9
Lelaki / Male	52.7	62.9	32.4	57.1	39.5
Perempuan / Female	51.6	63.9	33.3	54.1	38.2

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.13 : Peratusan Individu Menggunakan Internet mengikut Jantina dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.13 : Percentage of Individuals Using the Internet by Sex and Type of Activity, Malaysia, 2024 (cont'd)

Jantina Sex	Sivik dan Politik Civic and Politics	E-Dagang E-Commerce		Keselamatan, Perlindungan Atas Talian dan Kesedaran Safety, Online Protection and Awareness	Mempunyai perisian keselamatan & perlindungan dalam talian Owning online security software & protection
		Membeli barangan atau perkhidmatan melalui E-Dagang Purchasing goods or services via E-Commerce	Menjual barangan atau perkhidmatan melalui E-Dagang Selling goods or services via E-Commerce		
	Memberi pendapat atau undi Posting opinions or voting				
Jumlah / Total		44.0	70.8	9.3	75.4
Lelaki / Male		44.9	69.7	9.9	76.1
Perempuan / Female		43.0	72.2	8.7	74.7

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.13 : Peratusan Individu Menggunakan Internet mengikut Jantina dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.13 : Percentage of Individuals Using the Internet by Sex and Type of Activity, Malaysia, 2024 (cont'd)

Jantina Sex	Keselamatan, Perlindungan Atas Talian dan Kesedaran Safety, Online Protection and Awareness				Kesedaran jenayah siber Cyber crime awareness
	Mengesahkan kebolehpercayaan maklumat yang terdapat dalam talian Verifying the reliability of information found online	Menetapkan langkah keselamatan yang berkesan untuk melindungi peranti & akaun dalam talian Setting up effective measure to protect devices & online accounts	Mengubah tetapan privasi pada peranti, akaun atau aplikasi Changing privacy settings on your devices, accounts or app		
Jumlah / Total	29.5	80.0	78.7		66.2
Lelaki / Male	31.4	81.3	79.6		67.5
Perempuan / Female	27.3	78.5	77.6		64.6

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.14 : Peratusan Individu Menggunakan Internet mengikut Kumpulan Umur dan Jenis Aktiviti, Malaysia, 2024

Table D2.14 : Percentage of Individuals Using the Internet by Age Group and Type of Activity, Malaysia, 2024

Kumpulan Umur Age Group	Mendapatkan Maklumat Access to Information				Profesional Professional	Bekerja dari rumah Work from home
	Jumlah Total	Mendapatkan maklumat barangan atau perkhidmatan Finding information about goods or services	Membaca akhbar atau majalah atas talian Reading newspaper or magazines online	Memohon pekerjaan Applying for jobs	Menyertai rangkaian profesional Participating in professional networks	
Jumlah / Total	98.0	93.0	69.2	36.9	13.5	17.0
15 - 19	97.9	87.2	61.6	24.3	8.3	6.2
20 - 24	99.6	94.3	71.3	58.7	18.0	11.9
25 - 29	99.5	95.4	72.0	58.0	15.9	18.3
30 - 34	99.5	94.9	71.9	56.1	17.4	22.4
35 - 39	99.6	95.7	73.6	39.6	16.7	25.4
40 - 44	99.2	94.9	71.2	31.8	14.6	23.8
45 - 49	99.2	94.7	71.8	27.1	12.7	20.8
50 - 54	98.5	94.0	70.2	20.3	9.5	16.7
55 - 59	97.4	91.6	69.0	17.2	7.3	13.3
60+	91.6	87.6	60.8	15.1	9.4	10.6

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti

Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.14 : Peratusan Individu Menggunakan Internet mengikut Kumpulan Umur dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.14 : Percentage of Individuals Using the Internet by Age Group and Type of Activity, Malaysia, 2024 (cont'd)

Kumpulan Umur Age Group	Komunikasi Communication						(%)
	Menyertai dalam rangkaian sosial Participating in social networks	Menghantar e-mel Sending e-mail	Membuat panggilan telefon melalui Internet Telephoning over the Internet	Memuat naik kandungan ke laman web Uploading content to a website	Mengurus laman web persendirian Managing personal homepage	Menguruskan blog Managing blog	Mengakses perbincangan atas talian Accessing online discussion
Jumlah / Total	99.7	82.4	86.3	19.1	11.4	6.6	40.3
15 - 19	99.8	81.8	87.3	16.5	8.0	5.3	35.7
20 - 24	100.0	90.7	89.0	22.5	11.4	6.5	48.4
25 - 29	100.0	86.7	89.3	19.4	11.5	6.9	46.6
30 - 34	100.0	87.5	89.0	18.7	12.3	7.4	44.8
35 - 39	100.0	86.7	85.9	21.5	15.4	9.2	45.7
40 - 44	99.9	85.6	88.0	20.8	13.4	7.5	42.0
45 - 49	99.9	82.2	88.0	21.9	13.7	8.2	42.7
50 - 54	99.8	80.6	85.8	21.7	13.2	8.6	38.6
55 - 59	99.6	74.3	83.8	16.1	8.9	4.6	30.2
60+	98.1	64.9	77.5	12.9	7.2	2.7	24.3

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.14 : Peratusan Individu Menggunakan Internet mengikut Kumpulan Umur dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.14 : Percentage of Individuals Using the Internet by Age Group and Type of Activity, Malaysia, 2024 (cont'd)

Kumpulan Umur Age Group	Lain-lain Perkhidmatan Atas Talian Other Online Services						(%)
	Melaksanakan tugas jana pendapatan Performing tasks to generate income	Menggunakan perkhidmatan berkaitan perjalanan atau penginapan Using services related to travel or accommodation	Menjual barangan atau perkhidmatan selain E-Dagang Selling goods or services other than E-Commerce	Menggunakan perbankan Internet Using Internet banking	Menggunakan perisian untuk menyunting teks Using software for editing texts	Memuat turun perisian atau aplikasi Downloading software or applications	Membuat pesanan barangan atau perkhidmatan atas talian selain E-Dagang Ordering goods or services online other than E-Commerce
Jumlah / Total	16.4	37.4	15.7	75.5	36.7	90.1	51.4
15 - 19	9.6	21.1	9.7	49.8	33.6	91.4	41.5
20 - 24	18.9	39.1	16.6	82.8	45.2	95.0	54.8
25 - 29	18.1	43.5	16.6	81.6	38.7	93.4	55.1
30 - 34	18.2	43.6	17.3	83.4	39.0	91.1	56.9
35 - 39	20.7	47.3	18.4	85.3	41.8	93.7	58.5
40 - 44	19.9	48.0	17.7	83.9	41.5	92.1	55.8
45 - 49	19.2	42.6	18.3	81.4	37.4	91.3	56.4
50 - 54	18.5	36.8	16.4	78.5	35.0	89.7	52.8
55 - 59	12.9	30.6	13.6	70.1	29.2	85.7	47.3
60+	8.5	20.1	12.5	58.2	22.8	76.9	35.8

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.14 : Peratusan Individu Menggunakan Internet mengikut Kumpulan Umur dan Jenis Aktiviti, Malaysia, 2024 (samb.)
Table D2.14 : Percentage of Individuals Using the Internet by Age Group and Type of Activity, Malaysia, 2024 (cont'd)

Kumpulan Umur Age Group	Aktiviti Pembelajaran Learning Activities			Hiburan Entertainment			(%)
	Menjalani kursus formal atas talian Doing a formal online course	Merujuk laman web untuk pembelajaran formal Consulting websites for formal learning purposes	Menjalani kursus tidak formal atas talian Doing an informal online course	Mendengar radio secara atas talian Listening to radio online	Menonton televisyen secara atas talian Watching television online	Muat turun gambar, filem atau permainan Downloading pictures, movie or games	
Jumlah / Total	27.4	53.8	27.1	73.4	68.8	94.3	
15 - 19	31.5	65.8	29.7	70.0	70.6	96.4	
20 - 24	35.2	64.2	34.8	75.1	74.7	97.8	
25 - 29	27.2	59.1	28.4	77.4	77.0	97.9	
30 - 34	28.2	57.2	28.6	77.2	70.9	96.5	
35 - 39	31.9	58.2	32.5	74.6	71.5	96.9	
40 - 44	31.5	56.5	31.9	75.2	68.6	95.2	
45 - 49	28.7	52.8	29.8	73.2	66.6	94.0	
50 - 54	23.3	46.0	22.4	74.3	65.5	94.0	
55 - 59	19.8	41.9	18.7	72.2	62.0	92.1	
60+	13.9	30.7	11.5	64.7	56.6	82.4	

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.14 : Peratusan Individu Menggunakan Internet mengikut Kumpulan Umur dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.14 : Percentage of Individuals Using the Internet by Age Group and Type of Activity, Malaysia, 2024 (cont'd)

Kumpulan Umur Age Group	Ruang Penyimpanan Storage Space		e-Kesihatan e-Health		e-Kerajaan e-Government		Berinteraksi dengan organisasi kerajaan Interacting with government organisations
	Menggunakan ruang simpanan di internet Using storage space on the internet		Mendapatkan maklumat kesihatan Seeking health information	Membuat temujanji kesihatan Making a medical appointment	Mendapatkan maklumat daripada organisasi kerajaan Getting information from government organisations		
Jumlah / Total	52.2	63.4	32.9	55.7	38.9		
15 - 19	50.0	48.8	22.3	40.4	23.9		
20 - 24	60.9	61.1	26.8	57.0	37.6		
25 - 29	59.4	63.7	25.6	58.2	42.3		
30 - 34	56.9	66.4	37.1	58.3	42.5		
35 - 39	58.2	70.4	39.1	59.1	44.1		
40 - 44	54.8	67.3	38.5	60.6	44.1		
45 - 49	52.0	68.6	37.8	60.3	42.0		
50 - 54	47.5	69.0	38.9	60.1	40.8		
55 - 59	40.0	67.2	36.5	59.0	39.5		
60+	35.4	56.9	32.1	48.3	33.6		

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.14 : Peratusan Individu Menggunakan Internet mengikut Kumpulan Umur dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.14 : Percentage of Individuals Using the Internet by Age Group and Type of Activity, Malaysia, 2024 (cont'd)

Kumpulan Umur Age Group	Sivik dan Politik Civic and Politics	E-Dagang E-Commerce		Keselamatan, Perlindungan Atas Talian dan Kesedaran Safety, Online Protection and Awareness	Mempunyai perisian keselamatan & perlindungan dalam talian Owning online security software & protection
		Membeli barangan atau perkhidmatan melalui E-Dagang Purchasing goods atau services via E-Commerce	Menjual barangan atau perkhidmatan melalui E-Dagang Selling goods atau services via E-Commerce		
		44.0	70.8	9.3	75.4
15 - 19	30.3	58.1	4.9	72.4	
20 - 24	47.4	79.3	9.8	80.0	
25 - 29	51.7	77.5	11.4	77.3	
30 - 34	49.1	78.6	10.5	77.8	
35 - 39	48.7	78.8	11.3	80.2	
40 - 44	48.3	77.7	11.3	79.2	
45 - 49	48.1	75.2	11.9	78.1	
50 - 54	45.7	71.0	11.1	77.6	
55 - 59	42.5	62.1	7.8	72.3	
60+	29.8	48.7	4.3	61.1	

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D2.14 : Peratusan Individu Menggunakan Internet mengikut Kumpulan Umur dan Jenis Aktiviti, Malaysia, 2024 (samb.)

Table D2.14 : Percentage of Individuals Using the Internet by Age Group and Type of Activity, Malaysia, 2024 (cont'd)

Kumpulan Umur Age Group	Keselamatan, Perlindungan Atas Talian dan Kesedaran Safety, Online Protection and Awareness				Kesedaran jenayah siber Cyber crime awareness
	Mengesahkan kebolehpercayaan maklumat yang terdapat dalam talian Verifying the reliability of information found online	Menetapkan langkah keselamatan yang berkesan untuk melindungi peranti & akaun dalam talian Setting up effective measure to protect devices & online accounts	Mengubah tetapan privasi pada peranti, akaun atau aplikasi Changing privacy settings on your devices, accounts or app		
Jumlah / Total	29.5	80.0	78.7		66.2
15 - 19	20.2	76.3	76.7		56.6
20 - 24	30.7	85.1	83.9		71.3
25 - 29	33.5	86.2	84.7		69.9
30 - 34	34.9	83.2	81.5		71.1
35 - 39	34.2	85.0	84.2		71.8
40 - 44	33.0	83.5	82.4		70.3
45 - 49	29.6	82.4	80.4		68.3
50 - 54	27.3	79.4	77.5		65.8
55 - 59	27.2	77.5	74.9		64.3
60+	22.1	62.2	60.6		52.5

Nota: Rujuk nota teknikal muka surat 331-333 untuk perincian aktiviti
Note: Refer to technical notes page 392-394 for detailed activities

Jadual D3.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024
Table D3.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
JOHOR	99.0	93.1	99.4	63.6	99.7	99.9	31.2
Batu Pahat	98.9	93.0	98.9	64.2	100.0	100.0	26.1
Johor Bahru	99.4	95.4	99.7	64.0	100.0	100.0	32.2
Kluang	97.9	88.4	99.0	62.0	99.3	99.7	29.5
Kota Tinggi	99.0	90.8	99.1	65.1	99.5	100.0	20.9
Mersing	97.5	88.7	98.7	58.5	99.2	100.0	36.3
Muar	98.6	91.9	99.0	60.4	99.0	99.4	40.8
Pontian	98.7	90.7	98.7	61.7	99.5	100.0	31.3
Segamat	98.2	90.6	98.9	65.3	99.3	99.3	21.2
Kulai	99.1	91.3	99.5	65.9	99.1	100.0	36.3
Tangkak	98.0	90.2	99.4	60.5	99.4	100.0	35.2
KEDAH	96.4	86.8	99.3	57.3	99.4	99.7	16.3
Baling	94.0	83.1	99.5	51.2	99.3	99.3	10.0
Bandar Baharu	94.6	83.7	98.8	70.0	99.6	100.0	9.2
Kota Setar	99.1	89.6	99.6	71.8	99.4	99.4	19.7
Kuala Muda	96.2	87.5	99.5	55.0	99.4	100.0	13.9
Kubang Pasu	95.0	85.5	99.1	61.0	99.5	99.5	21.2
Kulim	96.9	88.6	99.4	53.2	99.8	100.0	24.7

Jadual D3.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
Langkawi	98.5	91.9	99.3	56.8	100.0	100.0	12.5
Padang Terap	93.8	76.3	99.4	52.5	99.4	99.4	15.6
Sik	93.2	81.7	99.0	55.3	99.0	99.0	6.4
Yan	95.8	85.3	98.8	42.3	98.7	100.0	5.7
Pendang	95.7	83.3	98.9	43.7	99.2	99.2	8.3
Pokok Sena	95.1	84.1	98.1	47.4	98.9	99.5	15.1
KELANTAN	94.9	88.1	99.3	56.7	99.2	99.6	16.8
Bachok	96.3	83.1	99.3	54.4	99.3	99.3	13.2
Kota Bharu	96.3	90.1	99.4	52.2	99.7	99.7	19.0
Machang	90.7	88.2	99.4	62.3	99.4	100.0	14.2
Pasir Mas	92.5	87.9	99.2	54.5	99.2	99.5	25.0
Pasir Puteh	94.5	89.8	99.4	53.5	98.3	99.4	26.7
Tanah Merah	94.7	88.4	98.8	58.1	98.6	100.0	7.0
Tumpat	93.9	88.8	99.5	59.9	99.0	99.5	11.1
Gua Musang	96.0	88.3	99.6	69.3	99.6	100.0	14.8
Kuala Krai	96.1	90.1	98.7	66.8	99.2	100.0	16.4
Jeli	95.6	83.7	99.3	57.0	99.3	100.0	4.4
Lojing	93.8	18.8	93.8	62.5	93.8	93.8	0.0

Jadual D3.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
MELAKA	96.8	92.6	99.9	77.3	100.0	100.0	54.1
Alor Gajah	96.4	94.7	99.7	77.8	100.0	100.0	52.2
Jasin	96.8	93.3	99.7	78.6	99.7	99.7	55.9
Melaka Tengah	96.9	91.6	100.0	76.8	100.0	100.0	54.5
NEGERI SEMBILAN	96.4	90.3	99.6	77.3	100.0	99.8	49.2
Jejebu	89.6	73.9	99.3	76.9	100.0	97.8	37.3
Kuala Pilah	96.0	79.5	98.4	77.4	99.6	100.0	39.2
Port Dickson	98.8	86.9	100.0	81.6	100.0	100.0	55.8
Rembau	92.8	78.9	99.3	69.7	100.0	100.0	30.3
Seremban	98.0	96.1	99.9	77.1	100.0	99.7	53.5
Tampin	93.6	83.3	98.6	81.3	100.0	100.0	45.2
Jempol	90.2	78.8	99.1	74.2	100.0	100.0	35.4
PAHANG	95.8	88.5	99.4	76.6	99.2	99.7	22.3
Bentong	93.5	91.4	100.0	82.2	100.0	100.0	20.7
Cameron Highlands	95.5	92.9	100.0	72.2	97.9	100.0	17.6
Jerantut	98.5	90.0	99.5	74.6	99.0	99.0	28.4
Kuantan	97.1	94.0	99.0	75.7	99.4	100.0	24.6
Lipis	91.8	81.1	100.0	81.5	99.3	98.8	12.6

Jadual D3.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
							(%)
Pekan	94.6	89.2	99.0	77.0	97.1	99.5	25.7
Raub	92.3	82.1	100.0	75.5	99.2	100.0	35.0
Temerloh	97.1	88.5	99.6	75.9	99.6	99.6	20.8
Rompin	95.3	79.3	100.0	75.9	99.4	100.0	7.7
Maran	92.8	81.4	100.0	82.2	99.3	99.3	14.6
Bera	96.8	77.8	99.3	73.8	99.3	99.3	25.1
PULAU PINANG	99.7	96.4	99.9	73.9	99.8	99.9	29.8
Seberang Prai Tengah	100.0	94.3	100.0	69.8	99.2	100.0	31.2
Seberang Prai Utara	99.4	91.7	99.3	53.6	100.0	100.0	38.4
Seberang Prai Selatan	99.8	96.3	100.0	68.6	100.0	100.0	19.4
Timur Laut	99.6	99.2	100.0	82.8	100.0	100.0	31.2
Barat Daya	99.6	98.2	100.0	86.8	100.0	99.3	22.3
PERAK	95.6	91.4	99.3	75.9	99.5	98.3	20.5
Batang Padang	90.2	97.0	99.0	66.3	100.0	99.1	36.1
Manjung	97.0	86.6	96.9	74.4	99.7	99.2	22.8
Kinta	98.5	97.1	100.0	78.8	99.4	99.4	16.4
Kerian	93.6	89.9	99.2	70.0	99.2	98.0	8.3
Kuala Kangsar	98.0	84.2	100.0	72.2	100.0	96.1	16.5

Jadual D3.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
							(%)
Larut Dan Matang	95.8	81.6	99.5	70.3	99.7	96.7	14.7
Hilir Perak	91.5	81.3	96.5	83.1	99.7	97.8	36.9
Hulu Perak	88.4	98.0	99.5	67.8	99.0	98.6	23.9
Perak Tengah	99.1	89.4	99.6	84.0	99.5	98.0	30.1
Kampar	93.1	93.6	100.0	65.4	99.1	97.2	17.3
Muallim	80.4	87.0	98.1	92.0	100.0	95.5	54.6
Bagan Datuk	89.6	86.3	99.1	87.3	99.4	97.2	36.9
Selama	93.8	100.0	100.0	68.8	96.9	96.9	9.4
PERLIS	96.2	89.9	99.6	67.5	99.5	100.0	35.4
SELANGOR	99.5	96.4	99.9	68.3	99.9	99.9	29.8
Gombak	99.5	95.1	100.0	79.3	100.0	100.0	35.1
Klang	99.3	88.9	99.5	49.8	99.5	100.0	16.4
Kuala Langat	99.6	90.4	100.0	64.8	100.0	99.6	30.1
Kuala Selangor	97.9	92.2	99.6	49.9	100.0	100.0	27.8
Petaling	100.0	99.4	100.0	64.4	100.0	100.0	29.3
Sabak Bernam	97.6	99.2	97.5	47.9	100.0	98.4	27.8
Sepang	98.8	98.7	100.0	81.3	99.8	100.0	35.2
Hulu Langat	99.5	98.7	100.0	81.1	100.0	99.5	36.2
Hulu Selangor	99.6	98.2	100.0	78.7	98.7	100.0	26.0

Jadual D3.1.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.1.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
TERENGGANU	95.2	90.3	98.8	69.7	99.8	99.9	23.9
Besut	97.5	87.5	97.5	72.0	100.0	100.0	20.9
Dungun	98.6	94.3	100.0	60.5	100.0	100.0	25.4
Kemaman	97.1	90.2	99.2	70.1	100.0	100.0	19.9
Kuala Terengganu	99.2	92.7	98.7	69.5	99.8	100.0	25.3
Marang	95.4	88.6	99.1	69.8	99.1	99.6	30.9
Hulu Terengganu	91.1	84.9	97.5	79.2	99.5	99.5	21.5
Setiu	88.6	87.5	99.5	77.7	100.0	100.0	17.9
Kuala Nerus	82.2	90.6	98.5	69.4	99.8	99.8	28.6
SABAH	91.0	84.4	99.5	58.2	98.1	98.4	18.0
Tawau	93.7	95.0	99.6	59.3	98.6	99.6	8.4
Lahad Datu	91.6	85.8	99.5	77.9	100.0	100.0	10.0
Semporna	86.9	78.4	99.5	69.0	99.5	99.5	14.6
Sandakan	93.9	90.5	99.4	32.5	97.0	99.4	17.9
Kinabatangan	64.0	37.6	97.8	24.9	98.6	97.6	6.8
Beluran	66.2	70.3	100.0	28.4	97.3	97.3	5.4
Kota Kinabalu	98.2	92.7	99.7	77.9	98.0	99.5	35.6
Ranau	81.1	94.8	99.3	65.7	100.0	98.6	29.3
Kota Belud	87.4	90.9	99.4	62.6	100.0	97.4	14.5

Jadual D3.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
Tuaran	89.6	88.7	100.0	79.4	98.7	97.5	4.9
Penampang	98.5	91.9	99.0	64.9	98.5	98.7	18.7
Papar	95.7	89.9	99.7	75.1	97.2	97.8	30.1
Kudat	84.4	73.1	98.6	36.2	98.0	98.6	23.4
Kota Marudu	81.1	74.0	99.0	46.8	94.2	95.6	17.7
Pitas	97.2	66.2	98.6	43.7	97.2	97.2	5.6
Beaufort	78.3	79.1	98.1	70.0	99.1	97.2	30.7
Kuala Penyu	93.8	93.8	100.0	77.1	97.9	97.9	4.2
Sipitang	90.5	93.1	99.2	52.7	97.7	98.4	17.1
Tenom	81.5	75.9	100.0	33.3	98.1	100.0	7.4
Nabawan	97.7	95.3	100.0	37.2	97.7	100.0	2.3
Keningau	92.2	87.1	99.2	46.7	94.9	99.2	12.8
Tambunan	97.8	68.9	100.0	46.7	100.0	100.0	0.0
Kunak	96.5	73.6	100.0	64.3	98.9	96.6	11.6
Tongod	96.6	67.8	100.0	35.6	93.2	96.6	18.6
Putatan	100.0	98.6	100.0	72.6	100.0	98.6	31.5
Telupid	100.0	93.9	100.0	30.6	98.0	95.9	8.2
Kalabakan	87.5	29.2	100.0	58.3	100.0	87.5	12.5
Membakut	87.5	62.7	100.0	49.1	99.6	87.8	14.4

Jadual D3.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
SARAWAK	91.1	88.7	98.1	63.0	98.6	98.0	17.5
Kuching	98.4	89.5	99.5	64.3	99.5	100.0	20.4
Bau	76.0	92.0	98.7	32.0	100.0	97.3	4.0
Lundu	84.1	72.5	89.9	31.9	98.6	95.7	2.9
Samarahan	98.4	90.5	99.0	73.9	98.7	98.7	7.8
Serian	71.0	82.7	97.6	40.7	100.0	97.6	10.3
Simunjan	65.2	69.6	84.1	31.9	98.6	97.1	2.9
Sri Aman	84.2	98.0	100.0	66.4	97.2	97.2	23.2
Lubok Antu	79.4	77.9	92.6	42.6	98.5	97.1	13.2
Betong	80.3	88.2	97.4	63.2	100.0	98.7	1.3
Saratok	80.8	83.6	100.0	50.7	100.0	97.3	2.7
Sarikei	90.8	83.8	94.9	74.4	98.6	97.4	17.4
Maradong	74.3	80.9	92.7	57.7	98.8	93.9	7.3
Daro	78.1	81.3	98.4	45.3	98.4	95.3	6.3
Julau	89.3	82.1	96.4	46.4	96.4	96.4	3.6
Sibu	99.4	98.8	100.0	70.3	98.1	98.8	28.3
Dalat	75.0	95.5	97.7	45.5	97.7	95.5	2.3
Mukah	85.7	91.3	98.6	59.5	95.7	95.7	7.3

Jadual D3.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
Kanowit	60.7	85.7	98.2	42.9	96.4	98.2	10.7
Bintulu	100.0	94.9	100.0	82.2	98.9	98.0	30.7
Tatau	78.6	85.7	94.6	53.6	98.2	92.9	1.8
Kapit	85.2	83.2	97.3	59.8	98.9	97.9	7.2
Song	64.8	92.6	96.3	50.0	98.1	100.0	13.0
Belaga	83.3	85.4	100.0	66.7	97.9	97.9	14.6
Miri	98.7	90.0	99.2	92.2	98.7	99.5	36.7
Marudi	79.5	94.9	97.4	64.1	97.4	97.4	2.6
Limbang	93.3	93.2	98.5	64.0	98.5	98.5	13.8
Lawas	86.8	86.8	100.0	50.9	100.0	96.2	5.7
Matu	77.6	82.8	94.8	39.7	98.3	94.8	6.9
Asajaya	77.6	91.8	95.9	49.0	98.0	95.9	0.0
Pakan	79.5	88.6	93.2	52.3	100.0	88.6	2.3
Selangau	71.1	91.1	91.1	46.7	97.8	95.6	8.9
Tebedu	66.7	75.4	84.2	42.1	98.2	94.7	0.0
Pusa	78.6	77.1	95.7	44.3	98.6	97.1	0.0
Kabong	81.8	81.8	97.0	42.4	100.0	97.0	1.5
Tanjung Manis	87.5	83.9	94.6	33.9	98.2	98.2	10.7
Sebauh	81.0	87.3	96.8	20.6	98.4	93.7	9.5

Jadual D3.1 : Peratusan Capaian Isi Rumah terhadap Peralatan dan Perkhidmatan ICT mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.1 : Percentage of Households with Access to ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone	Siaran TV berbayar Pay TV channel	Televisyen Television	Radio	Telefon talian tetap Fixed-line telephone
Bukit Mabong	78.4	75.7	81.1	51.4	94.6	100.0	29.7
Subis	74.6	66.1	94.9	39.0	100.0	98.3	5.1
Beluru	83.0	84.9	100.0	39.6	98.1	94.3	15.1
Telang Usan	93.3	77.8	93.3	28.9	95.6	93.3	4.4
Gedong	85.7	78.6	100.0	42.9	92.9	92.9	7.1
Sebuyau	87.5	75.0	100.0	43.8	93.8	93.8	6.3
Siburan	77.6	74.9	92.5	50.0	92.5	92.5	10.0
Pantu	87.5	75.0	100.0	43.8	93.8	93.8	6.3
Lingga	85.7	71.4	100.0	42.9	92.9	92.9	7.1
WILAYAH PERSEKUTUAN							
Kuala Lumpur	100.0	99.8	100.0	67.0	100.0	100.0	43.6
Labuan	99.7	97.3	99.5	86.7	100.0	99.7	37.8
Putrajaya	100.0	100.0	100.0	65.5	100.0	100.0	55.0

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024
Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
JOHOR	98.9	84.6	99.8
Batu Pahat	99.5	81.3	99.6
Johor Bahru	99.6	87.6	99.9
Kluang	98.7	85.8	99.6
Kota Tinggi	99.3	72.7	99.5
Mersing	99.6	73.8	99.6
Muar	98.6	86.6	100.0
Pontian	89.0	76.7	99.7
Segamat	99.0	79.0	99.8
Kulai	99.5	88.8	99.9
Tangkak	98.0	81.9	99.9
KEDAH	97.4	73.5	99.5
Baling	97.8	65.4	99.6
Bandar Baharu	97.3	68.2	99.4
Kota Setar	96.9	78.9	99.7
Kuala Muda	97.5	70.9	99.3
Kubang Pasu	96.8	78.8	99.4
Kulim	98.9	76.2	99.7

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
Langkawi	97.6	68.0	99.6
Padang Terap	96.4	72.4	99.3
Sik	95.7	71.2	99.5
Yan	97.6	68.0	99.4
Pendang	95.7	70.1	99.6
Pokok Sena	96.7	73.1	99.3
KELANTAN	97.3	74.4	99.6
Bachok	96.4	75.3	99.4
Kota Bharu	98.4	79.9	99.9
Machang	96.1	76.5	99.6
Pasir Mas	96.6	70.0	99.7
Pasir Puteh	96.9	72.3	98.5
Tanah Merah	97.8	73.9	99.7
Tumpat	97.0	72.8	99.9
Gua Musang	98.1	64.1	100.0
Kuala Krai	96.5	70.1	99.7
Jeli	95.5	71.6	99.9
Lojing	89.2	49.5	91.3

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)
Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
MELAKA	98.5	86.6	99.8
Alor Gajah	97.9	88.3	99.9
Jasin	98.0	78.1	99.7
Melaka Tengah	98.8	88.1	99.7
NEGERI SEMBILAN	98.6	76.8	99.4
Jelebu	94.0	58.9	98.4
Kuala Pilah	93.5	68.1	97.1
Port Dickson	99.5	73.0	99.9
Rembau	96.9	60.7	96.5
Seremban	100.0	85.7	100.0
Tampin	96.6	64.6	97.6
Jempol	97.0	58.9	99.9
PAHANG	97.3	78.1	99.7
Bentong	97.1	80.8	99.6
Cameron Highlands	96.9	79.7	99.7
Jerantut	96.5	74.8	99.3
Kuantan	96.9	81.3	100.0
Lipis	97.8	75.0	99.8

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
Pekan	98.5	78.9	99.0
Raub	97.8	77.8	99.7
Temerloh	97.2	74.9	99.9
Rompin	99.2	75.3	99.5
Maran	98.1	73.9	99.5
Bera	96.9	73.9	99.5
PULAU PINANG	99.4	85.7	99.9
Seberang Prai Tengah	100.0	87.5	99.7
Seberang Prai Utara	99.3	85.1	100.0
Seberang Prai Selatan	99.0	87.4	99.6
Timur Laut	99.1	84.2	100.0
Barat Daya	99.3	85.7	100.0
PERAK	96.7	78.2	99.0
Batang Padang	97.5	76.3	98.5
Manjung	97.7	83.0	99.8
Kinta	96.6	78.6	99.5
Kerian	96.1	73.5	97.9
Kuala Kangsar	96.5	77.2	99.2

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
Larut Dan Matang	96.7	76.5	98.7
Hilir Perak	94.6	76.0	97.5
Hulu Perak	96.4	75.7	98.5
Perak Tengah	96.5	78.9	98.0
Kampar	97.3	77.8	98.9
Muallim	99.4	87.1	99.5
Bagan Datuk	96.2	80.7	98.8
Selama	95.0	70.1	99.5
PERLIS	96.6	75.2	99.3
SELANGOR	99.2	91.9	99.9
Gombak	100.0	92.5	100.0
Klang	98.8	90.9	99.5
Kuala Langat	99.0	91.3	99.9
Kuala Selangor	97.5	90.7	100.0
Petaling	99.5	91.5	99.8
Sabak Bernam	97.7	89.8	99.7
Sepang	100.0	95.3	100.0
Hulu Langat	99.0	92.8	100.0
Hulu Selangor	98.0	90.7	100.0

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
TERENGGANU	97.6	80.9	99.4
Besut	97.1	84.5	99.7
Dungun	97.8	85.6	99.6
Kemaman	98.8	84.8	99.4
Kuala Terengganu	97.7	85.0	99.5
Marang	97.6	71.2	98.7
Hulu Terengganu	97.2	76.5	99.6
Setiu	98.5	74.7	99.6
Kuala Nerus	96.0	72.7	99.0
SABAH	97.4	61.0	99.3
Tawau	98.8	71.2	99.7
Lahad Datu	99.6	59.6	99.9
Semporna	98.8	59.1	99.3
Sandakan	99.5	77.9	99.7
Kinabatangan	98.5	45.0	99.8
Beluran	100.0	26.8	99.8
Kota Kinabalu	99.6	80.6	99.2
Ranau	96.7	61.9	99.8

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)
Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
Kota Belud	98.9	61.1	99.7
Tuaran	98.5	42.3	99.2
Penampang	96.9	64.2	99.6
Papar	98.9	61.5	99.3
Kudat	97.8	51.5	99.3
Kota Marudu	93.4	45.2	99.5
Pitas	92.8	45.6	99.3
Beaufort	92.3	60.8	99.7
Kuala Penyu	95.1	56.3	99.3
Sipitang	95.2	54.9	99.3
Tenom	95.5	46.5	99.0
Nabawan	96.2	44.8	99.3
Keningau	96.4	50.2	99.4
Tambunan	94.6	42.4	99.5
Kunak	90.3	55.7	99.4
Tongod	67.0	12.8	99.4
Putatan	97.4	53.0	99.3
Telupid	100.0	32.9	99.4
Kalabakan	99.7	9.2	100.0

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)

Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
SARAWAK	94.2	67.9	98.2
Kuching	98.8	77.8	99.9
Bau	98.5	54.4	99.7
Lundu	93.2	68.6	99.6
Samarahan	94.0	75.6	99.6
Serian	82.9	49.3	97.9
Simunjan	82.6	64.3	99.8
Sri Aman	90.7	53.1	97.2
Lubok Antu	78.8	50.0	96.6
Betong	85.7	72.4	97.3
Saratok	84.5	56.6	98.1
Sarikei	92.9	65.2	96.4
Maradong	83.1	60.1	97.6
Daro	85.4	59.9	97.0
Julau	71.9	29.9	97.1
Sibu	97.9	72.5	98.8
Dalat	88.1	29.7	98.0
Mukah	91.8	57.8	97.3

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)
Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
Kanowit	82.7	48.8	96.2
Bintulu	98.2	77.3	99.8
Tatau	92.5	52.3	98.2
Kapit	93.7	66.3	97.3
Song	93.1	14.5	93.9
Belaga	96.0	28.9	98.0
Miri	98.8	80.7	99.6
Marudi	67.3	32.4	92.3
Limbang	96.1	63.9	98.1
Lawas	95.8	69.0	97.3
Matu	89.2	48.4	96.5
Asajaya	92.1	69.8	95.5
Pakan	85.7	50.6	95.2
Selangau	87.3	55.5	95.6
Tebedu	92.1	84.0	94.3
Pusa	87.3	58.4	97.3
Kabong	92.7	61.3	96.1
Tanjung Manis	95.7	73.3	96.2
Sebauh	98.1	61.2	98.6

Jadual D3.2 : Peratusan Penggunaan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Negeri dan Daerah Pentadbiran, Malaysia, 2024 (samb.)
Table D3.2 : Percentage of Individuals Using ICT Equipment and Services by State and Administrative District, Malaysia, 2024 (cont'd)

Negeri State	Internet	Komputer Computer	Telefon bimbit Mobile phone
Bukit Mabong	55.5	29.3	90.8
Subis	96.9	83.5	97.0
Beluru	93.0	59.8	99.2
Telang Usan	82.1	43.1	97.3
WILAYAH PERSEKUTUAN			
Kuala Lumpur	100.0	95.9	99.9
Labuan	97.7	88.6	99.9
Putrajaya	100.0	97.8	99.7

Jadual D4.1 : Penggunaan Komputer, Internet dan Web Presence mengikut Negeri, Malaysia, 2019-2022

Table D4.1 : Usage of Computer, Internet and Web Presence by State, Malaysia, 2019-2022

Negeri State	Penggunaan komputer Computer usage			Penggunaan Internet Internet usage			Penggunaan web presence Web presence usage		
	2019	2021	2022	2019	2021	2022	2019	2021	2022
Jumlah / Total	86.2	93.8	95.9	85.2	90.6	93.3	53.9	63.3	71.4
Johor	82.7	95.8	97.9	83.1	92.2	97.6	45.7	73.7	79.7
Kedah	74.2	86.7	90.7	72.5	81.6	81.8	29.7	46.7	55.7
Kelantan	67.4	86.2	93.2	67.3	80.1	79.3	37.1	41.1	40.5
Melaka	92.6	96.3	97.0	94.8	95.5	93.1	69.5	73.0	67.7
Negeri Sembilan	76.3	90.3	93.8	72.0	82.6	92.9	25.1	54.4	60.8
Pahang	73.5	91.7	94.0	66.8	88.3	92.6	21.8	53.6	58.6
Perak	78.1	90.6	95.5	78.7	84.8	84.9	28.7	54.6	58.7
Perlis	62.0	86.8	93.8	54.7	82.4	78.4	28.7	46.5	56.6
Pulau Pinang	96.9	99.2	99.0	96.6	98.2	98.7	66.4	74.0	78.9
Sabah	67.5	85.1	88.3	59.6	75.3	84.8	21.4	34.5	45.6
Sarawak	69.5	82.8	85.6	60.5	75.9	82.3	31.0	36.1	47.8
Selangor	98.9	99.7	99.2	98.8	99.5	98.9	79.8	80.1	85.2
Terengganu	66.3	85.3	92.1	68.5	81.5	91.3	38.3	42.0	62.1
W.P. Kuala Lumpur	98.8	100.0	99.8	98.8	99.7	99.6	75.9	78.4	91.0
W.P. Labuan	76.9	90.3	95.3	73.1	87.8	93.3	36.1	48.4	64.3
W.P. Putrajaya	99.9	100.0	99.2	99.9	100.0	99.2	55.3	74.0	88.9

Sumber/ Sources :

1. Penggunaan ICT dan E-Dagang oleh Pertubuhan 2022/ Usage of ICT and E-Commerce Establishment 2022
2. Banci Ekonomi 2023 Penggunaan ICT dan E-Dagang oleh Pertubuhan/ Economic Census 2023 Usage of ICT and E-Commerce Establishment

Jadual D4.2 : Pendapatan dan Perbelanjaan E-Dagang mengikut Negeri, Malaysia, 2019-2022

Table D4.2 : Income and Expenditure of E-Commerce by State, Malaysia, 2019-2022

Negeri State	(RM juta/ RM million)					
	Pendapatan Income			Perbelanjaan Expenditure		
	2019	2021	2022	2019	2021	2022
Jumlah / Total	675,353	1,037,224	1,126,854	301,498	460,755	531,631
Johor	71,398	86,602	95,162	35,147	43,257	46,665
Kedah	28,167	28,205	29,603	14,687	15,109	17,223
Kelantan	5,421	5,741	7,278	3,901	4,047	4,671
Melaka	30,828	54,489	56,099	22,115	30,821	31,531
Negeri Sembilan	29,614	41,265	42,188	22,624	30,639	30,986
Pahang	16,564	30,688	31,215	8,447	19,330	19,812
Perak	17,626	29,497	33,390	7,314	16,341	19,259
Perlis	1,086	1,332	1,674	625	763	912
Pulau Pinang	58,219	89,375	101,359	27,807	54,662	68,134
Sabah	20,294	20,387	22,478	9,423	9,549	12,197
Sarawak	25,695	35,910	39,143	18,939	30,066	35,214
Selangor	227,231	341,356	371,129	98,253	133,176	147,940
Terengganu	19,288	25,544	26,913	8,285	13,482	14,418
W.P. Kuala Lumpur	122,196	239,203	259,084 ^a	23,306	57,619	80,828 ^a
W.P. Labuan	1,275	7,142	9,072	483	1,751	1,607
W.P. Putrajaya	451	488	1,067	141	143	235

Nota/ Note:

^aTermasuk Supra. Supra merangkumi aktiviti pengeluaran yang melangkaui pusat kepentingan ekonomi utama bagi mana-mana negeri

^a Including Supra. Supra covers production activities that beyond centre of predominant economic interest for any state

Sumber/ Sources :

1. Penggunaan ICT dan E-Dagang oleh Pertubuhan 2022/ Usage of ICT and E-Commerce Establishment 2022

2. Banci Ekonomi 2023 Penggunaan ICT dan E-Dagang oleh Pertubuhan/ Economic Census 2023 Usage of ICT and E-Commerce Establishment

Jadual D4.3 : Pendapatan E-Dagang mengikut Jenis Pelanggan dan Sektor/ Subsektor, Malaysia, 2019-2022
Table D4.3 : Income of E-Commerce by Type of Customer and Sector/ Sub-sector, Malaysia, 2019-2022

Negeri State	(RM juta/ RM million)									
	Jumlah Total		Perniagaan kepada perniagaan Business to business (B2B)			Perniagaan kepada pengguna Business to consumer (B2C)			Perniagaan kepada kerajaan Business to government (B2G)	
	2019	2021	2022	2019	2021	2022	2019	2021	2022	2022
Jumlah / Total	675,353	1,037,224	1,126,854	449,556	713,125	786,501	193,983	308,940	312,583	27,769
Pertanian <i>Agriculture</i>	603	898	995	361	570	628	241	324	360	7
Perombongan dan pengkuarian <i>Mining and quarrying</i>	8,902	8,658	10,895	8,886	8,642	10,872	0	0	-	23
Pembuatan <i>Manufacturing</i>	354,265	553,820	561,260	327,848	524,065	526,748	21,168	24,737	28,358	6,154
Pembinaan <i>Construction</i>	1,042	873	1,036	584	556	681	76	42	72	283
Perkhidmatan <i>Services</i>	310,541	472,976	552,668	111,877	179,292	247,573	172,497	283,836	283,793	21,303
Utiliti <i>Utility</i>	5,922	12,641	13,376	5,882	12,465	13,190	10	143	147	39
Perdagangan borong dan runcit <i>Wholesale and retail trade</i>	160,678	217,075	227,894	68,934	94,770	101,838	75,171	116,950	120,132	5,923
Pengangkutan dan penyimpanan <i>Transportation and storage</i>	41,728	23,836	24,212	7,985	8,030	8,120	31,965	15,043	15,250	842
Penginapan <i>Accommodation</i>	11,099	4,185	6,145	2,087	775	1,210	8,065	3,210	4,618	317
Makanan dan minuman <i>Food and beverages</i>	8,422	8,795	8,932	1,099	708	767	7,012	7,962	8,025	139

Nota/ Note:

'0' Merujuk kepada nilai kurang daripada RM500,000/ '0' Refers to value less than RM500,000

'-' Merujuk kepada data tidak tersedia/ '-' Refers to data not available

Sumber/ Sources :

1. Penggunaan ICT dan E-Dagang oleh Pertubuhan 2022/ Usage of ICT and E-Commerce Establishment 2022

2. Banci Ekonomi 2023 Penggunaan ICT dan E-Dagang oleh Pertubuhan/ Economic Census 2023 Usage of ICT and E-Commerce Establishment

Jadual D4.3 : Pendapatan E-Dagang mengikut Jenis Pelanggan dan Sektor/ Subsektor, Malaysia, 2019-2022 (samb.)

Table D4.3 : Income of E-Commerce by Type of Customer and Sector/ Sub-sector, Malaysia, 2019-2022 (cont'd)

Negeri State	(RM jutal RM million)									
	Jumlah Total		Perniagaan kepada perniagaan Business to business (B2B)		Perniagaan kepada pengguna Business to consumer (B2C)		Perniagaan kepada kerajaan Business to government (B2G)			
	2019	2021	2022	2019	2021	2022	2019	2021	2022	2022
Jumlah / Total	675,353	1,037,224	1,126,854	449,556	713,125	786,501	193,983	308,940	312,583	27,769
Maklumat dan komunikasi Information and communication	29,861	68,038	92,373	11,020	20,331	44,651	17,329	46,304	46,267	1,454
Kewangan dan insurans/ takaful Financial and insurance/ takaful	45,822	131,734	171,939	12,797	40,195	74,997	28,516	89,857	84,629	12,312
Hartanah Real estate	43	57	87	25	23	35	18	33	52	1
Profesional, saintifik dan teknikal Professional, scientific and technical	454	491	496	259	295	300	180	190	191	4
Pentadbiran dan khidmat sokongan Administrative and support service	3,623	2,715	2,749	1,162	1,027	1,195	2,075	1,483	1,379	174
Pendidikan Education	854	692	1,283	84	91	516	729	580	736	31
Kesihatan kemanusiaan dan kerja sosial Human health and social work	247	1,002	1,275	162	343	426	79	652	842	7
Kesenian, hiburan dan rekreasi Arts, entertainment and recreation	1,763	1,692	1,834	368	226	300	1,339	1,417	1,477	56
Perkhidmatan lain Other services	24	23	75	13	11	25	9	11	47	2

Nota/ Note:

'0' Merujuk kepada nilai kurang daripada RM500,000/ '0' Refers to value less than RM500,000

.. Merujuk kepada data tidak tersedia/ .. Refers to data not available

Sumber/ Sources :

1. Penggunaan ICT dan E-Dagang oleh Pertubuhan 2022/ Usage of ICT and E-Commerce Establishment 2022

2. Banci Ekonomi 2023 Penggunaan ICT dan E-Dagang oleh Pertubuhan/ Economic Census 2023 Usage of ICT and E-Commerce Establishment

Jadual D4.4 : Perbelanjaan E-Dagang mengikut Jenis Pelanggan dan Sektor/ Subsektor, Malaysia, 2019-2022
Table D4.4 : Expenditure of E-Commerce by Type of Customer and Sector/ Sub-sector, Malaysia, 2019-2022

Negeri State	(RM juta/ RM million)									
	Jumlah Total		Perniagaan kepada perniagaan Business to business (B2B)			Perniagaan kepada pengguna Business to consumer (B2C)			Perniagaan kepada kerajaan Business to government (B2G)	
	2019	2021	2022	2019	2021	2022	2019	2021	2022	2022
Jumlah / Total	301,498	460,755	531,631	277,581	403,084	432,160	14,816	50,719	87,937	11,535
Pertanian <i>Agriculture</i>	204	317	424	191	285	328	9	31	94	2
Perlomongan dan pengkuarian <i>Mining and quarrying</i>	3,039	2,925	3,730	2,750	2,803	3,587	0	1	5	138
Pembuatan <i>Manufacturing</i>	204,168	325,166	347,617	192,312	284,786	297,157	7,521	36,383	45,223	5,238
Pembinaan <i>Construction</i>	762	666	706	635	576	603	55	23	27	75
Perkhidmatan <i>Services</i>	93,325	131,682	179,155	81,693	114,634	130,484	7,231	14,281	42,588	6,082
Utiliti <i>Utility</i>	898	2,340	2,669	892	2,278	2,599	2	57	64	6
Perdagangan borong dan runcit <i>Wholesale and retail trade</i>	51,430	67,002	80,313	46,488	56,304	60,690	2,026	8,879	17,711	1,912
Pengangkutan dan penyimpanan <i>Transportation and storage</i>	18,007	13,316	14,038	13,985	11,119	11,300	3,314	1,911	2,437	301
Penginapan <i>Accommodation</i>	5,209	1,490	3,884	3,524	993	2,523	1,465	371	1,041	320
Makanan dan minuman <i>Food and beverages</i>	1,752	1,954	2,112	1,683	1,854	1,955	49	94	148	9

Nota/ Note:

'0' Merujuk kepada nilai kurang daripada RM500,000/ '0' Refers to value less than RM500,000

Sumber/ Sources :

1. Penggunaan ICT dan E-Dagang oleh Pertubuhan 2022/ Usage of ICT and E-Commerce Establishment 2022
2. Banci Ekonomi 2023 Penggunaan ICT dan E-Dagang oleh Pertubuhan/ Economic Census 2023 Usage of ICT and E-Commerce Establishment

Jadual D4.4 : Perbelanjaan E-Dagang mengikut Jenis Pelanggan dan Sektor/ Subsektor, Malaysia, 2019-2022 (samb.)
Table D4.4 : Expenditure of E-Commerce by Type of Customer and Sector/ Sub-sector, Malaysia, 2019-2022 (cont'd)

Negeri State	(RM juta/ RM million)									
	Jumlah Total		Perniagaan kepada perniagaan Business to business (B2B)		Perniagaan kepada pengguna Business to consumer (B2C)		Perniagaan kepada kerajaan Business to government (B2G)			
	2019	2021	2022	2019	2021	2022	2019	2021	2022	2022
Jumlah / Total	301,498	460,755	531,631	277,581	403,084	432,160	14,816	50,719	87,937	11,535
Maklumat dan komunikasi <i>Information and communication</i>	8,766	26,212	26,600	8,559	25,811	21,474	70	278	4,660	466
Kewangan dan insurans/ takaful <i>Financial and insurance/ takaful</i>	4,699	17,047	47,242	4,328	14,297	28,455	118	2,424	15,781	3,006
Hartanah <i>Real estate</i>	30	39	42	28	34	31	2	4	10	1
Profesional, saintifik dan teknikal <i>Professional, scientific and technical</i>	58	59	78	50	49	47	5	8	30	1
Pentadbiran dan khidmat sokongan <i>Administrative and support service</i>	1,086	758	743	897	549	399	121	171	295	49
Pendidikan <i>Education</i>	917	647	332	839	563	190	29	56	132	11
Kesihatan kemanusiaan dan kerja sosial <i>Human health and social work</i>	303	649	683	281	628	553	11	16	130	0
Kesenian, hiburan dan rekreasi <i>Arts, entertainment and recreation</i>	157	155	373	127	143	255	19	10	116	2
Perkhidmatan lain <i>Other services</i>	13	13	47	13	12	13	1	1	33	1

Nota/ Note:

'0' Merujuk kepada nilai kurang daripada RM500,000/ '0' Refers to value less than RM500,000

Sumber/ Sources:

1. Penggunaan ICT dan E-Dagang oleh Pertubuhan 2022/ Usage of ICT and E-Commerce Establishment 2022
2. Banci Ekonomi 2023 Penggunaan ICT dan E-Dagang oleh Pertubuhan/ Economic Census 2023 Usage of ICT and E-Commerce Establishment

Jadual D4.5 : Perangkaan Utama Jualan Runcit di Kedai Khusus yang Menjual Peralatan Komunikasi dan Maklumat, Malaysia, 2021-2024
Table D4.5 : Principal Statistics Retail Sale of Information and Communication Equipment in Specialised Stores, Malaysia, 2021-2024

474	Jualan runcit di kedai khusus yang menjual peralatan komunikasi dan maklumat Retail sale of information and communication equipment in specialised stores					
Tahun Year	Nilai jualan Sales value (RM '000)	YoY (%)	Bilangan pekerja Number of persons engaged	YoY (%)	Gaji & Upah Salaries & Wages (RM '000)	YoY (%)
2024	60,017,610	0.5	117,273	1.0	3,557,688	0.8
2023	59,724,054	0.3	116,129	-1.0	3,554,446	-0.7
2022	59,562,145	9.0	117,315	2.1	3,580,654	7.1
2021	54,627,699	7.2	114,884	4.4	3,344,040	2.4

Jadual D4.6 : Perangkaan Utama Maklumat dan Komunikasi, Malaysia, 2021-2024
Table D4.6 : Principal Statistics Information and Communication, Malaysia, 2021-2024

Maklumat dan komunikasi Information and communication						
Tahun Year	Hasil Revenue (RM '000)	YoY (%)	Bilangan pekerja Number of persons engaged	YoY (%)	Gaji & Upah Salaries & Wages (RM '000)	YoY (%)
2024	176,231,650	3.4	145,544	1.9	9,344,554	2.3
2023	170,490,771	5.3	142,770	0.9	9,135,463	3.9
2022	161,886,256	5.6	141,433	2.0	8,789,676	6.2
2021	153,347,247	5.0	138,660	3.8	8,277,499	-6.9

Sumber/ Source:
Perangkaan Perkhidmatan Suku Tahunan Keempat 2024/ Quarterly Services Statistics Fourt Quarter 2024

Jadual D4.7 : Siri Masa Perbelanjaan Penggunaan Isi Rumah Bulanan Purata, Malaysia, 2016-2022

Table D4.7 : Time Series of Mean Monthly Household Consumption Expenditure, 2016 - 2022

(RM)

Kumpulan perbelanjaan Expenditure group	2016*	2019*	2022
01 Makanan dan Minuman Food and Beverages	723	780	841
02 Minuman Alkohol dan Tembaku Alcoholic Beverages and Tobacco	98	105	95
03 Pakaian dan Kasut Clothing and Footwear	135	151	140
04 Perumahan, Air, Elektrik, Gas dan Bahan Api Lain Housing, Water, Electricity, Gas and Other Fuels	969	1,068	1,193
05 Hiasan, Perkakasan dan Penyelenggaraan Isi Rumah Furnishings, Household Equipment and Routine Household Maintenance	169	201	242
06 Kesihatan Health	75	95	140
07 Pengangkutan Transport	558	618	584
08 Maklumat dan Komunikasi Information and Communication	281	306	337
09 Rekreasi, Sukan dan Kebudayaan Recreation, Sport and Culture	112	139	156
10 Perkhidmatan Pendidikan Education Services	54	70	68
11 Restoran dan Perkhidmatan Penginapan Restaurants and Accommodation Services	542	634	831
12 Insurans dan Perkhidmatan Kewangan Insurance and Financial Services	128	162	208
13 Penjagaan Diri, Perlindungan Sosial dan Pelbagai Barangan Perkhidmatan Personal Care, Social Protection and Miscellaneous Goods and Services	235	280	314
Perbelanjaan penggunaan isi rumah purata (01-13) Mean monthly household consumption expenditure (01-13)	4,078	4,608	5,150

Nota/ Note:

* Data 2016 dan 2019 telah diselaraskan mengikut Malaysia Classification of Individual Consumption According to Purpose (MCOICOP) 2021

* Data for 2016 and 2019 were adjusted according to Malaysia Classification of Individual Consumption According to Purpose (MCOICOP) 2021

Sumber/ Source :

Laporan Survei Perbelanjaan Isi Rumah 2022/ Household Expenditure Survey Report 2022

Jadual D4.8 : Kadar Penembusan Peralatan dan Perkhidmatan ICT, Malaysia, 2020-2024

Table D4.8 : ICT Equipment and Services Penetration Rate, Malaysia, 2020-2024

Peralatan dan Perkhidmatan ICT ICT Equipment and Services	2020	2021	2022	2023	2024
Jalur lebar Broadband	n.a.	n.a.	n.a.	n.a.	n.a.
Mudah alih Mobile	118.7	126.4	131.0	134.5	131.1
Tetap Fixed (wired)	37.2	40.8	47.6	50.6	48.7
Selular mudah alih Mobile-cellular	133.6	144.0	145.3	148.7	145.4
TV berbayar Pay TV	83.4	81.1	80.6	76.4	66.2

Nota/ Notes.

1. Jalur lebar tetap merujuk kepada kadar penembusan bagi 100 premis/ Fixed (wired) broadband refers to penetration rate per 100 premises
2. Jalur lebar mudah alih dan selular mudah alih merujuk kepada kadar penembusan bagi 100 penduduk/ Mobile-broadband and mobile-cellular refer to penetration rate per 100 inhabitants
3. TV berbayar merujuk kepada kadar penembusan bagi 100 isi rumah/ Pay TV refers to penetration rate per 100 households

Jadual D4.9 : Bilangan Langganan TV Berbayar, Malaysia, 2020-2024

Table D4.9 : Number of Pay TV Subscriptions, Malaysia, 2020-2024

TV berbayar Pay TV channel	2020	2021	2022	2023	2024
Jumlah langganan isi rumah Total household subscriptions	6,880.5	6,699.6	6,509.4	6,303.1	5,957.9

Nota/ Note:

TV berbayar termasuk IPTV/ Pay TV is inclusive of IPTV

Sumber/ Source :

Komunikasi dan Multimedia, Buku Maklumat Statistik (Suruhanjaya Komunikasi dan Multimedia Malaysia)
Communications and Multimedia, Pocket Book of Statistics (Malaysian Communications and Multimedia Commission)

Jadual D4.10 : Bilangan Langganan Jalur Lebar, Malaysia, 2020-2024
Table D4.10 : Number of Broadband Subscriptions, Malaysia, 2020-2024

	2020	2021	2022	2023	2024
Jalur lebar <i>Broadband</i>					
Mudah alih <i>Mobile</i>	38,837.2	42,016.0	43,239.5	45,336.7	44,782.9
Tetap <i>Fixed (wired)</i>	3,349.5	3,727.4	4,220.5	4,574.1	4,815.0

Jadual D4.11 : Bilangan Langganan Selular Mudah Alih, Malaysia, 2020-2024
Table D4.11 : Number of Mobile-cellular Subscriptions, Malaysia, 2020-2024

	2020	2021	2022	2023	2024
Selular mudah alih <i>Mobile-cellular</i>					
Prabayar <i>Prepaid</i>	30,152.9	33,023.0	33,657.9	35,311.3	33,912.6
Pascabayar <i>Postpaid</i>	13,570.7	14,178.6	14,294.2	14,825.2	15,748.9

Nota/ Note:
 Bermula 2017, kadar penembusan mudah alih adalah berdasarkan data sekunder/ Commencing 2017, the mobile-cellular penetration rate is based on secondary data
 Sumber/ Source :
 Komunikasi dan Multimedia, Buku Maklumat Statistik (Suruhanjaya Komunikasi dan Multimedia Malaysia)
 Communications and Multimedia, Pocket Book of Statistics (Malaysian Communications and Multimedia Commission)

Jadual D5.1 : Peratusan Capaian Internet oleh Isi Rumah mengikut Negara Terpilih, 2019-2022

Table D5.1 : Percentage of Households with Internet Access by Selected Countries, 2019-2022

Tahun / Year	Malaysia	Singapura Singapore	Thailand	Republik Korea Republic of Korea	Jepun Japan	Hong Kong	Indonesia
2022	96.0	98.7	90.4	100.0	89.5	96.1	86.5
2021	94.9	99.3	88.7	99.9	88.2	94.4	82.1
2020	91.0	98.4	85.2	99.7	97.3	93.9	78.2
2019	89.6	98.4	74.6	99.7	96.9	94.1	73.7

Jadual D5.2 : Peratusan Capaian Komputer oleh Isi Rumah mengikut Negara Terpilih, 2019-2022

Table D5.2 : Percentage of Households with Access to Computer by Selected Countries, 2019-2022

Tahun / Year	Malaysia	Singapura Singapore	Thailand	Republik Korea Republic of Korea	Jepun Japan	Hong Kong	Indonesia
2022	91.3	90.0	24.5	81.0	75.4	75.1	18.0
2021	88.3	91.8	25.8	73.6	75.5	75.8	18.2
2020	77.6	89.1	19.3	71.6	75.9	75.3	18.8
2019	71.3	88.8	15.9	71.7	74.6	77.6	18.8

Sumber/ Source : *International Telecommunication Union (ITU)*

Jadual D5.3 : Peratusan Individu Menggunakan Internet mengikut Negara Terpilih, 2019-2022

Table D5.3 : Percentage of Individuals Using the Internet by Selected Countries, 2019-2022

Tahun / Year	Malaysia	Singapura Singapore	Thailand	Republik Korea Republic of Korea	Jepun Japan	Hong Kong	Indonesia
2022	97.4	96.0	88.0	97.2	84.9	95.6	66.5
2021	96.8	96.9	85.3	97.6	82.9	93.1	62.1
2020	89.6	92.0	77.8	96.5	90.2	92.4	53.7
2019	84.2	88.9	66.7	96.2	92.7	91.7	47.7

Jadual D5.4 : Peratusan Individu Menggunakan Komputer mengikut Negara Terpilih, 2019-2022

Table D5.4 : Percentage of Individuals Using Computer by Selected Countries, 2019-2022

Tahun / Year	Malaysia	Singapura Singapore	Thailand	Republik Korea Republic of Korea	Jepun Japan	Hong Kong	Indonesia
2022	80.2	-	-	-	-	-	-
2021	83.5	-	-	79.9	-	78.6	11.7
2020	80.0	-	26.4	82.3	-	79.8	14.1
2019	72.1	73.5	25.3	83.0	75.5	82.7	14.5

Sumber/ Source : *International Telecommunication Union (ITU)*

Jadual D5.5 : Peratusan Individu Menggunakan Internet mengikut Jantina dan Negara Terpilih, 2022

Table D5.5 : Percentage of Individuals Using the Internet by Sex and Selected Countries, 2022

Jantina Sex	Malaysia	Singapura Singapore	Thailand	Republik Korea Republic of Korea	Jepun Japan	Hong Kong	Indonesia
Lelaki / Male	98.8	96.9	89.3	97.8	87.9	96.6	69.4
Perempuan / Female	95.9	95.0	86.7	96.6	82.1	94.7	63.5

Jadual D5.6 : Kedudukan Indeks Berkaitan ICT bagi Negara Terpilih, 2017 dan 2024

Table D5.6 : Ranking of ICT-related Indices for Selected Countries, 2017 and 2024

Kedudukan Rank	Malaysia	Singapura Singapore	Thailand	Republik Korea Republic of Korea	Jepun Japan	Hong Kong	Indonesia
ICT Development Index (IDI) 2017 ¹	63	18	78	2	10	6	111
E-Government Development Index (EGDI) 2024 ²	57	3	52	4	13	-	64

Sumber/ Source :

¹ Measuring the Information Society Report 2017 Volume 1, International Telecommunication Union (ITU)

² United Nation e-Government Survey 2024, United Nation

Nota/ Note:

ICT Development Index (IDI) is a unique benchmark of the level of ICT development in countries across the world. The IDI combines 11 indicators on ICT access, use and skills, capturing key aspects of ICT development in one measure that allows for comparisons to be made between countries and over time. IDI 2017 covers 176 economies worldwide.

E-Government Development Index (EGDI) is a composite index based on the weighted average of three normalize indices. One-third is derived from a Telecommunication Infrastructure Index (TII) based on data provided by the International Telecommunication Union (ITU), one-third from a Human Capital Index (HCI) based on data provided by the United Nations Educational, Scientific and Cultural Organisation (UNESCO), and one-third from the Online Service Index (OSI), based on data collected from an independent survey questionnaire, conducted by UNDESA. The EGDI is used to measure the readiness and capacity of national institutions to use ICTs to deliver public services. This measure is useful for government official, policy maker, researchers and representatives of civil society and the private sector to gain a deeper understanding of the relative position of a country in utilising e-Government for the delivery of public services.

Jadual D6.1 : Ralat Piawai Relatif bagi Anggaran Peratusan Peralatan dan Perkhidmatan ICT oleh Isi Rumah mengikut Strata, Malaysia, 2024
Table D6.1 : Relative Standard Error of Estimates for Percentage of Households with Access to ICT Equipment and Services by Strata, Malaysia, 2024

Peralatan dan Perkhidmatan ICT <i>ICT equipment and services</i>	Peratusan capaian ICT oleh isi rumah <i>Percentage of ICT access by households</i>			Ralat piawai bagi anggaran <i>Standard error of estimates (%)</i>						Peratusan capaian ICT oleh isi rumah pada 95% selang keyakinan <i>Percentage of ICT access by households at 95% confidence interval</i>		
	Malaysia	Bandar Urban	Luar bandar Rural	Nilai relatif <i>Relative value</i>			Ralat piawai <i>Standard error</i>			Malaysia	Bandar Urban	Luar bandar Rural
				Malaysia	Bandar Urban	Luar bandar Rural	Malaysia	Bandar Urban	Luar bandar Rural			
Internet	96.8	98.8	90.3	0.1	0.1	0.3	0.1	0.1	0.3	96.6 - 97.0	98.5 - 98.9	89.7 - 90.9
Komputer <i>Computer</i>	92.2	94.9	83.2	0.2	0.2	0.5	0.2	0.2	0.4	91.8 - 92.6	94.4 - 95.3	82.4 - 84.0
Telefon bimbit <i>Mobile phone</i>	99.5	99.7	98.7	0.0	0.0	0.1	0.0	0.0	0.1	99.4 - 99.6	99.6 - 99.8	98.4 - 98.9
Siaran TV berbayar <i>Pay TV channel</i>	67.1	69.5	59.2	0.7	0.9	0.9	0.5	0.6	0.5	66.2 - 68.0	68.3 - 70.6	58.2 - 60.2
Televisyen <i>Television</i>	99.5	99.7	98.8	0.0	0.0	0.1	0.0	0.0	0.1	99.4 - 99.6	99.6 - 99.8	98.6 - 99.0
Radio	99.5	99.8	98.4	0.0	0.0	0.1	0.0	0.0	0.1	99.4 - 99.5	99.7 - 99.8	98.1 - 98.7
Telefon talian tetap <i>Fixed-line telephone</i>	27.9	31.4	16.5	1.7	1.9	2.3	0.5	0.6	0.4	27.0 - 28.8	30.2 - 32.5	15.7 - 17.2

Jadual D6.2 : Ralat Piawai Relatif bagi Anggaran Peratusan Peralatan dan Perkhidmatan ICT oleh Individu mengikut Strata, Malaysia, 2024
Table D6.2 : Relative Standard Error of Estimates for Percentage of Individuals Using ICT Equipment and Services by Strata, Malaysia, 2024

Peralatan dan Perkhidmatan ICT ICT equipment and services	Ralat piawai bagi anggaran Standard error of estimates (%)						Peratusan penggunaan ICT oleh individu pada 95% selang keyakinan Percentage of individuals using ICT at 95% confidence interval					
	Peratusan penggunaan ICT oleh individu Percentage of individuals using ICT			Nilai relatif Relative value			Ralat piawai Standard error					
	Malaysia	Bandar Urban	Luar bandar Rural	Malaysia	Bandar Urban	Luar bandar Rural	Malaysia	Bandar Urban	Luar bandar Rural	Malaysia	Bandar Urban	Luar bandar Rural
Penggunaan Internet Internet Usage	98.0	99.0	95.3	0.1	0.1	0.2	0.1	0.1	0.2	97.9	98.8	94.9
Penggunaan komputer Computer usage	80.7	86.5	64.3	0.4	0.4	1.2	0.4	0.4	0.8	80.0	85.8	62.8
Penggunaan telefon bimbit Mobile phone usage	99.5	99.8	98.9	0.0	0.0	0.1	0.0	0.0	0.1	99.5	99.7	98.7
Pemilikan telefon bimbit Mobile phone ownership	98.3	99.0	96.4	0.1	0.1	0.2	0.1	0.1	0.2	98.2	98.9	96.0

Jadual D7 : Pendapatan dan Perbelanjaan E-Dagang mengikut Sektor/ Subsektor, 2015, 2022 dan 2023
Table D7 : Income and Expenditure of E-Commerce by Sector/ Sub-sector, 2015, 2022 and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Year <i>Year</i>	Pendapatan <i>Income</i> (RM juta) <i>(RM million)</i>	Perbelanjaan <i>Expenditure</i> (RM juta) <i>(RM million)</i>
Jumlah <i>Total</i>	2023 2022 2015	1,184,122 1,126,854 398,207	571,399 531,631 195,098
Pertanian <i>Agriculture</i>	2023 2022 2015	1,077 995 185	451 424 80
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023 2022 2015	11,695 10,895 6,827	4,245 3,730 2,204
Pembuatan <i>Manufacturing</i>	2023 2022 2015	587,258 561,260 275,857	371,800 347,617 160,584
Pembinaan <i>Construction</i>	2023 2022 2015	1,131 1,036 207	765 706 424
Perkhidmatan <i>Services</i>	2023 2022 2015	582,961 552,668 115,131	194,139 179,155 31,808
Utiliti <i>Utility</i>	2023 2022 2015	13,544 13,376 2,303	2,862 2,669 254
Perdagangan Borong dan Runcit <i>Wholesale and Retail Trade</i>	2023 2022 2015	232,651 227,894 62,427	83,242 80,313 18,195
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023 2022 2015	30,386 24,212 21,952	15,831 14,038 6,889
Penginapan <i>Accommodation</i>	2023 2022 2015	6,712 6,145 5,924	4,100 3,884 3,546
Makanan dan Minuman <i>Food and Beverages</i>	2023 2022 2015	9,742 8,932 2,043	2,230 2,112 604
Maklumat dan Komunikasi <i>Information and Communication</i>	2023 2022 2015	99,559 92,373 8,575	28,948 26,600 173
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023 2022 2015	182,116 171,939 9,268	54,474 47,242 1,818

Jadual D7 : Pendapatan dan Perbelanjaan E-Dagang mengikut Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table D7 : Income and Expenditure of E-Commerce by Sector/ Sub-sector, 2015, 2022, and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Year <i>Year</i>	Pendapatan <i>Income</i> (RM juta) <i>(RM million)</i>	Perbelanjaan <i>Expenditure</i> (RM juta) <i>(RM million)</i>
Hartanah	2023	90	45
<i>Real Estate</i>	2022	87	42
	2015	9	9
Profesional, Saintifik dan Teknikal	2023	524	81
<i>Professional, Scientific and Technical</i>	2022	496	78
	2015	206	33
Pentadbiran dan Khidmat Sokongan	2023	2,983	779
<i>Administrative and Support Service</i>	2022	2,749	743
	2015	1,611	181
Pendidikan	2023	1,315	365
<i>Education</i>	2022	1,283	332
	2015	317	61
Kesihatan Kemanusiaan dan Kerja Sosial	2023	1,361	748
<i>Human Health and Social Work</i>	2022	1,275	683
	2015	4	17
Kesenian, Hiburan dan Rekreasi	2023	1,901	385
<i>Arts, Entertainment and Recreation</i>	2022	1,834	373
	2015	483	25
Perkhidmatan Lain	2023	77	50
<i>Other Services</i>	2022	75	47
	2015	8	3

Jadual D8 : Pendapatan E-Dagang mengikut Jenis Pasaran dan Sektor/ Subsektor, 2015, 2022 dan 2023
Table D8 : Income of E-Commerce by Type of Market and Sector/ Sub-sector, 2015, 2022 and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Year <i>Year</i>	Jumlah <i>Total</i>	Tempatan <i>Domestic</i>	Antarabangsa <i>International</i>
		(RM Juta) <i>(RM Million)</i>	(RM Juta) <i>(RM Million)</i>	(RM Juta) <i>(RM Million)</i>
Jumlah <i>Total</i>	2023	1,184,122	1,052,993	131,129
	2022	1,126,854	1,003,480	123,374
	2015	398,207	356,887	41,320
Pertanian <i>Agriculture</i>	2023	1,077	888	189
	2022	995	819	176
	2015	185	129	56
Perlombongan dan Pengkuarian <i>Mining and Quarrying</i>	2023	11,695	9,576	2,119
	2022	10,895	8,917	1,977
	2015	6,827	4,922	1,906
Pembuatan <i>Manufacturing</i>	2023	587,258	543,322	43,935
	2022	561,260	520,611	40,649
	2015	275,857	255,691	20,166
Pembinaan <i>Construction</i>	2023	1,131	1,130	1
	2022	1,036	1,034	1
	2015	207	207	0
Perkhidmatan <i>Services</i>	2023	582,961	498,077	84,885
	2022	552,668	472,099	80,570
	2015	115,130	95,938	19,192
Utiliti <i>Utility</i>	2023	13,544	13,444	100
	2022	13,376	13,286	90
	2015	2,303	2,303	-
Perdagangan Borong dan Runcit <i>Wholesale and Retail Trade</i>	2023	232,651	192,597	40,054
	2022	227,894	188,731	39,162
	2015	62,427	54,719	7,708
Pengangkutan dan Penyimpanan <i>Transportation and Storage</i>	2023	30,386	22,586	7,800
	2022	24,212	16,723	7,489
	2015	21,952	13,103	8,849
Penginapan <i>Accommodation</i>	2023	6,712	6,000	712
	2022	6,145	5,555	590
	2015	5,924	3,812	2,112
Makanan dan Minuman <i>Food and Beverages</i>	2023	9,742	9,716	26
	2022	8,932	8,912	20
	2015	2,043	2,032	11
Maklumat dan Komunikasi <i>Information and Communication</i>	2023	9,742	9,716	26
	2022	92,373	92,335	38
	2015	8,575	8,517	58
Kewangan dan Insurans/Takaful <i>Financial and Insurance/Takaful</i>	2023	182,116	146,171	35,945
	2022	171,939	138,935	33,003
	2015	9,268	8,967	301

Jadual D8 : Pendapatan E-Dagang mengikut Jenis Pasaran dan Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table D8 : Income of E-Commerce by Type of Market and Sector/ Sub-sector, 2015, 2022 and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Year <i>Year</i>	Jumlah <i>Total</i>	Tempatan <i>Domestic</i>	Antarabangsa <i>International</i>
		(RM Juta) <i>(RM Million)</i>	(RM Juta) <i>(RM Million)</i>	(RM Juta) <i>(RM Million)</i>
Hartanah	2023	90	84	6
<i>Real Estate</i>	2022	87	81	6
	2015	9	9	-
Profesional, Saintifik dan Teknikal	2023	524	519	5
<i>Professional, Scientific and Technical</i>	2022	496	491	5
	2015	206	196	9
Pentadbiran dan Khidmat Sokongan	2023	2,983	2,919	64
<i>Administrative and Support Service</i>	2022	2,749	2,708	41
	2015	1,611	1,564	46
Pendidikan	2023	1,315	1,275	40
<i>Education</i>	2022	1,283	1,247	36
	2015	317	292	25
Kesihatan Kemanusiaan dan Kerja Sosial	2023	1,361	1,346	15
<i>Human Health and Social Work</i>	2022	1,275	1,260	16
	2015	4	3	0
Kesenian, Hiburan dan Rekreasi	2023	1,901	1,828	73
<i>Arts, Entertainment and Recreation</i>	2022	1,834	1,761	73
	2015	483	412	71
Perkhidmatan Lain	2023	77	76	1
<i>Other Services</i>	2022	75	74	1
	2015	8	6	1

Nota:

'0' merujuk kepada nilai kurang daripada RM500,000

'-' merujuk kepada data tidak tersedia

Notes:

'0' refers to value less than RM500,000

'-' refers to data not available

Jadual D9 : Pendapatan E-Dagang mengikut Jenis Pelanggan dan Sektor/ Subsektor, 2015, 2022 dan 2023
Table D9 : Income of E-Commerce by Type of Customer and Sector/ Sub-sector, 2015, 2022 and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Year <i>Year</i>	Jumlah <i>Total</i>	Perniagaan Kepada Perniagaan <i>Business to Business</i>	Perniagaan Kepada Pengguna <i>Business to Consumer</i>	Perniagaan Kepada Kerajaan <i>Business to Government</i>
		(RM Juta) (RM Million)	(RM Juta) (RM Million)	(RM Juta) (RM Million)	(RM Juta) (RM Million)
Jumlah	2023	1,184,122	817,138	336,622	30,361
<i>Total</i>	2022	1,126,854	786,501	312,583	27,769
	2015	398,207	320,113	68,847	9,247
Pertanian	2023	1,077	686	384	7
<i>Agriculture</i>	2022	995	628	360	7
	2015	185	103	82	-
Perlombongan dan Pengkuarian	2023	11,695	11,669	0	26
<i>Mining and Quarrying</i>	2022	10,895	10,872	-	23
	2015	6,827	6,813	-	14
Pembuatan	2023	587,258	540,749	39,126	7,382
<i>Manufacturing</i>	2022	561,260	526,748	28,358	6,154
	2015	275,857	257,011	18,108	738
Pembinaan	2023	1,131	742	86	303
<i>Construction</i>	2022	1,036	681	72	283
	2015	207	206	0	0
Perkhidmatan	2023	582,961	263,291	297,026	22,643
<i>Services</i>	2022	552,668	247,573	283,793	21,303
	2015	115,131	55,979	50,657	8,495
Utiliti	2023	13,544	13,321	178	45
<i>Utility</i>	2022	13,376	13,190	147	39
	2015	2,303	2,302	1	-
Perdagangan Borong dan Runcit	2023	232,651	103,459	122,761	6,431
<i>Wholesale and Retail Trade</i>	2022	227,894	101,838	120,132	5,923
	2015	62,427	43,917	12,684	5,826
Pengangkutan dan Penyimpanan	2023	30,386	10,883	18,451	1,052
<i>Transportation and Storage</i>	2022	24,212	8,120	15,250	842
	2015	21,952	3,512	17,627	812
Penginapan	2023	6,712	1,376	4,872	464
<i>Accommodation</i>	2022	6,145	1,210	4,618	317
	2015	5,924	1,603	3,241	1,080
Makanan dan Minuman	2023	9,742	916	8,668	158
<i>Food and Beverages</i>	2022	8,932	767	8,025	139
	2015	2,043	406	1,588	49
Maklumat dan Komunikasi	2023	99,559	50,367	47,656	1,536
<i>Information and Communication</i>	2022	92,373	44,651	46,267	1,454
	2015	8,575	1,473	6,931	171
Kewangan dan Insurans/Takaful	2023	182,116	79,907	89,629	12,579
<i>Financial and Insurance/Takaful</i>	2022	171,939	74,997	84,629	12,312
	2015	9,268	2,152	6,706	410

Jadual D9 : Pendapatan E-Dagang mengikut Jenis Pelanggan dan Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table D9 : Income of E-Commerce by Type of Customer and Sector/ Sub-sector, 2015, 2022 and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Year <i>Year</i>	Jumlah <i>Total</i>	Perniagaan Kepada Perniagaan <i>Business to Business</i>	Perniagaan Kepada Pengguna <i>Business to Consumer</i>	Perniagaan Kepada Kerajaan <i>Business to Government</i>
		(RM Juta) (RM Million)	(RM Juta) (RM Million)	(RM Juta) (RM Million)	(RM Juta) (RM Million)
Hartanah <i>Real Estate</i>	2023	90	35	54	1
	2022	87	35	52	1
	2015	9	4	5	0
Profesional, Saintifik dan Teknikal <i>Professional, Scientific and Technical</i>	2023	524	306	212	5
	2022	496	300	191	4
	2015	206	113	79	14
Pentadbiran dan Khidmat Sokongan <i>Administrative and Support Service</i>	2023	2,983	1,302	1,407	274
	2022	2,749	1,195	1,379	174
	2015	1,611	462	1,021	128
Pendidikan <i>Education</i>	2023	1,315	528	754	33
	2022	1,283	516	736	31
	2015	317	18	297	3
Kesihatan Kemanusiaan dan Kerja Sosial <i>Human Health and Social Work</i>	2023	1,361	550	805	6
	2022	1,275	426	842	7
	2015	4	0	3	0
Kesenian, Hiburan dan Rekreasi <i>Arts, Entertainment and Recreation</i>	2023	1,901	315	1,530	57
	2022	1,834	300	1,477	56
	2015	483	15	468	0
Perkhidmatan Lain <i>Other Services</i>	2023	77	26	48	2
	2022	75	25	47	2
	2015	8	2	4	1

Nota:

'0' merujuk kepada nilai kurang daripada RM500,000

Note:

'0' refers to value less than RM500,000

Jadual D10 : Perbelanjaan E-Dagang mengikut Jenis Pasaran dan Sektor/ Subsektor, 2015, 2022 dan 2023
Table D10 : Expenditure of E-Commerce by Type of Market and Sector/ Sub-sector, 2015, 2022 and 2023

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Year <i>Year</i>	Jumlah <i>Total</i>	Tempatan <i>Domestic</i>	Antarabangsa <i>International</i>
		(RM Juta) <i>(RM Million)</i>	(RM Juta) <i>(RM Million)</i>	(RM Juta) <i>(RM Million)</i>
Jumlah	2023	571,399	530,609	40,790
<i>Total</i>	2022	531,631	494,160	37,471
	2015	195,098	173,963	21,135
Pertanian	2023	451	408	44
<i>Agriculture</i>	2022	424	381	43
	2015	80	80	0
Perlombongan dan Pengkuarian	2023	4,245	4,244	1
<i>Mining and Quarrying</i>	2022	3,730	3,729	1
	2015	2,204	2,204	-
Pembuatan	2023	371,800	347,931	23,869
<i>Manufacturing</i>	2022	347,617	326,505	21,112
	2015	160,584	149,387	11,197
Pembinaan	2023	765	749	15
<i>Construction</i>	2022	706	691	15
	2015	424	422	2
Perkhidmatan	2023	194,139	177,278	16,861
<i>Services</i>	2022	179,155	162,854	16,301
	2015	31,808	21,871	9,937
Utiliti	2023	2,862	2,841	21
<i>Utility</i>	2022	2,669	2,649	20
	2015	254	254	-
Perdagangan Borong dan Runcit	2023	83,242	74,191	9,051
<i>Wholesale and Retail Trade</i>	2022	80,313	71,368	8,944
	2015	18,195	14,920	3,275
Pengangkutan dan Penyimpanan	2023	15,831	10,065	5,766
<i>Transportation and Storage</i>	2022	14,038	8,540	5,498
	2015	6,889	1,858	5,031
Penginapan	2023	4,100	2,902	1,198
<i>Accommodation</i>	2022	3,884	2,698	1,186
	2015	3,546	2,235	1,311
Makanan dan Minuman	2023	2,230	1,801	429
<i>Food and Beverages</i>	2022	2,112	1,763	350
	2015	604	488	116
Maklumat dan Komunikasi	2023	28,948	28,931	17
<i>Information and Communication</i>	2022	26,600	26,585	15
	2015	173	90	83
Kewangan dan Insurans/Takaful	2023	54,474	54,287	187
<i>Financial and Insurance/Takaful</i>	2022	47,242	47,142	100
	2015	1,818	1,728	91

Jadual D10 : Perbelanjaan E-Dagang mengikut Jenis Pasaran dan Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table D10 : Expenditure of E-Commerce by Type of Market and Sector/ Sub-sector, 2015, 2022 and 2023 (cont'd)

Sektor/ Subsektor <i>Sector/ Sub-sector</i>	Year <i>Year</i>	Jumlah <i>Total</i>	Tempatan <i>Domestic</i>	Antarabangsa <i>International</i>
		(RM Juta) (RM Million)	(RM Juta) (RM Million)	(RM Juta) (RM Million)
Hartanah	2023	45	41	4
<i>Real Estate</i>	2022	42	39	3
	2015	9	9	0
Profesional, Saintifik dan Teknikal	2023	81	78	3
<i>Professional, Scientific and Technical</i>	2022	78	75	3
	2015	33	31	2
Pentadbiran dan Khidmat Sokongan	2023	779	693	85
<i>Administrative and Support Service</i>	2022	743	659	84
	2015	181	165	16
Pendidikan	2023	365	352	13
<i>Education</i>	2022	332	320	12
	2015	61	57	4
Kesihatan Kemanusiaan dan Kerja Sosial	2023	748	720	28
<i>Human Health and Social Work</i>	2022	683	653	30
	2015	17	14	3
Kesenian, Hiburan dan Rekreasi	2023	385	325	59
<i>Arts, Entertainment and Recreation</i>	2022	373	316	57
	2015	25	20	5
Perkhidmatan Lain	2023	50	49	0
<i>Other Services</i>	2022	47	47	0
	2015	3	2	0

Nota:

'0' merujuk kepada nilai kurang daripada RM500,000

'-' merujuk kepada data tidak tersedia

Note:

'0' refers to value less than RM500,000

'-' refers to data not available

Jadual D11 : Perbelanjaan E-Dagang mengikut Jenis Pelanggan dan Sektor/ Subsektor, 2015, 2022 dan 2023
Table D11 : Expenditure of E-Commerce by Type of Customer and Sector/ Sub-sector, 2015, 2022 and 2023

Sektor/ Subsektor Sector/ Sub-Sector	Year Year	Jumlah Total	Perniagaan Kepada Perniagaan Business to Business	Perniagaan Kepada Pengguna Business to Consumer	Perniagaan Kepada Kerajaan Business to Government
		(RM Juta) (RM Million)	(RM Juta) (RM Million)	(RM Juta) (RM Million)	(RM Juta) (RM Million)
Jumlah	2023	571,399	443,363	112,626	15,410
<i>Total</i>	2022	531,631	432,160	87,937	11,535
	2015	195,098	183,002	8,656	3,440
Pertanian	2023	451	354	95	2
<i>Agriculture</i>	2022	424	328	94	2
	2015	80	71	8	1
Perlombongan dan Pengkuarian	2023	4,245	4,085	5	155
<i>Mining and Quarrying</i>	2022	3,730	3,587	5	138
	2015	2,204	2,204	-	-
Pembuatan	2023	371,800	303,906	60,451	7,443
<i>Manufacturing</i>	2022	347,617	297,157	45,223	5,238
	2015	160,584	151,914	6,517	2,153
Pembinaan	2023	765	644	34	86
<i>Construction</i>	2022	706	603	27	75
	2015	424	422	1	0
Perkhidmatan	2023	194,139	134,373	52,041	7,725
<i>Services</i>	2022	179,155	130,484	42,588	6,082
	2015	31,808	28,391	2,130	1,286
Utiliti	2023	2,862	2,783	73	6
<i>Utility</i>	2022	2,669	2,599	64	6
	2015	254	254	-	-
Perdagangan Borong dan Runcit	2023	83,242	62,392	18,898	1,952
<i>Wholesale and Retail Trade</i>	2022	80,313	60,690	17,711	1,912
	2015	18,195	16,467	728	1,001
Pengangkutan dan Penyimpanan	2023	15,831	11,540	3,960	331
<i>Transportation and Storage</i>	2022	14,038	11,300	2,437	301
	2015	6,889	6,696	-	194
Penginapan	2023	4,100	2,538	1,180	383
<i>Accommodation</i>	2022	3,884	2,523	1,041	320
	2015	3,546	2,260	1,246	40
Makanan dan Minuman	2023	2,230	2,055	165	10
<i>Food and Beverages</i>	2022	2,112	1,955	148	9
	2015	604	576	28	0
Maklumat dan Komunikasi	2023	28,948	22,053	6,381	514
<i>Information and Communication</i>	2022	26,600	21,474	4,660	466
	2015	173	166	6	1
Kewangan dan Insurans/Takaful	2023	54,474	29,418	20,592	4,463
<i>Financial and Insurance/Takaful</i>	2022	47,242	28,455	15,781	3,006
	2015	1,818	1,687	87	45

Jadual D11 : Perbelanjaan E-Dagang mengikut Jenis Pelanggan dan Sektor/ Subsektor, 2015, 2022 dan 2023 (samb.)
Table D11 : Expenditure of E-Commerce by Type of Customer and Sector/ Sub-sector, 2015, 2022 and 2023 (cont'd)

Sektor/ Subsektor Sector/ Sub-Sector	Year Year	Jumlah Total	Perniagaan Kepada Perniagaan Business to Business	Perniagaan Kepada Pengguna Business to Consumer	Perniagaan Kepada Kerajaan Business to Government
		(RM Juta) (RM Million)	(RM Juta) (RM Million)	(RM Juta) (RM Million)	(RM Juta) (RM Million)
Hartanah	2023	45	33	11	1
<i>Real Estate</i>	2022	42	31	10	1
	2015	9	9	0	-
Profesional, Saintifik dan Teknikal	2023	81	50	31	1
<i>Professional, Scientific and Technical</i>	2022	78	47	30	1
	2015	33	30	3	0
Pentadbiran dan Khidmat Sokongan	2023	779	417	312	50
<i>Administrative and Support Service</i>	2022	743	399	295	49
	2015	181	148	27	5
Pendidikan	2023	365	206	147	11
<i>Education</i>	2022	332	190	132	11
	2015	61	55	5	0
Kesihatan Kemanusiaan dan Kerja Sosial	2023	748	616	132	0
<i>Human Health and Social Work</i>	2022	683	553	130	0
	2015	17	17	0	0
Kesenian, Hiburan dan Rekreasi	2023	385	258	125	2
<i>Arts, Entertainment and Recreation</i>	2022	373	255	116	2
	2015	25	24	1	0
Perkhidmatan Lain	2023	50	15	34	1
<i>Other Services</i>	2022	47	13	33	1
	2015	3	3	0	-

Nota:

'0' merujuk kepada nilai kurang daripada RM500,000

'-' merujuk kepada data tidak tersedia

Note:

'0' refers to value less than RM500,000

'-' refers to data not available

Jadual D12 : Pendapatan E-Dagang Suku Tahunan
Table D12 : Quarterly Income of E-Commerce

Tahun Year	Suku Tahun Quarter	Pendapatan Income (RM juta) (RM million)	YoY %	QoQ %
2020		920,158		
	1	201,070	-	-
	2	222,662	-	10.7
	3	244,498	-	9.8
	4	251,929	-	3.0
2021^r		1,064,722	15.7	
	1	248,395	23.5	-1.4
	2	261,002	17.2	5.1
	3	272,156	11.3	4.3
	4	283,168	12.4	4.0
2022^r		1,128,876	6.0	
	1	271,275	9.2	-4.2
	2	281,041	7.7	3.6
	3	281,884	3.6	0.3
	4	294,675	4.1	4.5
2023^r		1,184,122	4.9	
	1	299,417	10.4	1.6
	2	287,944	2.5	-3.8
	3	297,132	5.4	3.2
	4	299,629	1.7	0.8
2024^r		1,230,643	3.9	
	1	301,023	0.5	0.5
	2	310,390	7.8	3.1
	3	308,456	3.8	-0.6
	4	310,774	3.7	0.8
2025^r				
	1	311,138	3.4	0.1
	2	313,810	1.1	0.9
	3	312,577	1.3	-0.4

Nota:

'r' merujuk kepada pindaan

Note:

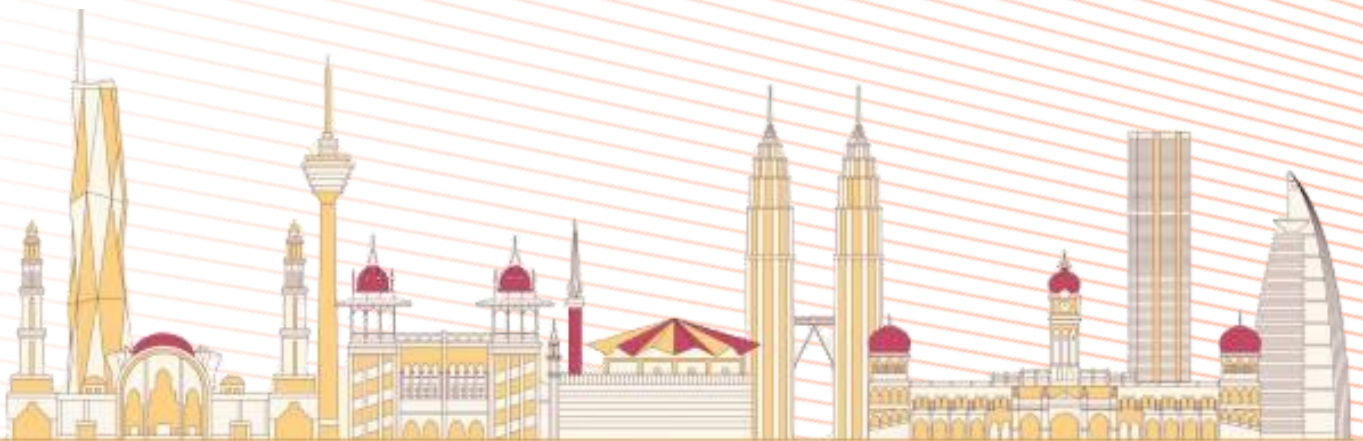
r refers to revision

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NOTA TEKNIKAL

TECHNICAL NOTES



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A) KONSEP DAN DEFINISI EKONOMI DIGITAL

Penerbitan Ekonomi Digital Malaysia 2025 memaparkan ringkasan komprehensif mengenai ekonomi digital negara yang mengumpulkan data daripada Survei Penggunaan ICT dan E-Dagang oleh Pertubuhan (ICTEC) 2024, Statistik Perkhidmatan Suku Tahunan: Maklumat dan Komunikasi 2025, Laporan Survei Penggunaan dan Capaian ICT oleh Individu dan Isi Rumah (ICTHS) 2024, Akaun Satelit Teknologi Maklumat dan Komunikasi (ASTMK) 2024, Statistik Perkhidmatan Suku Tahunan (SPST) 2025, dan indikator ekonomi digital oleh Jabatan Perangkaan Malaysia (DOSM) dan agensi berkaitan. Penerbitan ini menggabungkan kedua-dua indikator monetari dan bukan monetari bagi menggambarkan tahap penerimaan era digital dalam perniagaan, isi rumah, dan individu. Penerbitan ini memainkan peranan penting dalam menyokong penggubalan dasar dan strategi berasaskan maklumat bagi kemajuan ICT dan e-dagang di Malaysia.

1. KONSEP EKONOMI DIGITAL

Ekonomi digital telah berkembang pesat hasil daripada kemajuan dalam ICT, pengkomputeran awan, Kecerdasan Buatan (AI), dan pelbagai kemajuan lain. Dalam landskap ekonomi masa kini, individu dan perniagaan semakin bergantung kepada mekanisme pertukaran digital bagi memenuhi keperluan ekonomi serta sosial tujuan ekonomi dan sosial.

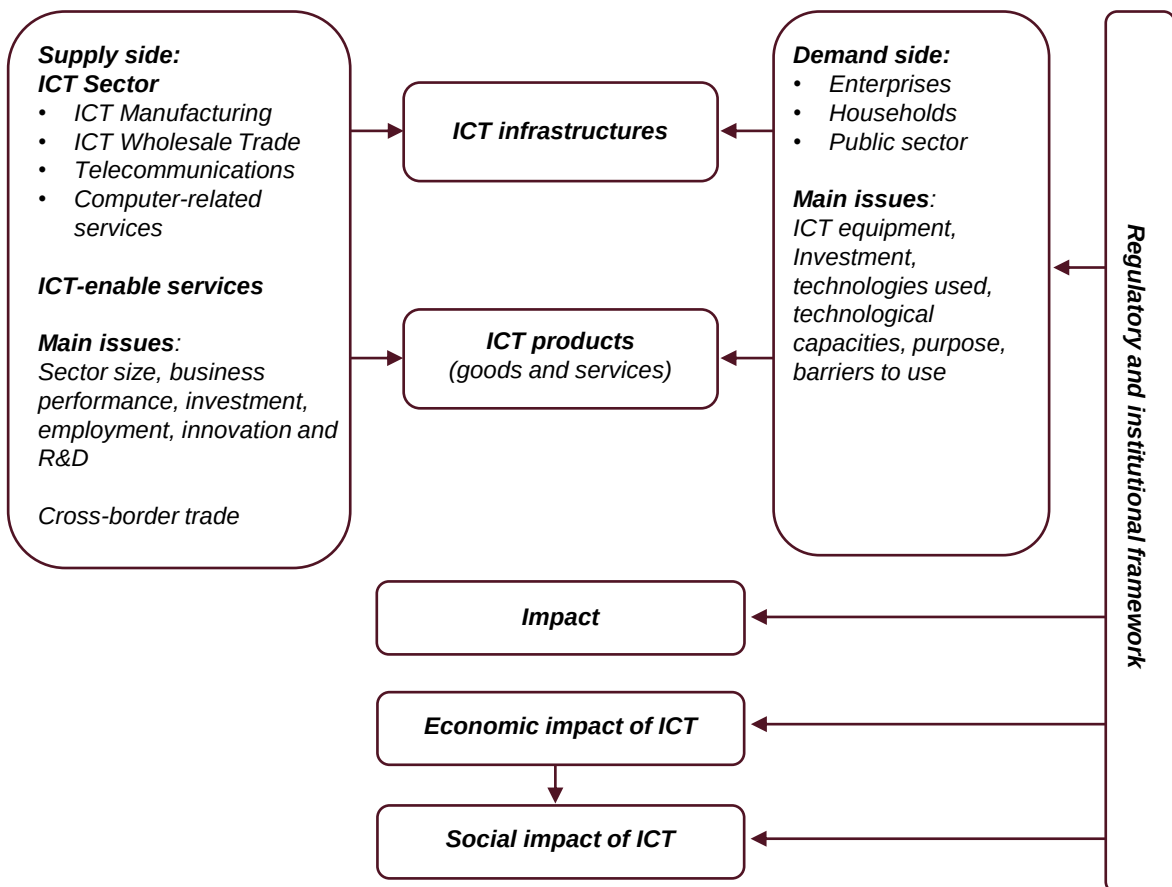
Istilah 'ekonomi digital' telah digunakan secara meluas untuk menggambarkan bagaimana teknologi digital mengubah corak pengeluaran (bekalan) dan penggunaan (permintaan). Teknologi dan aspek ekonomi yang berbeza dalam ekonomi digital boleh dipecahkan kepada tiga komponen utama (UNCTAD, 2019):

- i. Aspek teras atau asas ekonomi digital, merangkumi inovasi asas (semikonduktor), teknologi teras (komputer, peranti telekomunikasi) dan *enabling infrastructures* (rangkaian internet dan telekomunikasi).
- ii. Sektor digital dan teknologi maklumat (IT) menghasilkan produk atau perkhidmatan yang bergantung pada teknologi digital teras, termasuk platform digital, aplikasi mudah alih dan perkhidmatan pembayaran. Ekonomi digital dipengaruhi oleh perkhidmatan inovatif dalam sektor-sektor ini, yang memberikan sumbangan signifikan kepada ekonomi, serta mewujudkan kesan berganda yang berpotensi memperkukuhkan pembangunan dalam sektor.

- iii. Set sektor pendigitalan yang lebih luas, yang merangkumi sektor di mana produk dan perkhidmatan digital semakin digunakan (cth, untuk e-dagang). Walaupun perubahan itu berperingkat, banyak sektor ekonomi sedang didigitalkan dengan cara ini. Ini termasuk sektor yang didayakan secara digital di mana aktiviti baharu atau model perniagaan telah muncul dan sedang diubah suai akibat teknologi digital. Contohnya termasuk kewangan, media, pelancongan dan pengangkutan. Selain itu, walaupun kurang kerap disoroti, pekerja, pengguna, pembeli dan pengguna yang celik digital atau mahir adalah penting untuk pertumbuhan ekonomi digital.

Pada masa ini, elemen-elemen khusus ekonomi digital boleh ditentukan secara kuantitatif mengikut komponen atau *'building blocks'* bekalan dan permintaan seperti di **Rajah A.1**.

Rajah A.1 Building Blocks of The Digital Economy



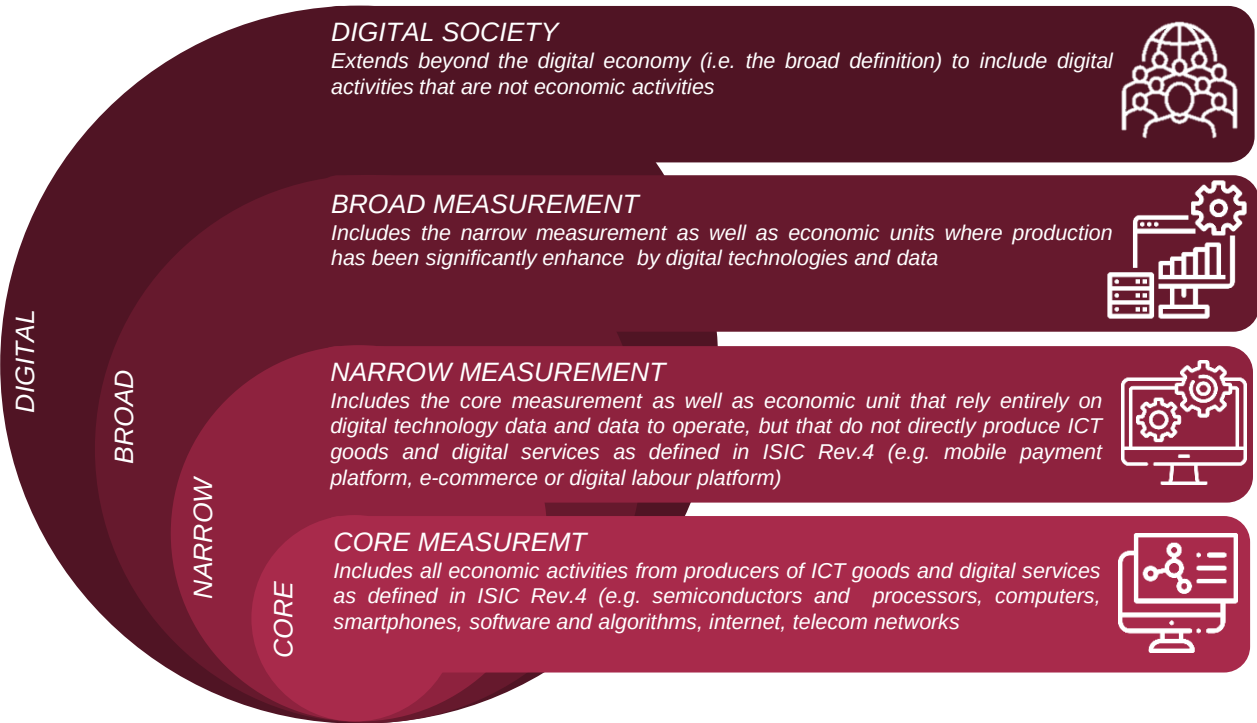
Nota:
Sumber: OECD (2005)

Bagi segi sektor, tiada definisi ekonomi digital yang digunakan secara umum. Namun demikian, Peta Hala Tuju G20 memperkenalkan usaha awal dalam menetapkan definisi dengan membezakan antara tiga peringkat pengukuran. Dalam konteks yang lebih luas, ekonomi digital pada masa kini merangkumi setiap keseluruhan ekonomi; dan sering digambarkan sebagai;

“All economic activity reliant on, or significantly enhanced by the use of digital inputs, including digital technologies, digital infrastructure, digital services and data. It refers to all producers and consumers, including government, that are utilising these digital inputs in their economic activities” (OECD, 2020).

Definisi OECD tentang ekonomi digital di atas diterjemahkan dalam perspektif pengukuran yang dibina berdasarkan empat lapisan, bergerak dari pusat ke arah definisi yang lebih luas di lapisan luarnya.

Rajah A.2 Perbezaan Lapisan Ekonomi Digital



Nota:
Sumber: OECD, 2020, A G20 Roadmap toward a Common Framework for Measuring the Digital Economy: A Report for the G20 Digital Economy Task Force (DETF), OECD Publishing, Paris.

Analisis terkini dalam Laporan Ekonomi Digital 2024 oleh UNCTAD menekankan titik pertemuan kritikal antara pendigitalan dan kelestarian. UNCTAD menekankan keperluan untuk menangani kesan teknologi digital terhadap alam sekitar sepanjang kitaran hayatnya, daripada pengekstrakan sumber kepada penggunaan tenaga dan pengurusan sisa. Pada masa yang sama, inovasi digital diiktiraf secara meluas sebagai pemangkin utama bagi meningkatkan kecekapan, mengurangkan pelepasan karbon, dan menyokong usaha pemuliharaan alam sekitar. Ekonomi digital berfungsi sebagai pemacu penting untuk pembangunan yang saksama dan mampan, berpotensi merapatkan jurang digital dan memupuk pertumbuhan yang mesra alam melalui kerjasama global yang diselaraskan.

Di Malaysia, konsep ekonomi digital ditakrifkan sebagai aktiviti ekonomi dan sosial yang melibatkan pengeluaran dan penggunaan teknologi digital oleh individu, perniagaan, dan kerajaan (*MyDIGITAL*, 2021). Ini merangkumi pelbagai aktiviti yang dipacu oleh penggunaan alat dan platform digital, termasuk e-dagang serta penyampaian perkhidmatan awam secara digital. Matlamat transformasi digital Malaysia, seperti yang digariskan dalam inisiatif *MyDIGITAL*, adalah untuk memanfaatkan potensi ekonomi digital dalam memacu pertumbuhan ekonomi, meningkatkan produktiviti, dan mewujudkan peluang pekerjaan berpendapatan tinggi disamping memastikan pembangunan yang inklusif dan lestari merentasi semua lapisan masyarakat.

B) AKAUN SATELIT TEKNOLOGI MAKLUMAT DAN KOMUNIKASI (ASTMK)

1. PENGENALAN

Akaun Satelit Teknologi Maklumat dan Komunikasi (ASTMK) Malaysia 2024 adalah berdasarkan *System of National Accounts (SNA) 2008*, *OECD Guide to Measuring the Information Society 2011* dan *OECD Internet Economy Outlook 2012*. Konsep dan definisi yang digunakan telah disesuaikan mengikut keperluan Malaysia.

2. PEMBANGUNAN TMK

Penyusunan ASTMK dapat dilaksanakan berikutan daripada pematuhan *System of National Accounts* yang kukuh di Malaysia. Terma 'akaun satelit' digunakan bagi menggambarkan dengan jelas keadaan akaun yang dibangunkan. Ia merupakan 'satelit' kepada set utama Akaun Negara yang mana ia memberikan maklumat tambahan di luar daripada maklumat sedia ada di dalam Akaun Negara.

Maklumat satelit memfokuskan kepada aspek ekonomi tertentu sebagai contoh sumbangan TMK kepada negara. Ia juga membolehkan hubung kait yang lebih banyak kepada maklumat tambahan yang spesifik bagi TMK seperti pendapatan, eksport, import dan guna tenaga. TMK terdiri daripada industri seperti pembuatan, perdagangan, perkhidmatan dan kandungan & media.

Pembangunan akaun satelit merupakan pengukuran statistik bersistematik yang mana ia merangkumi konsep, definisi dan klasifikasi berdasarkan piawaian antarabangsa bagi membolehkan perbandingan di antara Negara dilaksanakan. Pelbagai maklumat diperoleh daripada agensi yang berbeza dikumpulkan di dalam akaun ini untuk memberikan gambaran yang lebih baik dan holistik berkenaan impak industri TMK di Malaysia.

3. KONSEP DAN DEFINISI

- a. **Teknologi Maklumat dan Komunikasi (TMK)** merujuk kepada teknologi dan perkhidmatan yang membolehkan maklumat dicapai, disimpan, diproses, diubah, dimanipulasi dan disebarkan, termasuk penyiaran atau komunikasi melalui suara, gambar dan/atau data melalui pelbagai media penyiaran.

b. Industri TMK merujuk kepada industri yang menghasilkan produk TMK sebagai aktiviti utama. Perincian industri TMK dinyatakan di Bahagian Klasifikasi. Kategori utama industri TMK yang digunakan di dalam penyusunan ASTMK adalah:

1. Pembuatan TMK
2. Perdagangan TMK
3. Perkhidmatan TMK
4. Kandungan dan media

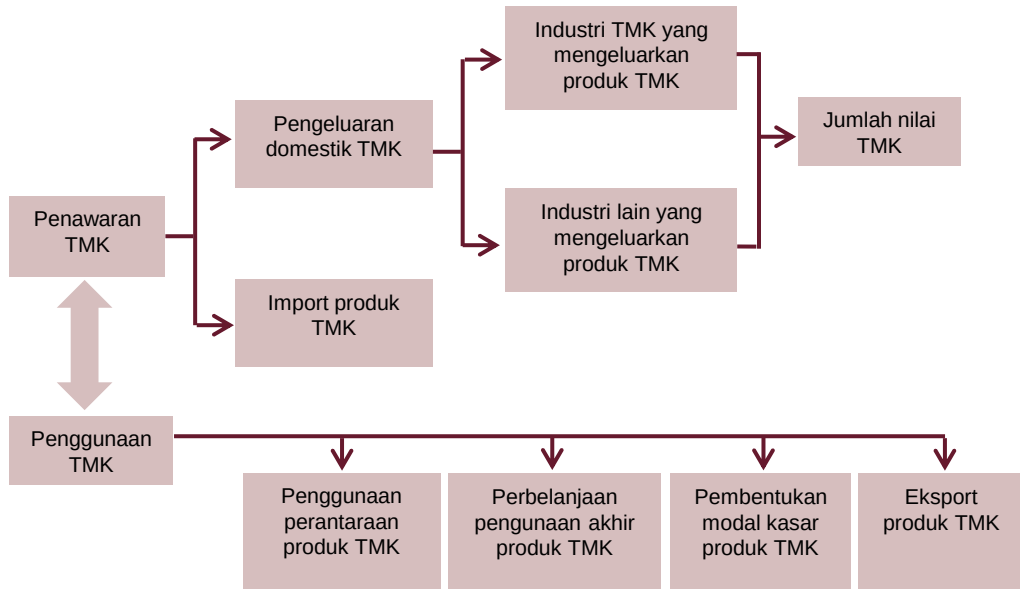
c. Industri bukan TMK adalah merujuk kepada industri selain daripada industri TMK yang mengeluarkan produk TMK.

d. Perincian produk TMK adalah seperti yang disenaraikan di Bahagian Klasifikasi. Kategori utama produk TMK adalah seperti berikut:

1. Barangan TMK
 - 1.1. Komputer dan kelengkapan peranti
 - 1.2. Kelengkapan komunikasi
 - 1.3. Kelengkapan elektronik pengguna
 - 1.4. Pelbagai komponen dan barangan TMK
2. Perkhidmatan TMK
 - 2.1. Perkhidmatan pembuatan bagi kelengkapan TMK
 - 2.2. Perkhidmatan perniagaan dan produktiviti perisian dan pelesenan
 - 2.3. Perkhidmatan dan perundingan teknologi maklumat
 - 2.4. Perkhidmatan telekomunikasi
 - 2.5. Perkhidmatan pajakan atau sewaan kelengkapan TMK
 - 2.6. Perkhidmatan TMK lain
3. Produk kandungan dan media
 - 3.1. Cetakan dan lain-lain kandungan berasaskan teks pada media fizikal dan perkhidmatan berkaitan
 - 3.2. Kandungan wayang gambar, video, televisyen dan radio dan perkhidmatan berkaitan

- 3.3. Kandungan muzik dan perkhidmatan berkaitan
- 3.4. Perisian permainan
- 3.5. Kandungan atas talian dan perkhidmatan berkaitan
- 3.6. Lain-lain kandungan dan perkhidmatan berkaitan

e. Pandangan skematik ASTMK



- f. Urusniaga e-dagang** adalah penjualan atau pembelian barangan atau perkhidmatan yang dijalankan melalui rangkaian pengkomputeran/internet dengan kaedah yang direka untuk tujuan menerima atau membuat pesanan (untuk tujuan pembelian atau jualan). Urusniaga ini berlaku sama ada antara perniagaan, isi rumah, individu, kerajaan dan organisasi-organisasi awam atau swasta lain.

Kaedah pembayaran dan penghantaran muktamad barangan atau perkhidmatan urusniaga e-dagang ini boleh dijalankan melalui atau bukan melalui rangkaian pengkomputeran/internet.

Urusniaga e-dagang termasuk pesanan yang dibuat di laman web, extranet atau Pertukaran Data Elektronik (PDE). Walau bagaimanapun, urusniaga yang dibuat melalui panggilan telefon, faksimili, e-mel (e-mel yang ditaip manual) dan yang seumpamanya tidak dikategorikan sebagai urusniaga e-dagang.

- g. E-dagang industri bukan TMK** merupakan industri yang tidak dikategorikan di bawah klasifikasi industri TMK.
- h. TMK kepada ekonomi** adalah meliputi industri TMK dan e-dagang.

4. KOD DAN KLASIFIKASI

Kod dan klasifikasi industri TMK adalah berdasarkan Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Ver.1.0 yang diselaraskan dengan International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 4. Kod dan klasifikasi bagi produk TMK adalah berdasarkan Klasifikasi Produk Mengikut Aktiviti Malaysia (MCPA) 2009 yang diselaraskan dengan Central Products Classification (CPC) Ver. 2.

a. Industri TMK.

Keterangan	ISIC Rev. 4	MSIC 2008
1. Pembuatan TMK		
1.1 Komputer dan kelengkapan peranti		
1.1.1 Pembuatan komputer dan kelengkapan peranti	2620	26201, 26202
1.2 Komponen & papan elektronik, peralatan komunikasi dan elektronik pengguna		
1.2.1 Pembuatan komponen dan papan elektronik	2610	26101, 26102, 26103, 26104, 26105, 26109
1.2.2 Pembuatan peralatan komunikasi	2630	26300
1.2.3 Pembuatan elektronik pengguna	2640	26400
1.2.4 Pembuatan media magnetik dan optikal	2680	26800
2. Perdagangan TMK		
2.1 Perdagangan borong		
2.1.1 Jualan borong barang sukan, barang permainan, barang kulit, barang pengembaraan dan peralatan muzik	4643	46432, 46434
2.1.2 Jualan borong lain-lain barangan isi rumah t.t.t.l.	4649	46496
2.1.3 Jualan borong komputer, peralatan peranti komputer (<i>peripheral</i>) dan perisian	4651	46510
2.1.4 Jualan borong kelengkapan dan komponen (termasuk alat ganti) elektronik dan telekomunikasi	4652	46521, 46522
2.1.5 Jualan borong lain-lain jentera dan kelengkapan	4659	46593
2.1.6 Jualan borong bahan buangan dan sekerap dan produk lain t.t.t.l.	4669	46699
2.2 Perdagangan runcit		
2.2.1 Jualan runcit di kedai khusus yang menjual komputer, peralatan peranti komputer (<i>peripheral</i>), sofwer dan peralatan telekomunikasi	4741	47411, 47412, 47413
2.2.2 Jualan runcit di kedai yang khusus menjual peralatan audio dan video	4742	47420

Keterangan		ISIC Rev. 4	MSIC 2008
2.2.3	Jualan runcit di kedai khusus yang menjual peralatan elektrik, perabot, lampu dan barangan lain isi rumah	4759	47597, 47598
2.2.4	Jualan runcit di kedai khusus yang menjual buku, akhbar dan alat tulis	4761	47611
2.2.5	Jualan runcit di kedai khusus yang menjual instrumen muzik dan rakaman video	4762	47620
2.2.6	Jualan runcit di kedai khusus yang menjual permainan dan barang mainan	4764	47640
2.2.7	Jualan runcit di kedai khusus yang menjual barang baru lain	4773	47731
2.2.8	Jualan runcit barang terpakai	4774	47742
2.2.9	Jualan runcit barangan lain di gerai dan pasar	4789	47892, 47893, 47894, 47895
2.2.10	Jualan runcit melalui pesanan mel atau internet	4791	47911, 47912, 47913, 47914
2.2.11	Lain-lain jualan bukan di kedai, gerai atau pasar	4799	47992
3. Perkhidmatan TMK			
3.1 Telekomunikasi			
3.1.1	Aktiviti telekomunikasi berwayar	6110	61101, 61102
3.1.2	Aktiviti telekomunikasi tanpa wayar	6120	61201, 61202
3.1.3	Aktiviti telekomunikasi satelit	6130	61300
3.1.4	Aktiviti telekomunikasi lain	6190	61901, 61902, 61903, 61904, 61905, 61909
3.2 Pengaturcaraan komputer, perundingan, maklumat dan aktiviti yang berkaitan			
3.2.1	Aktiviti pengaturcaraan komputer	6201	62010
3.2.2	Aktiviti perundingan komputer dan pengurusan kemudahan komputer	6202	62021, 62022
3.2.3	Aktiviti perkhidmatan teknologi maklumat dan komputer lain	6209	62091, 62099
3.2.4	Aktiviti prosesan data, <i>hosting</i> dan yang berkaitan	6311	63111, 63112
3.2.5	Web portal	6312	63120
3.3 Perkhidmatan TMK lain			
3.3.1	Pembaikan mesin	3312	33120
3.3.2	Pembaikan peralatan elektronik dan optikal	3313	33131, 33133
3.3.3	Pembaikan bagi peralatan elektrik	3314	33140
3.3.4	Pemasangan bagi perindustrian mesin dan kelengkapan	3320	33200
3.3.5	Pemasangan elektrik	4321	43212, 43213, 43214, 43216

Keterangan		ISIC Rev. 4	MSIC 2008
3.3.6	Pemasangan sistem paip, pemanasan dan pendinginan udara	4322	43223
3.3.7	Penerbitan perisian yang sedia cipta (bukan tempahan khas)	5820	58201, 58202, 58203
3.3.8	Penyelidikan dan pembangunan eksperimen sains semula jadi dan kejuruteraan	7210	72106
3.3.9	Aktiviti profesional, saintifik dan teknikal lain t.t.t.l.	7490	74903
3.3.10	Aktiviti perkhidmatan sistem keselamatan	8020	80200
3.3.11	Aktiviti perkhidmatan awam am	8411	84111, 84112
3.3.12	Pembaikan komputer dan peralatan sampingan	9511	95111, 95112, 95113
3.3.13	Pembaikan dan penyelenggaraan peralatan komunikasi	9512	95121, 95122, 95123, 95124, 95125, 95126, 95127
3.3.14	Pembaikan peralatan elektronik pengguna	9521	95211, 95212, 95213, 95214
3.3.15	Pembaikan kelengkapan isi rumah dan peralatan rumah dan halaman	9522	95221
4. Kandungan dan media			
4.1	Aktiviti penerbitan buku, terbitan berkala dan penerbitan lain	1811, 1812, 1820, 5811, 5812, 5813, 5819, 8219	18110, 18120, 18200, 58110, 58120, 58130, 58190, 82196, 82199
4.2	Aktiviti wayang gambar, video dan program televisyen	5911, 5912, 5913, 5914, 7410, 7420, 9000	59110, 59120, 59130, 59140, 74102, 74200, 90009
4.3	Kandungan dan media lain		
4.3.1	Aktiviti rakaman bunyi dan penerbitan muzik	5920	59200
4.3.2	Aktiviti pemrograman dan penyiaran	6010, 6020	60100, 60200
4.3.3	Aktiviti perkhidmatan maklumat lain	6391, 6399, 8220, 9329	63910, 63990, 82200, 93297

b. Produk TMK

Keterangan	CPC Ver. 2	MCPA 2009 (5 Digit)
1. Barangan TMK		
1.1 Komputer dan kelengkapan peranti	45142, 45221, 45222, 45230, 45240, 45250, 45261, 45262, 45263, 45264, 45265, 45266, 45269, 45271, 45272, 45289, 45290, 47315, 47550	26201, 26202, 28170
1.2 Kelengkapan komunikasi	46921, 47211, 47212, 47213, 47221, 47222, 47223, 47401, 54612, 54613	26300, 43216
1.3 Kelengkapan elektronik pengguna	38581, 47214, 47215, 47311, 47312, 47313, 47314, 47321, 47323, 47330, 47402, 48321, 48322, 48323, 48324, 48330, 48353, 88748	26400, 26701, 26702, 32400
1.4 Pelbagai komponen dan barangan TMK	45281, 47130, 47140, 47150, 47160, 47173, 47403, 47530, 47540, 47590, 47910, 47920, 48220, 48244, 48315, 48354	26101, 26102, 26104, 26105, 26109, 26511, 26800, 32909
2. Perkhidmatan TMK		
2.1 Perkhidmatan pembuatan bagi kelengkapan TMK	88741, 88742, 88743, 88744, 88749	26103
2.2 Perkhidmatan perniagaan dan produktiviti perisian dan pelesenan	47811, 47812, 47813, 47814, 47821, 47829, 73311, 81129, 83143, 84341, 84342, 84392, 85220, 85230	58201, 58203, 72106, 74903, 80200
2.3 Perkhidmatan dan perundingan teknologi maklumat	83117, 83131, 83132, 83141, 83142, 83151, 83152, 83159, 83161, 83162	62010, 62021, 62022, 63111, 63112, 70201
2.4 Perkhidmatan telekomunikasi	84110, 84121, 84122, 84131, 84132, 84140, 84150, 84190, 84210, 84221, 84222, 84290, 85931, 85939	61101, 61201, 61300, 61901, 61902, 61903, 61904, 61905, 61909, 82200
2.5 Perkhidmatan pajakan atau sewaan kelengkapan TMK	73124, 73210, 73215	77292, 77301, 77307

Keterangan	CPC Ver. 2	MCPA 2009 (5 Digit)
2.6 Perkhidmatan TMK lain	54614, 83325, 87120, 87130, 87151, 87152, 87153, 87155, 87331, 87332, 87340, 87350	33120, 33140, 33200, 43213, 43214, 62099, 71102, 95111, 95112, 95113, 95121, 95122, 95123, 95124, 95125, 95126, 95127, 95211, 95212, 95213, 95214, 95221
3. Produk kandungan dan media		
3.1 Cetakan dan lain-lain kandungan berasaskan teks pada media fizikal dan perkhidmatan berkaitan	32210, 32220, 32230, 32291, 32292, 32299, 32300, 32410, 32420, 32490, 32511, 32530, 32540, 32620, 32630, 32690, 32800, 47691, 47692, 83631, 84311, 85951, 89121	18110, 18120, 58110, 58120, 58130, 58190, 82196, 82199
3.2 Kandungan wayang gambar, video, televisyen dan radio dan perkhidmatan berkaitan	38950, 47620, 83632, 83919, 84611, 84612, 84621, 84622, 84631, 84632, 84633, 84634, 96121, 96122, 96123, 96131, 96132, 96133, 96134, 96135, 96136, 96137, 96139, 96140, 96150	59110, 59120, 59130, 59140, 60100, 60200, 74102
3.3 Kandungan muzik dan perkhidmatan berkaitan	32520, 47610, 89123, 96111, 96112, 96113	18200, 59200
3.4 Perisian permainan	38582, 47822, 84391	58202
3.5 Kandungan atas talian dan perkhidmatan berkaitan	73312, 83633, 84311, 84312, 84313, 84321, 84322, 84331, 84332, 84393, 84394, 84399	63120
3.6 Lain-lain kandungan dan perkhidmatan berkaitan	38941, 38942, 47699, 73320, 83611, 83620, 83639, 83811, 83812, 83813, 83814, 83815, 83819, 83820, 83940, 84410, 84420, 85991, 89110, 96330	63910, 63990, 73100, 74200, 90001, 90002, 90003, 90004, 90005, 90006, 90007, 90009

5. AKAUN PENGELUARAN INDUSTRI TMK

- a. **Keluaran Dalam Negeri Kasar (KDNK)** adalah jumlah nilai barangan dan perkhidmatan yang dikeluarkan dalam tempoh tertentu selepas ditolak kos barangan dan perkhidmatan yang digunakan dalam proses pengeluaran. Nilai ini merupakan nilai sebelum ditolak nilai peruntukan bagi modal tetap iaitu jumlah nilai ditambah pada harga pengeluar bagi pengeluar residen ditambah dengan duti import. KDNK ini juga bersamaan dengan perbelanjaan ke atas KDNK (pada harga pembeli) iaitu jumlah bagi semua komponen perbelanjaan akhir ke atas barangan dan perkhidmatan tolak dengan import barangan dan perkhidmatan.

KDNK boleh diukur dengan menggunakan tiga kaedah iaitu Kaedah Pengeluaran, Perbelanjaan dan Pendapatan.

- b. **Nilai ditambah** adalah perbezaan di antara output dan penggunaan perantaraan. Ia merupakan nilai ditambah barangan dan perkhidmatan dalam aktiviti ekonomi. Oleh itu, ia hampir menyamai dengan keuntungan perniagaan, gaji dan upah, susut nilai dan cukai tidak langsung; campur faedah yang dibayar dan tolak faedah yang diterima.
- c. **Nilai Ditambah Kasar Industri TMK (NDKTMK)** ialah hasil tambah Nilai Ditambah Kasar bagi semua industri TMK.

6. AKAUN PENJANAAN PENDAPATAN INDUSTRI TMK

- a. **Pampasan pekerja** merangkumi saraan dalam bentuk wang tunai atau bukan tunai, yang perlu dibayar oleh sesebuah perusahaan kepada pekerja sebagai balasan bagi kerja-kerja yang telah dilakukan dalam tempoh perakaunan.
- b. **Lebihan kendalian kasar** merujuk kepada lebihan kendalian operasi sebelum ditolak penggunaan modal tetap dan pendapatan campuran.
 - i. **Lebihan kendalian** adalah mengukur lebihan atau defisit terakru daripada proses pengeluaran sebelum ditolak apa-apa caj faedah implisit atau eksplisit, sewa atau pendapatan harta lain yang dibayar ke atas aset kewangan, tanah atau lain-lain sumber semula jadi yang diperlukan untuk menjalankan pengeluaran. Secara definisi, lebihan kendalian operasi hanya boleh diperolehi oleh industri.

- ii. **Pendapatan campuran** meliputi elemen ganjaran yang tidak diketahui bagi kerja yang dijalankan oleh pemilik enterpris atau ahli isi rumah, serta lebihan kendalian hasil daripada pengeluaran.
 - iii. **Penggunaan modal tetap** didefinisikan sebagai penurunan nilai semasa stok aset tetap yang dimiliki dan digunakan oleh pengeluar dalam tempoh perakaunan disebabkan oleh kerosakan fizikal, keusangan biasa atau kerosakan biasa yang tidak disengajakan.
- c. **Cukai tolak subsidi ke atas pengeluaran dan import** terdiri daripada cukai ke atas produk dan cukai lain ke atas pengeluaran ditolak subsidi ke atas produk dan subsidi lain ke atas pengeluaran.

i. **Cukai ke atas produk**

Cukai yang dibayar bagi satu unit barangan atau perkhidmatan dan biasanya akan dibayar apabila ia dikeluarkan, dihantar, dijual, dipindah atau sebaliknya dilupuskan oleh pihak pengeluar. Cukai tersebut mungkin merupakan satu amaun yang spesifik bagi setiap unit kuantiti barang atau perkhidmatan, atau ia mungkin dikira *ad valorem* sebagai peratusan spesifik harga satu unit atau nilai barang atau perkhidmatan yang diniagakan. Contohnya, cukai jualan, cukai eksais, duti import, duti eksport dan lain-lain.

ii. **Cukai lain ke atas pengeluaran**

Cukai lain ke atas pengeluaran meliputi semua cukai kecuali cukai ke atas produk yang ditanggung oleh perusahaan hasil penglibatan dalam pengeluaran seperti bayaran ke atas tanah, aset tetap atau buruh yang digunakan dalam proses pengeluaran atau untuk aktiviti atau transaksi tertentu. Contoh cukai lain ke atas pengeluaran adalah cukai yang dibayar oleh perusahaan bagi lesen perniagaan, cukai gaji, duti setem dan lain-lain.

iii. **Subsidi ke atas produk**

Subsidi yang dibayar bagi satu unit barang atau perkhidmatan. Subsidi ini mungkin dalam amaun spesifik bagi satu unit kuantiti barang atau perkhidmatan, atau ia mungkin dikira *ad valorem* sebagai peratusan spesifik harga satu unit barang atau perkhidmatan. Subsidi ke atas produk biasanya dibayar apabila barang atau perkhidmatan dikeluarkan, dijual atau diimport, tetapi ia juga dibayar dalam keadaan lain seperti apabila barang dipindah, dipajak, dihantar atau untuk penggunaan sendiri atau pembentukan modal sendiri.

Subsidi mungkin diberikan untuk mempengaruhi tahap pengeluaran pengusahaan residen atau harga di mana output mereka dijual.

iv. Subsidi lain ke atas pengeluaran

Subsidi lain ke atas pengeluaran merangkumi subsidi selain daripada subsidi ke atas produk di mana perusahaan residen mungkin menerimanya hasil daripada penglibatan dalam pengeluaran seperti subsidi ke atas gaji atau tenaga kerja. Subsidi mungkin diberikan untuk mempengaruhi saraan bagi unit institusi yang terlibat dalam pengeluaran.

7. RANGKA KERJA ASTMK

Asas bagi penyusunan ASTMK di Malaysia adalah rangka kerja jadual penawaran dan penggunaan (SUT). Walau bagaimanapun, ia hanya memfokuskan kepada industri dan produk TMK sahaja. Jadual penawaran mengandungi barangan dan perkhidmatan bagi produk TMK yang dikeluarkan oleh setiap pengeluar. Sementara itu, jadual penggunaan mengandungi penggunaan bagi setiap produk TMK mengikut industri, kerajaan, isi rumah dan eksport.

Penawaran bagi setiap produk (dinilai pada harga pembeli) adalah terdiri daripada:

- Pengeluaran domestik mengikut industri (dinilai pada harga asas);
- Import;
- Pengangkutan, margin perdagangan bagi borong dan runcit; dan
- Cukai tolak subsidi ke atas pengeluaran dan import.

Penggunaan bagi setiap produk (dinilai pada harga pembeli) adalah terdiri daripada:

- Penggunaan perantaraan mengikut industri (produk yang digunakan mengikut industri tersebut diproses semula bagi menghasilkan produk lain); dan
- Penggunaan akhir mengikut jenis perbelanjaan. Penggunaan akhir adalah merujuk kepada produk yang digunakan oleh isi rumah dan kerajaan, perubahan inventori dan eksport.

Jadual penggunaan terperinci mengandungi input utama yang dikeluarkan bagi setiap industri iaitu pampasan pekerja, lebihan kendalian kasar dan lain-lain cukai tolak subsidi bagi setiap produk dan pengeluaran mengikut industri.

SUT digunakan untuk mengumpul dan mengintegrasikan semua data yang diperlukan bagi menghasilkan anggaran ekonomi berkaitan TMK secara agregat. Output terdiri daripada barangan dan perkhidmatan yang dihasilkan oleh sesebuah pertubuhan yang boleh digunakan di luar daripada pertubuhan. Nilai bagi output TMK merupakan nilai pasaran bagi barangan dan perkhidmatan TMK. Nilai ditambah dikira bagi industri TMK dan industri bukan TMK yang mengeluarkan produk TMK. Jadual berikut menunjukkan struktur asas bagi SUT.

Jadual Penawaran

Penawaran mengikut produk	Output mengikut industri pada harga asas* (aktiviti ekonomi)				Import	Jumlah penawaran pada harga asas	Margin perdagangan dan pengangkutan	Cukai tolak subsidi ke atas produk	Jumlah penawaran pada harga pembeli**
	Industri A	Industri B	Industri ...	Jumlah industri (1)	(2)	(3) = (1) + (2)	(4)	(5)	(6) = (3) + (4) + (5)
Produk TMK A									
Produk TMK B									
Produk TMK C									
Produk TMK ...									
Jumlah penawaran (produk TMK)	Jumlah output mengikut industri				Jumlah import		Jumlah penawaran mengikut produk		

Jadual Penggunaan

Penggunaan mengikut produk	Penggunaan perantaraan mengikut industri (aktiviti ekonomi)				Perbelanjaan penggunaan akhir	Pembentukan modal kasar	Eksport	Jumlah penggunaan pada harga pembeli**
	Industri A	Industri B	Industri ...	Jumlah penggunaan perantaraan (1)	(2)	(3)	(4)	(5) = (1) + (2) + (3) + (4)
Produk TMK A								
Produk TMK B								
Produk TMK C								
Produk TMK ...								
Jumlah penggunaan (produk TMK)	Jumlah penggunaan perantaraan mengikut industri					Jumlah penggunaan akhir mengikut produk dan jenis perbelanjaan***		
Pampasan pekerja								
Lebihan kendalian kasar								
Cukai tolak subsidi ke atas pengeluaran dan import	Nilai ditambah mengikut komponen dan industri							
Output industri pada harga asas*								

Nota:

- * Harga asas adalah harga yang diterima oleh pengeluar bagi setiap unit barangan dan perkhidmatan yang dikeluarkan sebagai output, tidak termasuk sebarang cukai yang perlu dibayar, termasuk subsidi yang diterima ke atas setiap produk hasil daripada pengeluaran atau penjualan. Ia juga tidak termasuk sebarang bayaran penghantaran yang dicaj secara berasingan oleh pengeluar.
- ** Harga pembeli adalah harga yang dibayar oleh pembeli di mana barangan dan perkhidmatan tersebut dihantar pada masa dan tempat yang ditentukan oleh pembeli. Ia termasuk sebarang caj pengangkutan yang dibayar secara berasingan oleh pembeli.
- *** Jenis perbelanjaan adalah merujuk kepada perbelanjaan penggunaan akhir, pembentukan modal kasar dan eksport.

8. PENGUKURAN E-DAGANG

Pengukuran nilai ditambah e-dagang adalah berdasarkan manual *OECD Internet Economy Outlook 2012*. Dua kaedah pendekatan yang disarankan adalah *narrow approach* dan *broad approach*. *Narrow approach* hanya meliputi sektor Perdagangan borong dan runcit. Manakala, *broad approach* meliputi kesemua industri dalam ekonomi.

Diandaikan bahawa peratus keuntungan daripada e-dagang kepada keuntungan industri adalah berkadaran dengan peratusan nilai ditambah e-dagang kepada nilai ditambah industri tersebut. *Broad approach* digunakan dalam pengukuran e-dagang di Malaysia. E-dagang terdiri daripada nilai bagi industri TMK dan industri bukan TMK.

9. SUMBER DATA

Sumber data dalam penyusunan ASTMK adalah seperti berikut:

INDUSTRI / DATA	SUMBER DATA
Industri pembuatan TMK	• KDNK
Industri perdagangan TMK	• Banci Ekonomi
Industri perkhidmatan TMK	• Survei Tahunan
Aktiviti penerbitan buku, terbitan berkala dan penerbitan lain	• SUT
Aktiviti wayang gambar, video dan program televisyen	
Aktiviti rakaman bunyi dan penerbitan muzik	
Aktiviti pemrograman dan penyiaran	
Aktiviti perkhidmatan maklumat lain	
Industri bukan TMK	
Eksport dan import bagi barang dan perkhidmatan TMK	• Perangkaan Perdagangan Luar Negeri • Statistik Perdagangan Perkhidmatan Antarabangsa
Cukai dan subsidi	• KDNK Kaedah Pendapatan
Perbelanjaan penggunaan akhir kerajaan	• Akaun Kewangan Kerajaan Persekutuan, Kerajaan Negeri, Pihak Berkuasa Tempatan dan Badan Berkanun
Perbelanjaan penggunaan akhir swasta	• KDNK • Survei Perbelanjaan Isi Rumah

INDUSTRI / DATA	SUMBER DATA
Pembentukan modal kasar	• KDNK • Pembentukan Modal Tetap Kasar
Pampasan pekerja	• KDNK Kaedah Pendapatan
Lebihan kendalian kasar	• KDNK Kaedah Pendapatan
Guna tenaga	• Survei Tenaga Buruh Tahunan • Survei Ekonomi Tahunan • Survei Perkhidmatan Suku Tahunan • Survei Pembuatan Bulanan • Survei Perdagangan Borong dan Runcit Bulanan

10. JADUAL UTAMA ASTMK

ASTMK mempunyai sembilan (9) jadual dan penerangannya adalah seperti berikut:

Jadual A1 : Industri TMK dan industri bukan TMK yang mengeluarkan produk TMK

Jadual A1 mengandungi statistik berkaitan semua industri yang mengeluarkan produk TMK. Jadual ini dijana berdasarkan SUT 2015 mengikut pengkelasan produk TMK. Bagi tahun-tahun seterusnya, data adalah berdasarkan KDNK tahunan.

Jadual A2.1, A2.2 dan A2.3 : Penawaran dan penggunaan produk TMK

Jadual A2.1, A2.2 dan A2.3 mempersembahkan statistik penawaran dan penggunaan produk TMK. Nilai penawaran mestilah sama dengan nilai penggunaan produk TMK. Data penawaran dan penggunaan produk TMK diperoleh daripada SUT 2015. Bagi tahun-tahun seterusnya, data adalah berdasarkan KDNK tahunan. Industri dan produk dipilih berdasarkan klasifikasi ASTMK. Data penawaran produk TMK terdiri daripada pengeluaran domestik produk TMK, import produk TMK dan cukai tolak subsidi ke atas produk TMK. Data penggunaan produk TMK pula terdiri daripada penggunaan perantaraan produk TMK, penggunaan akhir oleh isi rumah dan kerajaan ke atas produk TMK, pembentukan modal kasar produk TMK dan eksport produk TMK.

Jadual A3 dan A4 : Eksport dan import produk TMK

Jadual A3 dan A4 mengandungi statistik eksport dan import bagi produk TMK. Data daripada barangan diperolehi daripada perisytiharan kastam (Perangkaan Perdagangan Antarabangsa) di mana penyusunan adalah berdasarkan kod *Harmonized Commodity Description and Coding Systems (HS)*.

Manakala, nilai eksport dan import perkhidmatan diperolehi daripada data Perangkaan Imbangan Pembayaran. Penyusunan ini juga telah mengambil kira saranan daripada 2008 SNA serta *Balance of Payments and International Investment Position Manual Sixth Edition (BPM6)* khususnya dalam pelaksanaan *Goods for Processing from Abroad (GFP)* dan *Manufacturing Services (MS)*.

Eksport bersih adalah salah satu pemboleh ubah penting yang digunakan untuk pengiraan KDNK. Apabila eksport bersih positif, maka ia menunjukkan lebih perdagangan dan jika negatif, ia bermaksud defisit perdagangan.

$$\text{Eksport Bersih} = \text{Nilai Eksport} - \text{Nilai Import}$$

Jadual A5 : Komponen pendapatan industri TMK

Jadual A5 mengandungi statistik komponen pendapatan industri TMK yang terdiri daripada pampasan pekerja, lebihan kendalian kasar dan cukai tolak subsidi ke atas pengeluaran dan import. Data ini dijana berdasarkan SUT 2015 mengikut industri TMK. Bagi tahun-tahun seterusnya, data adalah berdasarkan KDNK kaedah pendapatan tahunan.

Jadual A7.1, A7.2 dan A7.3 : Nilai Ditambah Kasar Industri TMK

Jadual A7.1, A7.2 dan A7.3 terdiri daripada statistik Nilai Ditambah Kasar Industri TMK pada harga semasa. Pengukuran Nilai Ditambah Kasar Industri TMK adalah hasil tambah Nilai Ditambah Kasar bagi semua industri TMK. Data adalah berdasarkan KDNK tahunan.

Jadual A8.1 dan A8.2 : Nilai Ditambah Kasar e-dagang

Terdapat dua jadual bagi Nilai Ditambah Kasar e-dagang. **Jadual A8.1** memaparkan statistik Nilai Ditambah Kasar e-dagang mengikut industri TMK manakala **Jadual A8.2** adalah Nilai Ditambah Kasar e-dagang mengikut sektor utama. Pengukuran Nilai Ditambah Kasar e-dagang adalah berdasarkan kepada *OECD Internet Economy Outlook 2012*. Data adalah berdasarkan kepada peratus pendapatan e-dagang mengikut industri yang diperolehi daripada Banci Ekonomi Penggunaan ICT dan E-Dagang (ICTEC).

Jadual 9 : Sumbangan TMK kepada ekonomi

Jadual 9 adalah statistik TMK kepada ekonomi yang mana terdiri daripada Nilai Ditambah Kasar Industri TMK (Jadual 7) dan Nilai Ditambah Kasar e-dagang bagi industri bukan TMK (Jadual A8).

Penerbitan ini mempersembahkan ASTMK bagi tahun 2015 hingga 2024. Siri ini akan dikemaskini berdasarkan data terkini yang diperolehi.

11. SEMAKAN PENERBITAN DAN DATA

Penerbitan ini mempersembahkan ASTMK bagi tahun 2015 hingga 2024. Siri ini akan dikemaskini berdasarkan data terkini yang diperolehi.

12. SIMBOL

- : negatif
- .. : tidak berkenaan
- e : anggaran
- p : permulaan
- 0 : nilai kurang daripada 0.05
- % : peratus

C) PERKHIDMATAN MAKLUMAT & KOMUNIKASI SUKU TAHUNAN

1. PENDAHULUAN

Data Maklumat & Komunikasi ini dikumpul melalui Survei Perkhidmatan Suku Tahunan bermula tahun 2009. Walau bagaimanapun, untuk tujuan penerbitan ini, data yang dilaporkan adalah bermula tahun 2020.

2. OBJEKTIF

Penerbitan ini membentangkan maklumat jumlah hasil/ nilai jualan, bilangan pekerja dan gaji & upah dalam sektor perkhidmatan. Penyiasatan yang dijalankan ini adalah untuk:

- Menyediakan indikator jangka pendek sektor perkhidmatan;
- Menyediakan input dalam penyusunan Indeks Perkhidmatan Suku Tahunan;
- Menyediakan maklumat bagi penyusunan Keluaran Dalam Negeri Kasar Suku Tahunan; dan
- Membantu pihak kerajaan dan organisasi lain termasuk komuniti perniagaan dalam merancang dan membuat keputusan.

3. SKOP DAN LIPUTAN

Survei ini meliputi semua pertubuhan yang berdaftar dengan badan-badan kawal selia yang terlibat dalam; Maklumat & Komunikasi.

4. KONSEP DAN DEFINISI

Klasifikasi industri adalah berasaskan kepada Piawaian Klasifikasi Industri Malaysia 2008 Ver.1.0. Klasifikasi yang diguna pakai adalah selaras dengan *International Standard Industrial Classification All Economic Activities, Revision 4, United Nations Statistics Division*.

5. MAKLUMAT & KOMUNIKASI

Merujuk kepada aktiviti penerbitan, penerbitan wayang gambar, video & program televisyen, rakaman bunyi & penerbitan muzik, pemrograman & penyiaran, perkhidmatan telekomunikasi, pengaturcaraan komputer, perundingan & aktiviti yang berkaitan dan perkhidmatan maklumat.

6. UNIT PELAPORAN

Penyiasatan ini dilaksanakan dengan menggunakan pendekatan pertubuhan. Pertubuhan ditakrifkan sebagai “satu unit ekonomi yang bergiat di bawah satu aktiviti, di bawah penguasaan tunggal yang sah dan beroperasi di satu lokasi fizikal”. Setiap pertubuhan diberikan klasifikasi industri yang berdasarkan aktiviti utama dan bukannya mengikut syarikat induk.

7. HASIL

Hasil merujuk kepada penerimaan yang diterima atau akan diterima untuk perkhidmatan yang diberikan dan transaksi lain yang dibuat semasa suku tahun rujukan. Ia terdiri daripada hasil operasi dan hasil bukan operasi.

8. BILANGAN PEKERJA

Jumlah pekerja termasuk semua pemilik yang bekerja dan rakan niaga yang aktif, pekerja keluarga yang tidak bergaji dan pekerja yang bekerja pada tempoh gaji terakhir bagi suku tahun rujukan. Ia juga termasuk pekerja sambilan yang di dalam daftar gaji dan orang yang mogok dan bercuti jangka pendek (cuti sakit, cuti kecemasan atau cuti rehat). Mereka yang tidak dimasukkan terdiri daripada pekerja-pekerja yang bercuti berpanjangan dan pesara.

9. GAJI & UPAH YANG DIBAYAR

Gaji & upah yang dibayar merujuk kepada pembayaran tunai, termasuk bonus, komisen, bayaran lebih masa, kos sara hidup dan elaun yang dibayar kepada semua pekerja bergaji dalam tempoh suku tahun rujukan. Manakala caruman pekerja kepada Kumpulan Wang Simpanan Pekerja (KWSP) dan Pertubuhan Keselamatan Sosial (PERKESO) turut dimasukkan, manakala caruman oleh majikan dikecualikan. Elaun kepada pemilik yang bekerja, rakan niaga yang bekerja dan pekerja keluarga tidak bergaji juga dikecualikan.

10. KUASA PERUNDANGAN

Maklumat yang dikumpul adalah mengikut peruntukan Akta Perangkaan 1965 (Disemak 1989). Seksyen 5 di bawah Akta ini menghendaki mana-mana pertubuhan yang beroperasi di Malaysia untuk memberikan maklumat sebenar atau anggaran terbaik kepada Jabatan. Mengikut Akta ini, kandungan soal selidik adalah sulit dan hanya angka agregat diterbitkan. Sementara itu, Seksyen 7 di bawah Akta yang sama memperuntukkan denda kepada responden yang gagal memberi kerjasama kepada penyiasatan yang dijalankan.

11. PINDAAN POLISI

Bagi data bulanan, perubahan tertakluk kepada sumber data, semakan adalah $t-1$ di mana t merujuk kepada bulan semasa.

Bagi data suku tahunan, perubahan tertakluk kepada sumber data, semakan adalah $t-1$ di mana t merujuk kepada suku tahun semasa.

Bagi data tahunan, perubahan tertakluk kepada sumber data, semakan adalah $t-3$ di mana t merujuk kepada tahun semasa.

12. METODOLOGI

12.1 Populasi

Semua pertubuhan yang terlibat dengan Survei Perkhidmatan Suku Tahunan Maklumat dan Komunikasi meliputi 35 industri lima (5) digit dan berasaskan kod Piawaian Klasifikasi Industri Malaysia 2008 Ver 1.0. Populasi.

12.2 Rangka pensampelan

Berdasarkan populasi yang telah dikenal pasti, pertubuhan yang beroperasi seperti pada Disember 2024 disenaraikan sebagai rangka pensampelan.

12.3 Reka bentuk pensampelan

Reka bentuk pensampelan bagi survei ini adalah pensampelan rawak strata satu peringkat. Kategori industri di peringkat nasional telah diklasifikasikan sebagai strata manakala pertubuhan sebagai unit pensampelan.

12.4 Saiz sampel

Statistik utama yang digunakan untuk penganggaran saiz sampel adalah jumlah hasil. Formula yang digunakan dalam penganggaran saiz sampel dengan menggunakan kaedah *Neyman Allocation* seperti berikut:

$$n = \frac{(\sum N_i S_i)^2}{V + \sum N_i S_i^2}$$

di mana;

n	=	Saiz sampel
N_i	=	Saiz populasi bagi strata i
S_i^2	=	Varian bagi strata i
V	=	Varian sasaran

$$V = RSE^2 \cdot \left(\frac{\hat{Y}_i}{Z} \right)^2$$

di mana;

$\hat{Y}_i$	=	Jumlah nilai hasil bagi strata i
RSE	=	Ralat piawai relatif
Z	=	Nilai aras keyakinan

Sampel akan diagihkan kepada sub strata dalam industri liputan dengan menggunakan kaedah seperti berikut:

$$n_{hi} = \left(\frac{N_h S_h}{\sum N_h S_h} \right) n_i$$

$$h = 2, 3 \text{ dan } 4$$

$$i = 1, 2, \dots, k$$

di mana;

n_{hi}	=	Saiz sampel bagi sub strata h dalam strata i
N_h	=	Saiz populasi bagi sub strata h
S_h	=	Sisihan piawai bagi sub strata h
n_i	=	Saiz sampel bagi strata i
h	=	Sub strata
i	=	Strata

Pertubuhan bagi substrata utama dikategorikan kepada 4 kumpulan iaitu kategori besar 1, besar 2, besar 3 dan besar 4. Pertubuhan kategori besar 1 diliputi sepenuhnya manakala pertubuhan bagi substrata besar 2, 3 dan 4 serta substrata PMKS dipilih secara rawak mengikut kaedah pensampelan bersistematik.

12.5 Wajaran

Analisis berwajaran disediakan menggunakan wajaran bagi memastikan sampel yang dipilih dapat menggambarkan populasi survei. Wajaran yang diperlukan adalah wajaran di peringkat reka bentuk pensampelan dan wajaran tiada respon.

Wajaran reka bentuk pensampelan pada substrata h adalah seperti berikut :

$$W_h = \frac{N_h}{n_h}, h = 1, \dots, 4$$

di mana,

N_h = Bilangan populasi bagi sub strata h ; dan

n_h = Bilangan sampel bagi sub strata h

Wajaran tiada respons pada sub strata h

$$NRW_h = \frac{1}{n'_h/n_h}, h = 1, \dots, 4$$

di mana;

n'_h = Bilangan sampel respons bagi sub strata h

n_h = Bilangan sampel bagi sub strata h

Kaedah pengiraan wajaran reka bentuk pensampelan selepas survei (*adjusted weight*) pada sub strata h seperti berikut:

$$W'_h = W_h \times NRW_h, h = 1, \dots, 4$$

di mana;

W_h = Wajaran reka bentuk pensampelan pada sub strata h

NRW_h = Wajaran tiada respons pada sub strata h

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PEMBUNDARAN

Penjumlahan komponen mungkin berbeza dengan angka jumlah kecil atau jumlah besar disebabkan pembundaran.

D) PENGGUNAAN ICT DAN E-DAGANG OLEH PERTUBUHAN

1. PENDAHULUAN

Penerbitan ini membekalkan maklumat petunjuk ICT bagi Penggunaan ICT dan E-Dagang oleh Pertubuhan bagi tahun rujukan 2023. Data tersebut dikumpul dan disusun daripada Survei E-Dagang Tahunan 2024.

Petunjuk ICT telah dibangunkan oleh *World Summit on the Information Society (WSIS)* dan telah dilancarkan pada Jun 2004. Tujuan senarai petunjuk ini adalah sebagai panduan/ input kepada negara-negara yang menjalankan survei data ICT. Senarai petunjuk ini juga boleh membantu dalam mengeluarkan data ICT yang berkualiti dan perbandingan di peringkat antarabangsa.

Terdapat 48 petunjuk ICT di dalam 6 kumpulan seperti berikut:

• Infrastruktur dan akses ICT	- 10 petunjuk
• Penggunaan dan akses ICT oleh isi rumah dan individu	- 13 petunjuk
• Penggunaan ICT oleh perniagaan	- 12 petunjuk
• Sektor ICT (Pengeluaran)	- 2 petunjuk
• Perdagangan Antarabangsa bagi barangan ICT	- 2 petunjuk
• ICT di dalam pendidikan	- 9 petunjuk

2. KUASA PERUNDANGAN

Survei E-Dagang Tahunan dilaksanakan di bawah **Akta Perangkaan 1965 (Disemak 1989)**. Di bawah **Seksyen 5** Akta ini, mana-mana pertubuhan yang beroperasi di Malaysia dikehendaki memberikan maklumat sebenar atau anggaran terbaik kepada Jabatan. Mengikut Akta ini, kandungan soal selidik adalah **sulit** dan hanya angka agregat yang diterbitkan.

3. SKOP DAN LIPUTAN

Penerbitan ini menggunakan data daripada Survei E-Dagang Tahunan 2024 (tahun rujukan 2023). Survei ini mengumpul maklumat daripada pertubuhan berdaftar dalam sektor Pertanian, Perlombongan & Pengkuarian, Pembuatan, Pembinaan dan Perkhidmatan. Klasifikasi industri merujuk kepada Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Versi 1.0 yang selaras dengan *International Standard Industrial Classification of All Economic Activities (ISIC), Revision. 4, United Nations*. Liputan bagi keseluruhan sektor merangkumi 1,122 kategori industri seperti yang ditunjukkan pada Jadual 1.

Jadual 1: Bilangan industri mengikut sektor

Sektor	Bilangan Industri
Pertanian*	140
Perlombongan & pengkuarian	56
Pembuatan	259
Pembinaan	72
Perkhidmatan	595
Jumlah	1,122

Nota:

(*) Usahawan dalam sektor Pertanian yang hanya berdaftar dengan agensi-agensi kerajaan yang berkaitan bagi maksud menerima bantuan **TIDAK** diliputi kecuali pengusaha kelapa sawit.

4. SUMBER RANGKA STATISTIK

Sumber utama rangka statistik pertubuhan adalah daripada *Malaysia Statistical Business Register (MSBR)* manakala bagi subsektor Penginapan termasuk perniagaan inap desa yang tidak berdaftar. MSBR adalah senarai pertubuhan/ perusahaan yang beroperasi di Malaysia yang merangkumi Daftar Syarikat (ROC), Daftar Perniagaan (ROB) dan Perkongsian Liabiliti Terhad (LLP) yang berdaftar dengan Suruhanjaya Syarikat Malaysia (SSM) serta pertubuhan yang berdaftar dengan Pihak Berkuasa Tempatan (PBT) dan badan profesional. Senarai di MSBR dikemaskini secara berkala berdasarkan survei dan bancian yang dijalankan oleh Jabatan Perangkaan Malaysia (DOSM) dan sumber data pentadbiran daripada pelbagai agensi. Sumber utama data pentadbiran adalah daripada SSM.

Selain itu, DOSM juga bekerjasama dengan agensi lain seperti Kumpulan Wang Simpanan Pekerja (KWSP), Jabatan Kastam Diraja Malaysia, Lembaga Hasil Dalam Negeri (LHDN), Pertubuhan Keselamatan Sosial (PERKESO), PBT, dan badan profesional. Rangka dikemaskini untuk mengambil kira pertubuhan baru dan sebarang perubahan yang berlaku kepada pertubuhan tersebut seperti tutup, tidak beroperasi, perubahan jenis aktiviti dan lokasi/ alamat pos untuk memastikan maklumat yang terdapat dalam rangka adalah yang paling terkini.

5. JENIS AKTIVITI PERNIAGAAN

Jenis aktiviti perniagaan merujuk kepada aktiviti utama dan sekunder. Aktiviti utama merujuk kepada aktiviti yang mana pertubuhan menumpukan sebahagian besar sumbernya atau memberi sumbangan besar dari segi pendapatan. Aktiviti sekunder didefinisikan sebagai aktiviti sampingan kepada aktiviti utama. Klasifikasi industri bagi pertubuhan adalah berasaskan kepada aktiviti utama dan Piawaian Klasifikasi Industri Malaysia (MSIC), 2008 Ver. 1.0. MSIC 2008 yang diselaraskan dengan *International Standard Industrial Classification of All Economics Activities (ISIC), Rev. 4*, yang diterbitkan oleh United Nations Statistic Division, dengan pengubahsuaian mengikut keperluan tempatan

6. KONSEP DAN DEFINISI

Industri tersebut dikategorikan kepada lima sektor utama iaitu Pertanian, Perlombongan & Pengkuarian, Pembuatan, Pembinaan, dan Perkhidmatan. Definisi sektor adalah seperti berikut:

6.1 Pertanian

Merangkumi aktiviti penanaman, pemeliharaan dan penternakan haiwan dan pengeluaran produk haiwan, penebangan kayu balak dan tanaman lain, serta perikanan tangkapan dan akuakultur termasuk penggunaan sumber semulajadi tumbuh-tumbuhan dan haiwan. Terdapat empat subsektor iaitu tanaman, ternakan, perhutanan, & pembalakan dan perikanan.

6.1.1 Tanaman merujuk kepada penanaman dan pengeluaran produk tanaman termasuk pertanian organik. Tanaman juga meliputi penanaman tanaman tidak kekal dan kekal untuk tujuan pengeluaran benih;

6.1.2 Ternakan merujuk kepada binatang atau unggas yang dipelihara untuk tujuan komersil atau pembiakbakaan. Pengeluaran ternakan termasuk penternakan (ladang) dan pembiakan semua haiwan serta pengeluaran daripada hasil ternakan seperti telur, susu, madu, dan sebagainya;

6.1.3 Perhutanan dan pembalakan termasuk pengeluaran kayu balak untuk industri berasaskan kayu, meliputi pengekstrakan dan pengumpulan produk hutan bukan kayu yang tumbuh liar. Selain pengeluaran kayu balak, aktiviti perhutanan yang menghasilkan produk melalui proses minima seperti kayu api, kayu arang, reja kayu dan kayu balak yang digunakan dalam bentuk yang belum diproses turut disertakan. Aktiviti ini boleh dijalankan dalam hutan asli dan ladang hutan. Ia juga termasuk sebahagian daripada aktiviti operasi perhutanan berdasarkan bayaran atau secara kontrak; dan

6.1.4 Perikanan termasuk perikanan tangkapan dan akuakultur meliputi penggunaan sumber perikanan daripada laut, air payau atau air tawar dengan tujuan menangkap dan mengumpul ikan, krustasia, moluska dan organisma dan produk laut lain. Akuakultur ialah proses pengeluaran yang melibatkan pengkulturan (termasuk tuaian) organisma akuatik menggunakan teknik yang direka bentuk untuk meningkatkan pengeluaran organisma tersebut melebihi kapasiti persekitaran semulajadi.

6.2 Perlombongan dan Pengkuarian

Perlombongan dan Pengkuarian termasuk pengekstrakan mineral yang terjadi secara semulajadi seperti pepejal (batu arang dan bijih), cecair (petroleum) atau gas (gas asli). Pengekstrakan boleh dijalankan melalui pelbagai kaedah seperti perlombongan bawah tanah atau dedah, pengoperasian telaga, perlombongan dasar laut dan lain-lain. Walau bagaimanapun, subsektor perlombongan mineral dan pengkuarian tidak diliputi dalam penerbitan ini.

6.3 Pembuatan

Perubahan fizikal atau kimia ke atas bahan atau komponen menjadi produk baru sama ada kerja itu dilakukan oleh jentera pacuan kuasa atau yang dijalankan dengan tangan, sama ada dilaksanakan di kilang atau di rumah pekerja dan sama ada barang keluaran dijual secara borong atau runcit.

Pengelasan lapan (8) subsektor mengikut bahagian adalah seperti berikut:

Bahagian		Keterangan
Produk makanan		
10	Pembuatan produk makanan	
Minuman dan produk tembakau		
11	Pembuatan minuman	
12	Pembuatan produk tembakau	
Produk tekstil, pakaian dan kulit		
13	Pembuatan tekstil	
14	Pembuatan pakaian	
15	Pembuatan produk kulit dan barangan berkaitan	
Produk kayu, perabot, keluaran kertas dan percetakan		
16	Pembuatan kayu dan produk kayu dan gabus, kecuali perabot; pembuatan bagi artikel jerami dan bahan-bahan anyaman perabot	
17	Pembuatan kertas dan produk kertas	
18	Percetakan dan penerbitan semula media rakaman	
31	Pembuatan perabot	
Produk petroleum, kimia, getah dan plastik		
19	Pembuatan kok dan produk petroleum bertapis	
20	Pembuatan kimia dan produk kimia	
21	Pembuatan produk farmaseutikal asas, kimia perubatan dan botani	
22	Pembuatan produk getah dan plastik	

Produk mineral bukan logam, logam asas & produk logam yang direka

23	Pembuatan produk galian bukan logam lain
24	Pembuatan logam asas
25	Pembuatan produk logam, kecuali mesin dan kelengkapan
-

Produk elektrik, elektronik dan optikal

26	Pembuatan komputer, produk elektronik dan optikal
27	Pembuatan kelengkapan elektrik
28	Pembuatan jentera dan peralatan t.t.t.l.
-

Peralatan pengangkutan, pembuatan lain dan pembaikan

29	Pembuatan kenderaan bermotor, treler dan semi treler
30	Pembuatan kelengkapan pengangkutan lain
32	Pembuatan lain
33	Membaiki dan pemasangan jentera dan kelengkapan

6.4 Pembinaan

Ditakrifkan sebagai pembinaan baru, pengubahsuaian, pembaikan dan perobohan. Pemasangan sebarang jenis jentera atau peralatan yang dipasang ketika pembinaan asal adalah diambil kira, demikian juga bagi pemasangan jentera atau peralatan selepas pembinaan asal tetapi memerlukan perubahan struktur bagi pemasangannya.

6.5 Perkhidmatan

Perkhidmatan berkaitan Bekalan elektrik, gas, wap & pendingin udara; Bekalan air, pembentungan, pengurusan sisa & aktiviti pemulihan; Perdagangan Borong & runcit; Pengangkutan & penyimpanan; Maklumat & komunikasi; Penginapan; Makanan & minuman; Kewangan; Hartanah; Profesional, saintifik & teknikal; Pentadbiran & khidmat sokongan; Pendidikan swasta; Kesihatan swasta & kerja sosial; Kesenian, hiburan & rekreasi dan Perkhidmatan persendirian & lain-lain aktiviti.

- 6.5.1 Bekalan elektrik, gas, wap & pendinginan udara** adalah ditakrifkan sebagai aktiviti pembekalan tenaga elektrik, gas asli, wap, air panas dan seumpamanya melalui satu infrastruktur (rangkaian) tetap bagi talian, saluran utama dan paip. Dimensi rangkaian ini tidak dapat ditentukan; juga termasuk pengagihan elektrik, gas, wap, air panas dan seumpamanya di kawasan perindustrian atau bangunan tempat kediaman. Oleh itu, seksyen ini termasuk operasi utiliti elektrik dan gas yang menjana, mengawal dan mengagih tenaga elektrik atau gas. Juga termasuk bekalan wap dan pendinginan udara;
- 6.5.2 Bekalan air; pembentungan, pengurusan sisa & aktiviti pemulihan** meliputi aktiviti yang berkaitan dengan pengurusan sisa termasuk pungutan, perawatan dan pelupusan seperti sisa terjadual, sisa pepejal dan air sisa daripada perindustrian dan isi rumah, termasuk juga pemulihan bahan dan tapak yang tercemar. Hasil sisa daripada proses perawatan boleh dilupus atau menjadi input kepada proses pengeluaran yang lain. Aktiviti yang berkaitan dengan perawatan dan bekalan air juga dimasukkan dalam sektor ini;
- 6.5.3 Perdagangan borong & runcit** merangkumi perdagangan borong, perdagangan runcit, dan pembaikan kenderaan bermotor & motosikal;
- 6.5.4 Pengangkutan & penyimpanan** meliputi pertubuhan yang menyediakan perkhidmatan darat, pengangkutan muatan melalui jalan raya, pengangkutan darat lain, pengangkutan air, penggudangan & aktiviti sokongan seperti pengoperasian terminal, tempat letak kereta, pengoperasian lebuh raya, pengoperasian pelabuhan, pengendalian kargo/ pemunggahan, agensi perkapalan & penghantaran serta lain-lain aktiviti sokongan perkhidmatan pengangkutan;
- 6.5.5 Maklumat & komunikasi** terdiri daripada aktiviti penerbitan, penerbitan wayang gambar, video & program televisyen, rakaman bunyi & penerbitan muzik, pemrograman & penyiaran, perkhidmatan telekomunikasi, pengaturcaraan komputer, perundingan & aktiviti yang berkaitan dan perkhidmatan maklumat;
- 6.5.6 Perkhidmatan penginapan** merujuk kepada penyediaan tempat penginapan jangka pendek berbayar, sama ada dibuka kepada orang awam atau terhad kepada ahli sebuah pertubuhan tertentu. Ianya tidak termasuk penyewaan tempat tinggal berperabot jangka panjang yang dikelaskan dalam Hartanah;

- 6.5.6 Perkhidmatan penginapan** merujuk kepada penyediaan tempat penginapan jangka pendek berbayar, sama ada dibuka kepada orang awam atau terhad kepada ahli sebuah pertubuhan tertentu. Ianya tidak termasuk penyewaan tempat tinggal berperabot jangka panjang yang dikelaskan dalam Hartanah;
- 6.5.7 Perkhidmatan makanan & minuman** termasuk perkhidmatan makanan & minuman yang menyediakan hidangan atau minuman lengkap untuk penggunaan segera, sama ada di restoran tradisional, restoran layan diri atau bawa pulang, yang didirikan secara kekal atau sementara dengan atau tiada kemudahan tempat duduk;
- 6.5.8 Perkhidmatan kewangan** adalah meliputi aktiviti perantaraan kewangan; aktiviti perkhidmatan kewangan lain dan aktiviti sokongan kepada perkhidmatan kewangan; aktiviti insurans/ takaful, insurans takaful semula dan tabungan pencen & hemat; dan aktiviti sokongan kepada insurans/ takaful dan tabungan pencen;
- 6.5.9 Perkhidmatan hartanah** termasuk tindakan seperti pemberi pajak, agen dan atau broker di dalam satu atau lebih daripada yang berikut: penjualan atau pembelian hartanah, penyewaan hartanah, penyediaan perkhidmatan hartanah lain seperti penilaian hartanah, pengurusan hartanah atau bertindak sebagai agen hartanah eskrow. Aktiviti dalam bahagian ini mungkin dijalankan di atas hartanah milikan sendiri atau pajakan dan mungkin berlaku atas dasar bayaran atau kontrak. Termasuk juga pembangunan struktur, berserta mengekalkan hak milik atau pajakan bagi struktur tersebut;
- 6.5.10 Perkhidmatan profesional, saintifik & teknikal** termasuk aktiviti profesional khusus, saintifik dan teknikal yang memerlukan tahap latihan yang tinggi dan menjadikan pengetahuan dan kemahiran khusus tersedia kepada pengguna. Aktiviti yang dijalankan termasuk aktiviti guaman & perakaunan, aktiviti ibu pejabat, aktiviti perundingan pengurusan, aktiviti arkitek & kejuruteraan, ujian & analisis teknikal, penyelidikan & pembangunan saintifik, pengiklanan & penyelidikan pasaran, profesional lain, aktiviti saintifik & teknikal dan veterinar;

- 6.5.11 Perkhidmatan pentadbiran & khidmat sokongan** termasuk pelbagai aktiviti yang menyokong operasi am perniagaan meliputi aktiviti sewaan & pajakan, aktiviti pekerjaan, agensi pengembaraan, operator pelancongan & aktiviti perkhidmatan penempahan lain, aktiviti keselamatan & penyiasatan, aktiviti perkhidmatan bangunan & lanskap dan aktiviti pengurusan pejabat, sokongan pejabat & perniagaan lain;
- 6.5.12 Perkhidmatan pendidikan swasta** merujuk kepada pertubuhan yang berdaftar dengan Kementerian Pendidikan Malaysia dan Kementerian Pengajian Tinggi yang menyediakan perkhidmatan pelajaran akademik, vokasional dan perdagangan. Aktiviti yang diliputi dalam kumpulan ini ialah pendidikan pra sekolah & pendidikan rendah, pendidikan menengah, pendidikan tinggi, pendidikan lain dan perkhidmatan sokongan lain;
- 6.5.13 Perkhidmatan kesihatan swasta & kerja sosial** meliputi aktiviti hospital, aktiviti amalan perubatan & pergigian, aktiviti kesihatan dan kemanusiaan lain, aktiviti rumah penjagaan, dan aktiviti kerja sosial tanpa penginapan;
- 6.5.14 Perkhidmatan kesenian, hiburan & rekreasi** termasuk pelbagai aktiviti bagi memenuhi minat orang awam dalam aktiviti kebudayaan, hiburan dan rekreasi meliputi persembahan secara langsung, operasi muzium, perjudian, sukan dan aktiviti rekreasi; dan
- 6.5.15 Perkhidmatan persendirian & lain-lain aktiviti** termasuk aktiviti keahlian organisasi, aktiviti organisasi keahlian perniagaan, majikan & profesional, aktiviti kesatuan buruh, aktiviti keahlian organisasi lain, pembaikan komputer & barangan persendirian dan isi rumah dan aktiviti perkhidmatan seperti basuhan dan cucian kering tekstil dan produk berbulu; dandanan rambut dan penjagaan kecantikan lain; dan pengebumian dan aktiviti perkhidmatan lain.

7. DEFINISI ICT

Berdasarkan definisi daripada *Organisation for Economic Co-operation and Development (OECD)*, 2015:

a) Komputer

Termasuk komputer peribadi, komputer mudah alih (cth. komputer riba), tablet dan peranti mudah alih yang lain seperti *telefon pintar.

Note:

* Malaysia termasuk telefon pintar

b) Intranet

Merujuk kepada rangkaian komunikasi dalaman menggunakan protokol internet dan membolehkan komunikasi dalam organisasi.

c) Extranet

Merujuk kepada rangkaian tertutup yang menggunakan protokol internet dengan selamat dalam perkongsian maklumat perniagaan dengan pembekal, *vendor*, pelanggan atau rakan kongsi perniagaan lain. Ia juga boleh menjadi sebahagian daripada laman web peribadi perniagaan, yang mana rakan perniagaan boleh melayari selepas disahkan dalam halaman log masuk.

d) Rangkaian kawasan setempat (LAN)

Rangkaian yang menghubungkan komputer dan peranti yang berkaitan di dalam kawasan setempat seperti bangunan persendirian, jabatan atau tapak; ia juga mungkin tanpa wayar.

e) Rangkaian kawasan setempat tanpa wayar (WLAN)

Rangkaian kawasan setempat yang menggunakan gelombang radio frekuensi tinggi dan bukannya wayar untuk berkomunikasi antara peranti yang dibolehkan oleh rangkaian. WLAN membolehkan pengguna bergerak di sekitar kawasan kecil dalam radius 20 hingga 91 meter.

f) Rangkaian kawasan luas (WAN)

Rangkaian yang menghubungkan komputer dan peranti yang berkaitan dalam kawasan geografi yang luas, seperti rantau atau negara.

g) Jalur lebar tetap

Merujuk kepada teknologi dengan kelajuan sekurang-kurangnya 256 kbit/s dalam satu atau kedua-dua arah. Ia terdiri daripada jalur lebar tetap berwayar dan jalur lebar tetap tanpa wayar.

Akses internet melalui jalur lebar tetap berwayar yang paling banyak digunakan untuk menghantar/ menerima maklumat adalah melalui kabel/ gentian optik (ADSL, SDSL, VDSL), teknologi fiber optik/ teknologi kabel.

h) Jalur lebar mudah alih

Merujuk kepada teknologi pada kelajuan tidak kurang daripada 256 kbit/s dalam satu atau kedua-dua arah. Ia meliputi teknologi seperti 3G/ LTE/ 4G, 5G, UMTS, CDMA2000 dan teknologi masa hadapan termasuk kedua-dua langganan data standard dan khusus. Kebiasaannya digunakan untuk peranti mudah alih (cth. komputer riba, tablet, modem tanpa wayar USB, telefon pintar dan peranti mudah alih lain).

Sambungan jalur lebar mudah alih ke internet merujuk kepada akses melalui *WIFI hotspot (tethering)* dan bukannya melalui *router* (cth. *USB dongle/ modem/ surfstick* seperti *YES dongle* dsb.).

i) Laman sesawang

Laman web adalah koleksi sumber web rangkaian yang berkaitan seperti laman sesawang, kandungan multimedia yang biasanya dikenal pasti dengan nama domain umum dan diterbitkan oleh sekurang-kurangnya satu pelayan sesawang. Laman sesawang boleh diakses menerusi rangkaian *Internet Protocol (IP)* awam seperti Internet atau rangkaian kawasan setempat peribadi (LAN) oleh URL yang mengenal pasti tapak tersebut. Sebuah laman sesawang boleh menjadi laman sesawang peribadi, laman sesawang korporat untuk sebuah syarikat, laman sesawang kerajaan, laman sesawang organisasi dan sebagainya.

j) Media sosial

Merujuk kepada mereka yang mempunyai profil pengguna, akaun atau lesen pengguna bergantung kepada keperluan dan jenis media sosial. Jenis media sosial adalah rangkaian sosial (cth. *Facebook, Instagram dan TikTok*), *Enterprise blogs* dan *microblogs Enterprise* (cth. *X*) dan laman sesawang perkongsian kandungan multimedia (cth. *YouTube*).

k) Internet mudah alih dan teknologi

Internet mudah alih dan teknologi adalah produk yang tidak dapat dielakkan dalam pembangunan internet PC. Ia menggabungkan komunikasi mudah alih dan internet menjadi satu. Ini adalah istilah umum untuk aktiviti di mana teknologi, platform, model perniagaan dan aplikasi internet digabungkan dengan teknologi komunikasi mudah alih (cth. peralatan *mobile IT*, peralatan *Global Positioning System (GPS)*, *wireless debit/ credit card payment terminals*).

l) Pengkomputeran awan

Pengkomputeran awan merujuk kepada perkhidmatan ICT yang digunakan melalui internet untuk mengakses perisian, kuasa pengkomputeran, kapasiti penyimpanan, dll. (cth. HUAWEI *Cloud Server*, *AVM Cloud*).

m) Analitik data

Analitik data ialah satu proses atau upaya pengolahan data menjadi sebuah informasi baru agar ciri-ciri data tersebut menjadi lebih mudah difahami dan berguna untuk penyelesaian suatu permasalahan khususnya yang berhubung dengan kajian (cth. *Tableau*, *Big Data Analytics*, *Mobile Business Intelligence*).

n) Perisian pengurusan

Perisian pengurusan ialah perisian aplikasi yang membantu pengguna semasa melakukan aktiviti pengurusan (cth. *Enterprise Resource Planning*, dll.).

o) Platform kolaborasi dalam talian

Merujuk kepada perkongsian ekonomi (cth. *Lazada*, *Shopee*, *Grab* dll.).

8. DEFINISI E-DAGANG

Berdasarkan OECD, 2015, transaksi e-dagang adalah penjualan atau pembelian bagi barangan atau perkhidmatan, melalui rangkaian komputer yang telah direka untuk tujuan berkenaan. Transaksi e-dagang boleh berlaku di antara enterpris, isi rumah, individu, kerajaan dan organisasi awam atau swasta yang lain.

Barangan atau perkhidmatan yang telah dipesan melalui kaedah e-dagang, namun pembayaran atau penerimaan barangan atau perkhidmatan berkenaan boleh diterima sama ada melalui *online* atau *offline*.

Transaksi e-dagang termasuk pesanan yang dibuat di laman sesawang, extranet atau *electronic data interchange* (EDI). Walau bagaimanapun, transaksi yang dibuat melalui panggilan telefon, faksimili, emel (emel yang ditaip manual) dan seumpamanya tidak dikategorikan sebagai urusan e-dagang.

- a) **Pendapatan e-dagang** bermaksud jumlah pendapatan yang diperolehi oleh pertubuhan daripada transaksi e-dagang. Pendapatan untuk pertubuhan perdagangan borong dan runcit merujuk kepada nilai jualan barangan dan perkhidmatan. Nilai jualan bermaksud nilai semua barang di mana hak milik atau hak mutlak untuk penggunaan telah dipindahkan kepada orang lain dengan tujuan barang itu akan dibeli akhirnya.
- b) **Perbelanjaan e-dagang** bermaksud jumlah perbelanjaan bagi pertubuhan yang mempunyai transaksi e-dagang.
- c) **E-dagang mengikut jenis pasaran**
 - i) **Tempatan** bermaksud urusan pendapatan/ perbelanjaan e-dagang yang melibatkan transaksi dalam negara Malaysia.
 - ii) **Antarabangsa** bermaksud urusan pendapatan/ perbelanjaan e-dagang yang melibatkan transaksi luar negara.
- d) **E-dagang mengikut kategori pelanggan**
 - i) **Perniagaan lain**

Perniagaan ke Perniagaan (B2B) adalah transaksi e-dagang antara perniagaan yang menjual/ membeli produk atau perkhidmatan kepada/ daripada perniagaan lain. Sebagai contoh, pengeluar boleh menjual kepada pemborong atau pemborong boleh menjual kepada peruncit.
 - ii) **Pengguna individu**

Perniagaan kepada Pengguna (B2C) merupakan transaksi e-dagang di antara perniagaan dan pengguna, sama ada jualan, pembelian, atau perkhidmatan. Sebagai contoh perniagaan menjual produk pakaian kepada pengguna (pendapatan) atau perniagaan memberikan kupon diskaun kepada pengguna melalui platform e-dagang (perbelanjaan).

iii) Kerajaan dan organisasi bukan perniagaan lain

Perniagaan kepada Kerajaan (B2G) adalah model perniagaan yang merujuk kepada perniagaan yang menjual/ membayar bagi produk, perkhidmatan atau maklumat pihak kerajaan atau agensi kerajaan. Rangkaian atau model B2G menyediakan cara bagi perniagaan untuk membida projek atau produk kerajaan yang mungkin dibeli atau diperlukan oleh kerajaan untuk organisasi mereka. Ini boleh merangkumi organisasi sektor awam yang mencadangkan tawaran. Kegiatan B2G semakin dilakukan melalui internet melalui penawaran *real-time*. B2G juga dirujuk sebagai pemasaran sektor awam.

9. PENGIRAAN PERATUS PENGGUNAAN ICT

a) Penggunaan Komputer, Internet dan *Web Presence*

(i) Peratus penggunaan komputer

$$= \frac{\text{Bilangan pertubuhan yang menggunakan komputer}}{\text{Jumlah pertubuhan yang beroperasi}} \times 100$$

(ii) Peratus penggunaan internet

$$= \frac{\text{Bilangan pertubuhan yang menggunakan internet}}{\text{Jumlah pertubuhan yang beroperasi}} \times 100$$

(iii) Peratus pemilikan *web presence*

$$= \frac{\text{Bilangan pertubuhan yang mempunyai web presence}}{\text{Jumlah pertubuhan yang beroperasi}} \times 100$$

b) Jenis Web Presence yang Dimiliki

- (i) Peratus laman web kepunyaan sendiri

$$= \frac{\text{Bilangan pertubuhan yang mempunyai laman web kepunyaan sendiri}}{\text{Jumlah pertubuhan yang mempunyai web presence}} \times 100$$

- (ii) Peratus laman web di entiti lain

$$= \frac{\text{Bilangan pertubuhan yang mempunyai laman web di entiti lain}}{\text{Jumlah pertubuhan yang mempunyai web presence}} \times 100$$

- (iii) Peratus media sosial

$$= \frac{\text{Bilangan pertubuhan yang mempunyai media sosial}}{\text{Jumlah pertubuhan yang menggunakan web presence}} \times 100$$

- (iv) Peratus e-pasaran

$$= \frac{\text{Bilangan pertubuhan yang mempunyai e – pasaran}}{\text{Jumlah pertubuhan yang menggunakan web presence}} \times 100$$

c) Jenis Rangkaian Komputer yang Digunakan

- (i) Peratus intranet

$$= \frac{\text{Bilangan pertubuhan yang mempunyai intranet}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

- (ii) Peratus extranet

$$= \frac{\text{Bilangan pertubuhan yang mempunyai extranet}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

c) Jenis Rangkaian Komputer yang Digunakan

(iii) Peratus rangkaian kawasan setempat (LAN)

$$= \frac{\text{Bilangan pertubuhan yang mempunyai LAN}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(iv) Peratus rangkaian kawasan setempat tanpa wayar (WLAN)

$$= \frac{\text{Bilangan pertubuhan yang mempunyai WLAN}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(v) Peratus rangkaian kawasan luas (WAN)

$$= \frac{\text{Bilangan pertubuhan yang mempunyai WAN}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(vi) Peratus rangkaian komputer lain

$$= \frac{\text{Bilangan pertubuhan yang mempunyai rangkaian infrastruktur lain}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

d) Jenis Capaian Internet

(i) Peratus penggunaan jalur lebar tetap

$$= \frac{\text{Bilangan pertubuhan yang mempunyai jalur lebar tetap}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

- (ii) Peratus penggunaan jalur lebar mudah alih

$$= \frac{\text{Bilangan pertubuhan yang mempunyai jalur lebar mudah alih}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

- (iii) Peratus penggunaan kedua-dua jalur lebar

$$= \frac{\text{Bilangan pertubuhan yang mempunyai kedua – dua jalur lebar}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

e) Tujuan Penggunaan Internet

- (i) Peratus menghantar atau menerima emel

$$= \frac{\text{Bilangan pertubuhan yang menghantar atau menerima emel}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

- (ii) Peratus penggunaan telefon melalui internet

$$= \frac{\text{Bilangan pertubuhan yang menggunakan telefon melalui internet}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

- (iii) Peratus menghantar informasi atau pesanan dengan segera

$$= \frac{\text{Bilangan pertubuhan yang menghantar informasi atau pesanan segera}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

- (iv) Peratus mendapatkan maklumat barangan atau perkhidmatan

$$= \frac{\text{Bilangan pertubuhan yang mendapatkan maklumat barangan atau perkhidmatan}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(v) Peratus mendapatkan maklumat dari organisasi kerajaan

$$= \frac{\text{Bilangan pertubuhan yang mendapatkan maklumat dari organisasi kerajaan}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(vi) Peratus penggunaan berhubung dengan organisasi kerajaan

$$= \frac{\text{Bilangan pertubuhan yang berhubung dengan organisasi kerajaan}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(vii) Peratus penggunaan perbankan internet

$$= \frac{\text{Bilangan pertubuhan yang menggunakan perbankan internet}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(viii) Peratus mengakses perkhidmatan kewangan yang lain

$$= \frac{\text{Bilangan pertubuhan yang mengakses perkhidmatan kewangan lain}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(ix) Peratus penyediaan perkhidmatan pelanggan

$$= \frac{\text{Bilangan pertubuhan yang menyediakan perkhidmatan pelanggan}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(x) Peratus penggunaan penghantaran produk secara atas talian

$$= \frac{\text{Bilangan pertubuhan yang menghantar produk secara atas talian}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(xi) Peratus penggunaan pemberitahuan jawatan kosong dalaman atau luaran

$$= \frac{\text{Bilangan pertubuhan yang memberitahu jawatan kosong dalaman atau luaran}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(xii) Peratus penggunaan untuk latihan kakitangan (aplikasi e-pembelajaran)

$$= \frac{\text{Bilangan pertubuhan yang membuat latihan kakitangan (aplikasi e – pembelajaran)}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(xiii) Peratus penggunaan internet untuk lain-lain

$$= \frac{\text{Bilangan pertubuhan yang menggunakan internet untuk lain – lain tujuan}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

f) Penggunaan Teknologi Digital

(i) Peratus penggunaan laman web

$$= \frac{\text{Bilangan pertubuhan yang menggunakan laman web}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(ii) Peratus penggunaan media sosial

$$= \frac{\text{Bilangan pertubuhan yang menggunakan media sosial}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(iii) Peratus penggunaan internet mudah alih dan teknologi

$$= \frac{\text{Bilangan pertubuhan yang menggunakan internet mudah alih dan teknologi}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(iv) Peratus penggunaan pengkomputeran awam

$$= \frac{\text{Bilangan pertubuhan yang menggunakan pengkomputeran awam}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(v) Peratus penggunaan analitik data

$$= \frac{\text{Bilangan pertubuhan yang menggunakan analitik data}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(vi) Peratus penggunaan perisian pengurusan

$$= \frac{\text{Bilangan pertubuhan yang menggunakan perisian pengurusan}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(vii) Peratus penggunaan platform kolaborasi atas talian

$$= \frac{\text{Bilangan pertubuhan yang menggunakan kolaborasi atas talian}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(viii) Peratus penggunaan teknologi digital untuk lain-lain

$$= \frac{\text{Bilangan pertubuhan yang menggunakan teknologi digital untuk lain – lain tujuan}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

(ix) Peratus tiada penggunaan teknologi digital

$$= \frac{\text{Bilangan pertubuhan yang tiada menggunakan teknologi digital}}{\text{Jumlah pertubuhan yang menggunakan internet}} \times 100$$

10. TAHUN SURVEI

Tahun survei adalah merujuk kepada tahun pelaksanaan survei.

11. TAHUN RUJUKAN

Tahun rujukan bagi survei ini adalah tahun takwim 2023. Pertubuhan yang mempunyai tahun kewangan yang berbeza daripada tahun takwim diminta menyediakan laporan mengikut tahun perakaunan atau kewangan yang meliputi sebahagian besar daripada tahun rujukan.

12. KAEDAH PENGUMPULAN DATA

Survei ini secara umumnya dijalankan dengan menggunakan tiga (3) kaedah pengumpulan data seperti berikut:

a) **Kaedah atas talian melalui portal e-survey**

Kaedah ini menyasarkan responden yang telah menggunakan kaedah ini bagi survei rutin terdahulu.

b) **Kaedah kutipan data melalui e-mel, pos, faks dan telefon**

Kaedah ini menyasarkan responden yang pernah terlibat dengan survei rutin terdahulu. Responden diberi tempoh satu bulan untuk melengkapkan dan mengembalikan borang soal selidik tersebut kepada DOSM.

c) **Kaedah kutipan data secara bersemuka**

Kerja luar operasi di lapangan dijalankan untuk mendapatkan maklum balas daripada pertubuhan yang belum memberi jawapan dari kedua-dua kaedah ini menyasarkan pertubuhan yang tidak pernah terlibat dengan survei rutin DOSM.

13. UNIT PELAPOR

Unit pelapor bagi survei ini ialah pertubuhan. Sesebuah pertubuhan secara ideal ditakrifkan sebagai 'satu unit ekonomi yang bergiat di bawah satu hak milik atau penguasaan tunggal, iaitu di bawah satu entiti yang sah. Ia menjalankan satu jenis subsektor ekonomi utama di satu tempat/ lokasi fizikal'. Setiap pertubuhan diberikan klasifikasi industri berdasarkan aktiviti utamanya dan bukannya mengikut aktiviti syarikat induk.

Setiap cawangan daripada organisasi yang mempunyai beberapa cawangan di lokasi yang berbeza dari segi konsep dianggap sebagai pertubuhan yang berlainan. Pertubuhan berkenaan diminta memberikan penyata yang berasingan bagi setiap kegiatannya dari segi nilai. Walau bagaimanapun, dari segi praktis akaun biasanya disediakan secara berpusat kerana kesukaran untuk memperoleh data yang berasingan bagi setiap unit atau cawangan. Entiti atau 'enterprise' ini akan dianggap sebagai satu unit pelapor dan dibenarkan mengemukakan soal selidik yang menggabungkan semua unit atau cawangannya.

14. REKA BENTUK PENSAMPELAN

Reka bentuk pensampelan bagi survei ini adalah pensampelan rawak strata satu peringkat. Kategori industri 2D di peringkat nasional telah diklasifikasikan sebagai strata manakala pertubuhan sebagai unit pensampelan.

Setiap strata (industri) telah dibentuk kepada empat substrata untuk memastikan sampel yang diagihkan mengambil kira ciri-ciri ekonomi industri tersebut. Substrata utama bersifat heterogen diliputi secara liputan penuh. Manakala, substrata selainnya bersifat homogen disampelkan.

Substrata utama meliputi pertubuhan kategori besar yang mempunyai jumlah hasil yang signifikan dalam industri liputan manakala bagi substrata kedua hingga keempat berdasarkan kategori perusahaan mikro, kecil dan sederhana (PMKS).

15. SAIZ SAMPEL

Statistik utama yang digunakan untuk penganggaran saiz sampel adalah jumlah hasil. Formula yang digunakan dalam penganggaran saiz sampel bagi strata adalah seperti berikut:

$$n = \frac{(\sum N_i S_i)^2}{V + \sum N_i S_i^2}$$

di mana;

n = Saiz sampel

N_i = Saiz populasi bagi strata i

S_i = Varian bagi strata i

V = Varian sasaran

$$V = RSE^2 \cdot \left(\frac{\hat{Y}_i}{Z} \right)^2$$

di mana;

$\hat{Y}_i$ = Jumlah hasil bagi strata i

Z = Ralat piawai relatif

RSE = Nilai aras keyakinan

Sampel akan diagihkan kepada substrata dalam industri liputan dengan menggunakan kaedah *Neyman Allocation* seperti berikut:

$$n_{hi} = \left(\frac{N_h S_h}{\sum N_h S_h} \right) n'_i$$

$$h = 2, 3, \text{ dan } 4, \quad i = 1, 2, \dots k$$

di mana;

n_{hi} = Saiz sampel bagi substrata h dalam strata i

N_h = Saiz populasi bagi substrata h

S_h = Sisihan piawai bagi substrata h

n_i = Saiz sampel bagi strata i

h = Substrata

i = Strata

Saiz sampel bagi survei ini adalah 15,000 pertubuhan. Pertubuhan kategori besar diliputi sepenuhnya, manakala pertubuhan bagi substrata kedua hingga keempat dipilih secara rawak mengikut kaedah pensampelan bersistematik.

16. WAJARAN

Analisis berwajaran disediakan menggunakan wajaran bagi memastikan sampel yang dipilih dapat menggambarkan populasi survei. Wajaran yang diperlukan adalah wajaran di peringkat reka bentuk pensampelan dan wajaran tiada respons.

Wajaran reka bentuk pensampelan pada substrata h adalah seperti berikut :

$$W_h = \frac{N_h}{n_h} \quad h = 1, \dots, 4$$

di mana;

N_h = Bilangan populasi bagi substrata h ; dan

n_h = Bilangan sampel bagi substrata h

Wajaran tiada respons pada substrata h adalah seperti berikut:

$$NRH_h = \frac{1}{n'_h/n_h} \quad , h = 1, \dots, 4$$

di mana;

n'_h = Bilangan sampel respons bagi substrata h

n_h = Bilangan sampel bagi substrata h

Kaedah pengiraan wajaran reka bentuk pensampelan selepas survei (*adjusted weight*) pada substrata h seperti berikut:

$$W'_h = W_h \times NRW_h \quad , h = 1, \dots, 4$$

di mana;

W_h = Wajaran reka bentuk pensampelan pada substrata h

NRW_h = Wajaran tiada respons pada substrata h

17. PENERBITAN DAN SEMAKAN DATA

Penerbitan ini memberikan semakan anggaran pendapatan e-dagang bagi tahun 2023 hingga Suku Tahun Pertama 2025. Semakan adalah berdasarkan data terkini survei tahunan dan akaun syarikat bagi tahun 2023. Bagi tahun terkini 2022 hingga Suku Tahun Pertama 2025 anggaran adalah berdasarkan kepada sumber data suku tahunan.

18. PEMBUNDARAN

Jumlah bagi komponen mungkin berbeza dengan jumlah besar dalam jadual penerbitan disebabkan oleh pembundaran angka.

19. SIMBOL DAN SINGKATAN

-	:	Tiada
&	:	dan
%	:	peratus
b	:	bilion
cth	:	contoh
dll.	:	dan lain-lain
RM	:	Ringgit Malaysia
ISIC	:	<i>International Standard Industrial Classification</i>
MSIC	:	Piawaian Klasifikasi Industri Malaysia
t.t.t.l.	:	tidak terkelas di tempat lain
Ver.	:	Versi
W.P.	:	Wilayah Persekutuan
ST	:	Suku Tahun
QoQ	:	Perubahan peratus suku tahun ke suku tahun
YoY	:	Perubahan peratus tahun ke tahun

E) SURVEI PENGGUNAAN DAN CAPAIAN ICT OLEH INDIVIDU DAN ISI RUMAH (ICTHS)

1. PENDAHULUAN

Statistik yang diterbitkan dalam laporan ini adalah hasil dapatan Survei Penggunaan dan Capaian ICT oleh Individu dan Isi Rumah (ICTHS) 2024. Ianya menyediakan data di peringkat nasional, negeri dan daerah pentadbiran. Garis panduan, konsep dan definisi yang digunakan dalam penerbitan ini adalah berdasarkan daripada *Manual for Measuring ICT Access and Use by Households and Individuals, 2020 Edition* yang diterbitkan oleh *International Telecommunication Union* (ITU).

ICTHS telah dijalankan bermula tahun rujukan 2013, diikuti pada 2015 dan 2017. Bermula tahun 2018, survei ini dijalankan secara tahunan. Nota teknikal ini membantu pengguna untuk memahami dengan lebih jelas berkaitan data yang diterbitkan.

2. OBJEKTIF

Objektif utama adalah seperti berikut:

- i. Mengumpul maklumat yang lengkap dan terkini berkenaan penggunaan dan capaian ICT oleh individu dan isi rumah (IR);
- ii. Menjadi input dalam penyusunan Akaun Satelit ICT (ASTMK);
- iii. Input kepada *ICT Development Index* (IDI) dan *Telecommunication Infrastructure Index* (TII); dan
- iv. Petunjuk ICT yang diperolehi dapat membantu kerajaan dalam pembangunan ICT negara dan penjana Ekonomi Digital.

3. KAEDAH PENGUMPULAN DATA

- 3.1 Survei ini menggunakan kaedah temu ramah bersemuka dengan menggunakan borang soal selidik bagi mendapatkan maklumat daripada responden. Dalam tempoh survei, penemuramah yang dilatih akan melawat isi rumah (IR) di tempat kediaman (TK) terpilih bagi mengumpul maklumat berkaitan demografi ahli isi rumah dan maklumat terperinci berkaitan penggunaan dan capaian peralatan dan perkhidmatan ICT.

3. KAEDAH PENGUMPULAN DATA

- 3.1 Survei ini menggunakan kaedah temu ramah bersemuka dengan menggunakan borang soal selidik bagi mendapatkan maklumat daripada responden. Dalam tempoh survei, penemuramah yang dilatih akan melawat isi rumah (IR) di tempat kediaman (TK) terpilih bagi mengumpul maklumat berkaitan demografi ahli isi rumah dan maklumat terperinci berkaitan penggunaan dan capaian peralatan dan perkhidmatan ICT.
- 3.2 Semakan kualiti data dibuat oleh pegawai berpengalaman dari DOSM Negeri bagi mengesan dan membetulkan sebarang kesilapan atau maklumat yang tertinggal ketika survei dilaksanakan. Proses semakan semula juga dilaksanakan bagi IR terpilih untuk memastikan kualiti pungutan data.

4. TEMPOH RUJUKAN

ICTHS 2024 dilaksanakan selama dua bulan iaitu pada November hingga Disember 2024. Tempoh rujukan bagi penggunaan ICT oleh individu adalah merujuk kepada tiga bulan yang lalu sebelum temuramah. Contoh, sekiranya bulan survei adalah November 2024, maka tempoh rujukan yang diukur adalah mulai 1 Ogos 2024 sehingga 31 Oktober 2024.

5. SKOP DAN LIPUTAN

- 5.1 Pemilihan sampel bagi survei ini telah mengambil kira kedua-dua kawasan bandar dan luar bandar dalam daerah pentadbiran bagi semua negeri di Malaysia.
- 5.2 Liputan survei meliputi IR yang tinggal di TK persendirian dan tidak termasuk mereka yang tinggal di TK institusi seperti asrama, hotel, hospital, rumah orang tua, berek tentera dan polis, penjara dan rumah kebajikan.
- 5.3 Survei ini meliputi ahli isi rumah yang berumur lima tahun dan ke atas. Walau bagaimanapun, bagi membolehkan perbandingan dibuat dengan survei terdahulu, analisis bagi penggunaan ICT hanya melibatkan individu berusia 15 tahun dan ke atas sahaja.
- 5.4 Survei ini meliputi warganegara dan bukan warganegara yang menetap di tempat kediaman persendirian di Malaysia semasa tempoh survei dijalankan.

6. RANGKA PENSAMPELAN

- 6.1 Rangka yang digunakan bagi pemilihan sampel ICTHS 2024 adalah berdasarkan Rangka Pensampelan Isi Rumah yang terdiri daripada blok penghitungan (BP) yang diwujudkan untuk Banci Penduduk dan Perumahan 2020 yang dikemaskini dari semasa ke semasa. BP merupakan suatu kawasan muka bumi yang diwujudkan untuk tujuan pelaksanaan operasi survei yang secara puratanya mengandungi antara 80 hingga 120 TK. Semua BP dibentuk dalam lingkungan sempadan yang diwartakan iaitu di dalam daerah pentadbiran, mukim atau kawasan pihak berkuasa tempatan.
- 6.2 BP dalam rangka pensampelan dikelaskan mengikut kawasan bandar dan luar bandar. Kawasan bandar ialah kawasan yang diwartakan serta kawasan tepu bina yang bersempadan dengannya dan gabungan kedua-dua kawasan ini mempunyai jumlah penduduk seramai 10,000 atau lebih semasa Banci Penduduk dan Perumahan 2020. Kawasan selainnya yang diwartakan dan mempunyai jumlah penduduk kurang daripada 10,000 orang serta kawasan yang tidak diwartakan dikelaskan sebagai kawasan luar bandar.
- 6.3 Kawasan tepu bina adalah kawasan yang terletak bersebelahan kawasan yang diwartakan dan mempunyai sekurang-kurangnya 60 peratus penduduk (berumur 15 tahun dan ke atas) yang terlibat di dalam aktiviti bukan pertanian
- 6.4 Definisi kawasan bandar juga mengambil kira kawasan pembangunan khusus iaitu kawasan pembangunan yang tidak diwartakan dan boleh dikenalpasti serta terpisah dari kawasan yang diwartakan atau kawasan tepu bina melebihi lima kilometer dan mempunyai penduduk sekurang-kurangnya 10,000 orang dengan 60 peratus penduduk (berumur 15 tahun dan ke atas) yang terlibat dalam aktiviti bukan pertanian.
- 6.5 Pembandaran merupakan proses yang dinamik dan sentiasa berubah mengikut kemajuan dan pembangunan. Oleh itu, kawasan bandar bagi Banci Penduduk dan Perumahan 2010 dan 2020 tidak semestinya merujuk kepada kawasan yang sama kerana kawasan yang memenuhi kriteria bandar akan terus bertambah dan berkembang mengikut masa.

6.6 Klasifikasi kawasan mengikut strata yang digunakan adalah seperti berikut:

Strata	Jumlah penduduk dalam kawasan yang diwartakan, tepu bina dan kawasan pembangunan khusus
Metropolitan	75,000 dan ke atas
Bandar besar	10,000 hingga 74,999
Bandar kecil	1,000 hingga 9,999
Luar bandar	Kawasan selebihnya

6.7 Bagi tujuan pensampelan, klasifikasi kawasan seperti di perkara 6.6 adalah digunakan untuk semua negeri serta Wilayah Persekutuan. Bagi Sabah dan Sarawak, memandangkan masalah kesukaran untuk akses ke kawasan pedalaman, strata luar bandar dikembangkan lagi berdasarkan kepada jangka waktu yang diambil untuk sampai ke sesuatu tempat dari pusat bandar yang terdekat.

6.8 Bagi tujuan penjadualan laporan, strata-strata dicantumkan seperti berikut:

$$\begin{aligned} \text{Bandar} &= \text{Metropolitan} + \text{Bandar besar} \\ \text{Luar bandar} &= \text{Bandar kecil} + \text{Keseluruhan luar bandar} \end{aligned}$$

7. REKA BENTUK PENSAMPELAN

7.1 Reka bentuk pensampelan berstrata dua peringkat (*two-stage stratified sampling*) telah digunakan dalam ICTHS 2024. Unit pensampelan peringkat pertama adalah BP, dipilih secara rawak menggunakan kaedah *Systematic Random Sampling*.

7.2 BP dipilih secara berasingan mengikut strata seperti berikut:

Strata pertama	Negeri
Strata kedua	Daerah pentadbiran mengikut negeri
Strata ketiga	Bandar/ luar bandar mengikut daerah pentadbiran

7.3 Seterusnya unit pensampelan peringkat kedua adalah TK dan sampel TK dipilih dari BP yang terpilih menggunakan kaedah *Systematic Random Sampling* melalui penjana nombor rawak dan menetapkan selang pemilihan supaya setiap TK mempunyai kebarangkalian yang sama untuk terpilih. Prosedur ini dilaksanakan secara teratur dan saintifik untuk menghasilkan sampel yang tidak pincang (*unbiased*) dan boleh mewakili keseluruhan populasi IR di Malaysia.

8. SAIZ SAMPEL

8.1 Saiz sampel ICTHS 2024 mewakili populasi mengikut peringkat analisis yang ditetapkan. Saiz sampel ini telah mengambil kira faktor-faktor berikut:

- i. Statistik terpilih daripada survei yang lepas;
- ii. Peringkat reka bentuk pensampelan;
- iii. Ralat yang disasarkan; dan
- iv. Kadar respon.

8.2 Agihan saiz sampel ICTHS 2024 adalah seperti berikut:

Negeri	Bilangan BP terpilih	Bilangan TK terpilih
Johor	258	2,064
Kedah	316	2,528
Kelantan	282	2,256
Melaka	131	1,048
Negeri Sembilan	204	1,632
Pahang	271	2,168
Pulau Pinang	172	1,376
Perak	307	2,456
Perlis	73	584
Selangor	263	2,104
Terengganu	238	1,904
Sabah	437	3,392
Sarawak	442	3,536
W.P. Kuala Lumpur	60	480
W.P. Labuan	29	232
W.P. Putrajaya	25	200
MALAYSIA	3,508	27,960

9. PENILAIAN DATA

9.1 Data yang diperoleh daripada survei yang dijalankan secara sampel berkebarangkalian ini tertakluk kepada dua jenis ralat iaitu ralat pensampelan dan ralat bukan pensampelan.

i. Ralat pensampelan

Ralat pensampelan berpunca daripada anggaran data yang terhasil daripada sampel berkebarangkalian. Ralat ini boleh diukur dengan menganggarkan Ralat Piawai Relatif dan dinyatakan dalam bentuk peratusan. Ia digunakan sebagai penunjuk kepada kepersisan anggaran parameter yang dikaji. Ini memberi gambaran tahap variasi anggaran pembolehubah yang dianggarkan melalui survei berbanding dengan parameter populasi.

Sebagai contoh, penemuan ICTHS 2024 mendapati peratusan capaian isi rumah terhadap Internet bagi Malaysia adalah 96.8 peratus dengan Ralat Piawai Relatif 0.1 peratus. Dalam erti kata lain, peratus Ralat Piawai adalah 0.1 peratus. Berasaskan 95 peratus selang keyakinan ($\alpha=0.05$), peratusan capaian isi rumah terhadap Internet berada dalam batasan antara 96.6%-97.0%.

ii. Ralat bukan pensampelan

Ralat ini boleh berpunca daripada liputan survei yang tidak lengkap, kelemahan rangka, ralat maklum balas, tiada respons dan kesilapan semasa prosesan seperti di peringkat penyuntingan, pengekodan dan tangkapan data. Bagi memastikan kualiti data berada pada tahap yang tinggi, beberapa langkah pentadbiran telah diambil supaya ralat bukan pensampelan berada di tahap minimum. Antaranya, latihan intensif kepada penyelia dan penemuramah. Selain daripada itu, penyeliaan yang rapi dan semakan rambang dijalankan ke atas isi rumah yang telah diliputi oleh penemuramah untuk memastikan kesahihan maklumat yang direkodkan.

Bagi mengatasi kes tiada respon yang berpunca daripada beberapa sebab seperti TK kosong, tiada penghuni di rumah, enggan bekerjasama atau TK tidak layak diliputi dalam survei, maka penganggaran saiz sampel ICTHS 2024 telah mengambil kira semua kemungkinan tersebut.

Pengemaskinian rangka pensampelan yang dilaksanakan dari semasa ke semasa telah dapat mengurangkan kadar tiada respons yang berpunca daripada TK kosong. Publisiti yang meluas dilaksanakan melalui media elektronik serta media cetak bagi mengurangkan kes tiada penghuni di rumah dan enggan bekerjasama.

Selain daripada itu, di peringkat prosesan data, semakin konsistensi bagi setiap pembolehubah dan proses validasi telah dilaksanakan secara sistematik bagi meminimumkan kesemua ralat bukan pensampelan.

10. LIMITASI SURVEI

Terdapat beberapa limitasi dan juga cabaran yang dihadapi dalam pelaksanaan survei ini. Antaranya:

- i. Survei ini dijalankan ke atas isi rumah dan individu yang terpilih di seluruh Malaysia. Namun, ia digunakan untuk menyokong dalam memberi gambaran tentang capaian dan penggunaan ICT.
- ii. Selain itu, liputan survei ini hanya merangkumi pada peringkat negeri bagi strata 1 dan 2 untuk bandar dan strata 3 hingga 6 bagi luar bandar.
- iii. Analisis terperinci data penggunaan dan capaian ICT oleh individu dan isi rumah bagi peringkat daerah pentadbiran adalah berdasarkan kebolehpercayaan nilai relatif sehingga tidak melebihi selang toleransi 20 peratus.
- iv. Oleh yang demikian, penemuan survei ini perlu digunakan secara berhati-hati dan DOSM tidak bertanggungjawab ke atas sebarang implikasi daripada penggunaan statistik ini.

11. KONSEP DAN DEFINISI

11.1 TEMPAT KEDIAMAN

Tempat kediaman adalah suatu struktur yang dibina **berasingan** dan **bebas** yang lazimnya digunakan untuk tempat tinggal. Istilah berasingan dan bebas bermaksud seperti berikut:

- i. **Berasingan:** Struktur dianggap sebagai berasingan jika ia dikelilingi oleh dinding, pagar dan lain-lain serta ditutupi oleh bumbung.
- ii **Bebas:** Struktur dikatakan bebas apabila ia mempunyai jalan masuk terus dari
• laluan umum, tempat lalu lintas atau ruang lapang (iaitu penghuni boleh masuk atau keluar dari TK mereka tanpa melalui perkarangan orang lain).

11.2 ISI RUMAH

Isi rumah ditakrifkan sebagai seseorang atau sekumpulan orang yang bersaudara atau tidak bersaudara yang biasanya tinggal bersama dalam satu TK serta membuat peruntukan (perbelanjaan) secara bersama untuk makanan dan keperluan hidup yang lain.

11.3 KETUA ISI RUMAH

Ketua IR ditakrifkan sebagai seorang ahli biasa sama ada lelaki atau perempuan yang dianggap sebagai ketua oleh ahli IR yang lain. Ketua IR mesti seorang penerima pendapatan dan berumur 15 tahun dan ke atas.

11.4 CAPAIAN DAN PENGGUNAAN ICT

11.4.1 Capaian ICT oleh isi rumah: Sesebuah isi rumah dianggap mempunyai capaian kepada perkhidmatan dan peralatan ICT sekiranya ia masih boleh digunakan ketika temu ramah dijalankan.

11.4.2 Penggunaan ICT oleh individu:

- Penggunaan peralatan dan perkhidmatan ICT oleh seorang atau beberapa individu atau beberapa individu di dalam sesebuah isi rumah, sama ada digunakan di TK atau di tempat lain;
- Individu di sesebuah isi rumah yang berusia 15 tahun dan ke atas; dan
- Penggunaan peralatan telefon bimbit, komputer dan perkhidmatan Internet bagi tempoh tiga bulan yang lalu.

11.4.3 Indikator Utama ICT

i. Radio

Radio didefinisikan sebagai peranti yang mampu menerima isyarat penyiaran radio, menggunakan frekuensi biasa seperti FM, AM, LW dan SW. Radio boleh menjadi peranti yang berdiri sendiri, atau termasuk radio set bersepadu dengan alat yang lain seperti jam penggera, pemain audio, telefon bimbit atau komputer. Ia juga termasuk radio dalam kereta.

$$\frac{(\text{bilangan IR terpilih yang memiliki radio})}{(\text{jumlah IR terpilih})} \times 100$$

ii. Televisyen

Televisyen (TV) adalah alat yang mampu menerima isyarat siaran televisyen, menggunakan makses popular seperti *over-the-air*, kabel dan satelit. Satu set televisyen lazimnya merupakan peranti yang berdiri sendiri, namun ia boleh juga termasuk fungsi TV yang bersepadu dengan peranti lain seperti komputer atau telefon bimbit.

$$\frac{(\text{bilangan IR terpilih yang memiliki televisyen})}{(\text{jumlah IR terpilih})} \times 100$$

iii. Telefon talian tetap

Telefon talian tetap merujuk kepada talian telefon yang menyambungkan peralatan terminal pelanggan (contohnya set telefon, mesin faksimili) kepada Rangkaian Telefon Bersuis Awam (PSTN) dan yang mempunyai sebuah port pada pertukaran telefon. Istilah ini adalah sinonim dengan stesen istilah utama atau Pertukaran Talian Terus (DEL) yang biasanya digunakan dalam dokumen telekomunikasi. Ia mungkin tidak sama seperti akses dalam talian atau langganan.

$$\frac{(\text{bilangan IR terpilih yang memiliki telefon talian tetap})}{(\text{jumlah IR terpilih})} \times 100$$

iv. Telefon bimbit

Telefon bimbit merujuk kepada telefon mudah alih yang melanggan kepada satu perkhidmatan telefon mudah alih awam menggunakan teknologi selular yang menyediakan akses bagi PSTN. Ini termasuk sistem selular analog dan digital, serta teknologi seperti IMT-2000 (3G) dan *IMT-Advanced*. Ia adalah termasuk akaun bagi kedua-dua pelanggan pascabayar dan prabayar.

$$\frac{(\text{bilangan IR terpilih yang memiliki telefon bimbit})}{(\text{jumlah IR terpilih})} \times 100$$

v. Komputer

Komputer merujuk kepada *desktop*, komputer riba atau papan elektronik mudah alih. Ia tidak termasuk peralatan dengan beberapa *embedded computing ability* seperti telefon bimbit, *Personal Digital Assistant* (PDA) atau set TV.

$$\frac{(\text{bilangan IR terpilih yang memiliki komputer})}{(\text{jumlah IR terpilih})} \times 100$$

vi. Internet

Internet adalah rangkaian komputer awam di seluruh dunia. Ia menyediakan akses kepada beberapa perkhidmatan komunikasi termasuk *World Wide Web* dan membawa emel, berita, hiburan dan fail data, tanpa mengira peranti yang digunakan (tidak dianggap hanya melalui komputer, ia juga boleh dibuat melalui telefon bimbit, PDA, mesin permainan, TV digital dan sebagainya) Mengakses Internet juga boleh dibuat melalui rangkaian talian tetap atau telefon bimbit.

$$\frac{(\text{bilangan IR terpilih yang memiliki Internet})}{(\text{jumlah IR terpilih})} \times 100$$

vii. Aktiviti Penggunaan Internet

Aktiviti penggunaan Internet dikategorikan seperti berikut:

a) Mendapatkan maklumat

- Mendapatkan maklumat tentang barangan atau perkhidmatan
- Membaca atau memuat turun akhbar atau majalah *online*, buku elektronik

b) Komunikasi

- Menyertai dalam rangkaian sosial (Cth: *Facebook*, *WhatsApp*, *Instagram*, *X* dll)
- Menghantar atau menerima emel
- Membuat panggilan telefon melalui Internet / *VoIP*
- Memuat naik kandungan yang dicipta sendiri ke laman web
- Menguruskan laman web persendirian
- *Blogging*: Menyelenggara atau menambah kandungan ke dalam blog
- Mengakses laman perbualan, blog, kelompok berita atau perbincangan atas talian

c) Profesional

- Mencari pekerjaan atau menghantar permohonan kerja
- Mengambil bahagian dalam rangkaian professional (Cth: *LinkedIn* dan *Xing*)
- Mengakses sistem pengkomputeran pejabat untuk tujuan membuat kerja pejabat dari rumah

d) Sivik dan Politik

- Mengemukakan pendapat atau mengundi berkenaan isu-isu politik atau sivik (Cth: blog, media sosial, laman web)

e) Lain-lain Perkhidmatan Atas Talian

- Melaksanakan tugas yang boleh menjana pendapatan secara atas talian
- Menggunakan perkhidmatan berkaitan perjalanan atau penginapan perjalanan
- Menjual barangan atau perkhidmatan (melalui *mudah.my*, *Facebook*, *WhatsApp* dsb.)
- Membeli atau membuat pesanan barangan atau perkhidmatan selain e-Dagang (melalui *mudah.my*, *Facebook*, *WhatsApp* dsb.)
- Perbankan Internet
- Menggunakan perisian melalui Internet untuk menyunting teks pada dokumen, lembaran kerja atau persembahan
- Memuat turun perisian atau aplikasi

f) Ruang Penyimpanan

- Menggunakan ruang simpanan di Internet untuk menyimpan dokumen, gambar, muzik, video atau fail lain (Cth: *Google Drive*, *Dropbox*, *Window SkyDrive*, *iCloud*, *Amazon Cloud Drive*)

g) Aktiviti Pembelajaran

- Menjalani kursus formal atas talian
- Merujuk kepada wiki (*Wikipedia* dsb.), ensiklopedia atas talian atau laman web lain untuk tujuan pembelajaran formal
- Menjalani kursus/ latihan tidak formal atas talian

h) e-Kesihatan

- Mendapatkan maklumat berkaitan kesihatan atau perkhidmatan kesihatan (Cth: berkaitan penyakit, kecederaan, nutrisi dll.)
- Membuat temu janji dengan pengamal perubatan melalui laman web

i) e-Kerajaan

- Mendapatkan maklumat daripada organisasi kerajaan
- Berinteraksi dengan organisasi kerajaan

j) Hiburan

- Mendengar radio secara atas talian
- Menonton televisyen secara atas talian
- Memuat turun gambar, filem, video atau muzik; bermain atau memuat turun permainan

k) E-Dagang

- Membeli atau membuat pesanan barangan atau perkhidmatan (E-Dagang)
- Menjual barangan atau perkhidmatan melalui E-Dagang

l) Keselamatan, Perlindungan *Online* dan Kesedaran

- Mempunyai peralatan keselamatan & mengambil langkah perlindungan dalam talian yang mencukupi
- Mengesahkan kebolehpercayaan maklumat yang terdapat di dalam talian
- Menetapkan langkah-langkah keselamatan yang berkesan (Cth: kata laluan yang kuat, pemberitahuan percubaan log masuk) untuk melindungi peranti dan akaun dalam talian
- Mengubah tetapan privasi pada peranti, akaun atau aplikasi anda untuk membatasi perkongsian data dan maklumat peribadi. (Cth: nama, maklumat perhubungan, foto)
- Sebagai pengguna Internet adakah anda sedar tentang jenayah siber berikut? (Cth: spam, penggodaman, penipuan dalam talian, komplot penipuan, mengintai/ menghendap siber, pancingan data, buli siber, pemalsuan identiti, berita palsu dan penyebaran virus komputer)

11.4.4 Statistik Terpilih Malaysia daripada Suruhanjaya Komunikasi dan Multimedia Malaysia (SKMM)

i. Jalur lebar

Kadar penembusan jalur lebar bagi 100 penduduk dikira dengan membahagi jumlah langganan jalur lebar tetap dan jalur lebar mudah alih dengan jumlah penduduk dan didarab dengan 100. Langganan Wi-Fi awam tidak diambil kira.

ii. Selular mudah alih

Kadar penembusan selular mudah alih dikira sebagai jumlah langganan dibahagi jumlah penduduk dan didarabkan dengan 100. Penembusan yang melebihi 100 peratus boleh berpunca daripada pelanggan yang melanggan melebihi daripada satu langganan.

iii. Talian tetap

Kadar penembusan talian tetap dikira sebagai jumlah langganan dibahagi dengan jumlah penduduk dan didarabkan dengan 100

iv. TV berbayar

Kadar penembusan TV berbayar bagi 100 isi rumah dikira dengan membahagi jumlah langganan isi rumah dengan jumlah isi rumah dan didarab dengan 100.

11.5 PEMBUNDARAN ANGGARAN

Pengiraan bagi sesuatu kategori mungkin tidak sentiasa sama antara jadual disebabkan oleh pembundaran secara bebas. Walau bagaimanapun, perbezaan ini adalah tidak ketara.

Peratusan yang ditunjukkan dalam jadual adalah diperolehi daripada angka sebenar dan tidak semestinya memberikan jumlah genap 100 peratus disebabkan pembundaran, walaupun jumlah yang ditunjukkan adalah 100 peratus.

11.5 NOTA DAN SIMBOL

W.P.	Wilayah Persekutuan
n.a.	Tidak berkenaan
ICT	Teknologi Maklumat dan Komunikasi
-	Tidak tersedia
0.0	Kurang daripada sesetengah unit terkecil yang ditunjukkan. Misalnya, kurang daripada 0.05 peratus

A) CONCEPT AND DEFINITION OF DIGITAL ECONOMY

The Malaysia Digital Economy 2025 publication presents a comprehensive overview of the nation's digital economy, compiling data from the Survey Usage of ICT & E-Commerce by Establishment (ICTEC) 2024, Quarterly Services Statistics: Information and Communication 2024, ICT Use and Access by Individuals and Households Survey Report (ICTHS) 2024, Information and Communication Technology Satellite Account (ICTSA) 2024, Quarterly Services Statistics (QSS), and digital economy indicators by the Department of Statistics Malaysia (DOSM) and relevant agencies. The publication integrates both monetary and non-monetary indicators to highlight how businesses, households, and individuals are embracing the digital age. The publication plays a crucial role in supporting the formulation of informed policies and strategies for the advancement of ICT and e-commerce in Malaysia.

1. CONCEPT OF DIGITAL ECONOMY

The digital economy has advanced as a result of ICT advancements, cloud computing, artificial intelligence, and other breakthroughs. In this economy, both individuals and businesses are increasingly dependent on digital mechanisms of exchange for economic and social purposes.

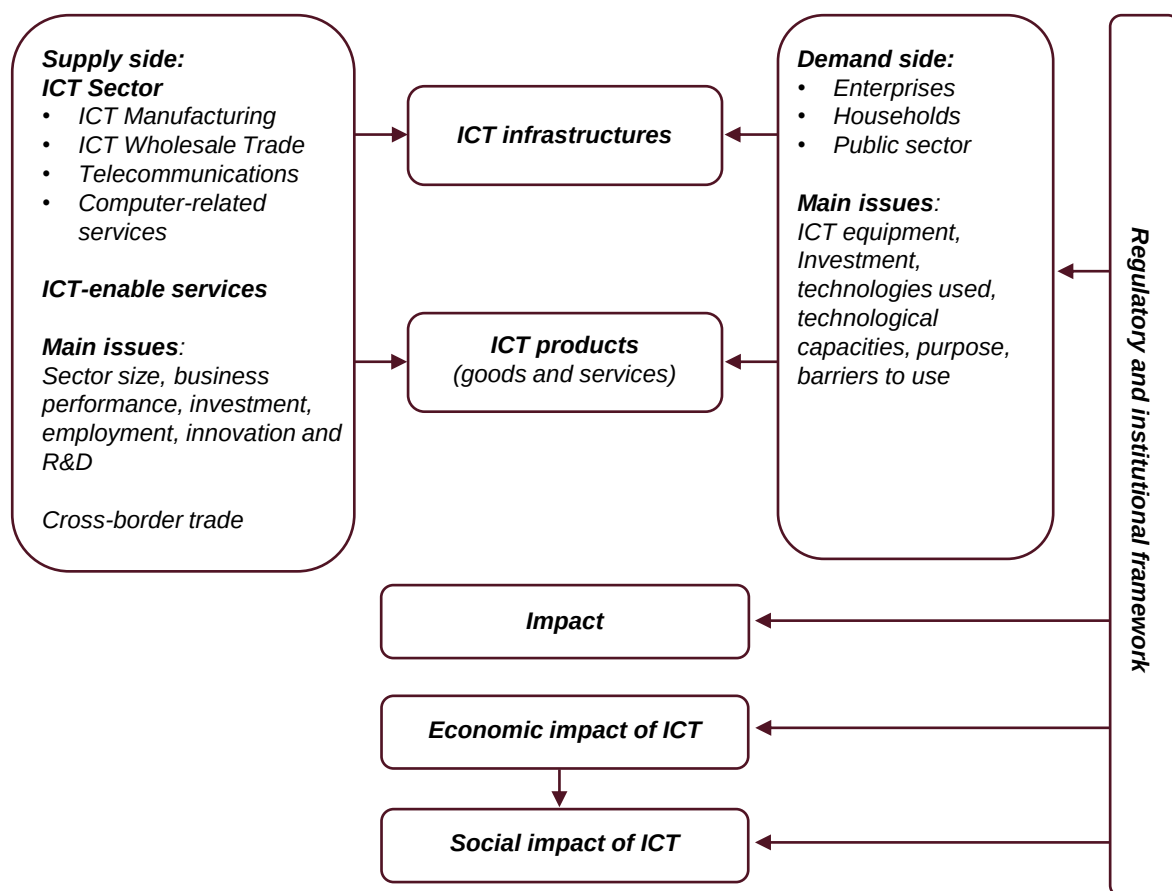
The term 'digital economy' has become widely used to describe how digital technology is altering production (supply) and consumption (demand) patterns. The different technologies and economic aspects of the digital economy can be broken down into three broad components (UNCTAD, 2019):

- i. Core aspects or foundational aspects of the digital economy, which comprise fundamental innovations (semiconductors, processors), core technologies (computers, telecommunication devices) and enabling infrastructures (Internet and telecoms networks).*
- ii. Digital and information technology (IT) sectors, which produce key products or services that rely on core digital technologies, including digital platforms, mobile applications and payment services. The digital economy is to a high degree affected by innovative services in these sectors, which are making a growing contribution to economies, as well as enabling potential spillover effects to other sectors.*

- iii. A wider set of digitalising sectors, which includes those where digital products and services are being increasingly used (e.g., for e-commerce). Even if change is incremental, many sectors of the economy are being digitalised in this way. This includes digitally enabled sectors in which new activities or business models have emerged and are being transformed as a result of digital technologies. Examples include finance, media, tourism and transportation. Moreover, although less often highlighted, digitally literate or skilled workers, consumers, buyers and users are crucial for the growth of the digitalised economy.

At present, specific elements of the digital economy can be quantified according to the components or 'building blocks' of supply and demand as shown in **Figure A.1**.

Figure A.1 Building Blocks of The Digital Economy



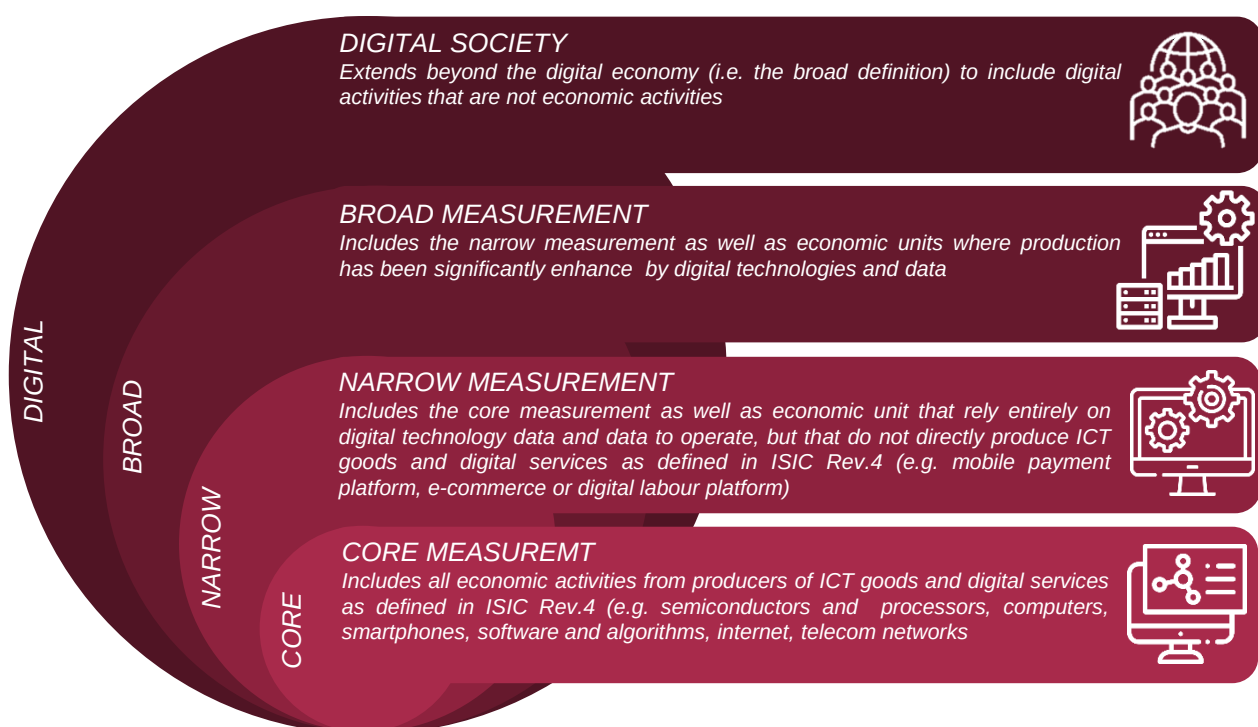
Note
Source: OECD (2005)

In terms of sector, there is not yet a broadly recognised definition of the digital economy, however the G20 Roadmap offers a first effort to a definition by distinguishing between three levels of measurement. In its broadest sense, the digital economy currently encompasses every economic sector; it has been described as;

“All economic activity reliant on, or significantly enhanced by the use of digital inputs, including digital technologies, digital infrastructure, digital services and data. It refers to all producers and consumers, including government, that are utilising these digital inputs in their economic activities” (OECD, 2020).

The OECD definition of the digital economy provided above is translated in a measurement perspective built around four layers, moving from the centre towards broader definitions in its outer layers.

Figure A.2 Different Layers of Digital Economy



Note:

Source: OECD, 2020, A G20 Roadmap toward a Common Framework for Measuring the Digital Economy: A Report for the G20 Digital Economy Task Force (DETF), OECD Publishing, Paris.

Recent analysis in the Digital Economy Report 2024 by UNCTAD underscores the critical intersection of digitalisation and sustainability. UNCTAD emphasises the need to address the environmental impacts of digital technologies across their life cycle, from resource extraction to energy consumption and waste management. Simultaneously, digital innovations are widely acknowledged as tools to enhance efficiency, reduce emissions, and support environmental preservation efforts. The digital economy serves as a vital driver for equitable and sustainable development, potentially bridging digital divides and fostering environmentally conscious growth when guided by coordinated global efforts.

In Malaysia, the concept of the digital economy is defined as the economic and social activities that involve the production and utilisation of digital technology by individuals, businesses, and government (MyDIGITAL, 2021). This encompasses a wide range of activities facilitated by digital tools and platforms, from e-commerce to digital public services. The goal of Malaysia's digital transformation, as outlined in the MyDIGITAL initiative, is to leverage this digital economy to foster economic growth, improve productivity, and create more high-paying jobs while ensuring inclusive and sustainable development across all sectors of society.

B) INFORMATION AND COMMUNICATION TECHNOLOGY SATELLITE ACCOUNT (ICTSA)

1. INTRODUCTION

Information and Communication Technology Satellite Account (ICTSA) of Malaysia 2024 is based on the System of National Accounts (SNA) 2008, the OECD Guide to Measuring the Information Society 2011 and the OECD Internet Economy Outlook 2012. The concepts and definitions are adapted to Malaysia's requirement.

2. ESTABLISHMENT OF ICTSA

The compilation of ICTSA is made possible due to the well established of System of National Accounts in Malaysia. The term 'satellite account' is adopted to reflect the nature of the account developed. It is a 'satellite' to the core set of National Accounts that presents additional information which is beyond the available information provided in the National Accounts.

This satellite information focuses on a particular aspect of the economy for example contribution of ICT to the nation. It also permits further linkages to additional information specific to ICT such as income, exports, imports and employment. ICT consists of industries such as manufacturing, trade, services and content & media.

The development of satellite account is a systematic statistical measurement that applies concepts, definitions and classification which are based on international standard to enable comparison among countries. Various information available in different agencies is compiled to provide holistic and better picture of the impact of ICT industry in Malaysia.

3. CONCEPTS AND DEFINITIONS

- a. Information and Communication Technology (ICT)** refers to the technologies and services that enable information to be accessed, stored, processed, transformed, manipulated and disseminated, including the transmission or communication of voice, image and/or data over a variety of transmission media.
- b. ICT industry** refers to the industries which produce ICT products as primary activities. Details of ICT industry are described in the Classification Section. The main categories of ICT industry in the compilation of ICTSA are as follows:

1. *ICT manufacturing*
2. *ICT trade*
3. *ICT services*
4. *Content and media*

c. Non ICT industries refers to the industries other than ICT industries that produce ICT products.

d. The details of **ICT products** are listed in the Classification Section. The main categories of ICT products are as follows:

1. *ICT goods*

- 1.1. *Computers and peripheral equipment*
- 1.2. *Communication equipment*
- 1.3. *Consumer electronic equipment*
- 1.4. *Miscellaneous ICT components and goods*

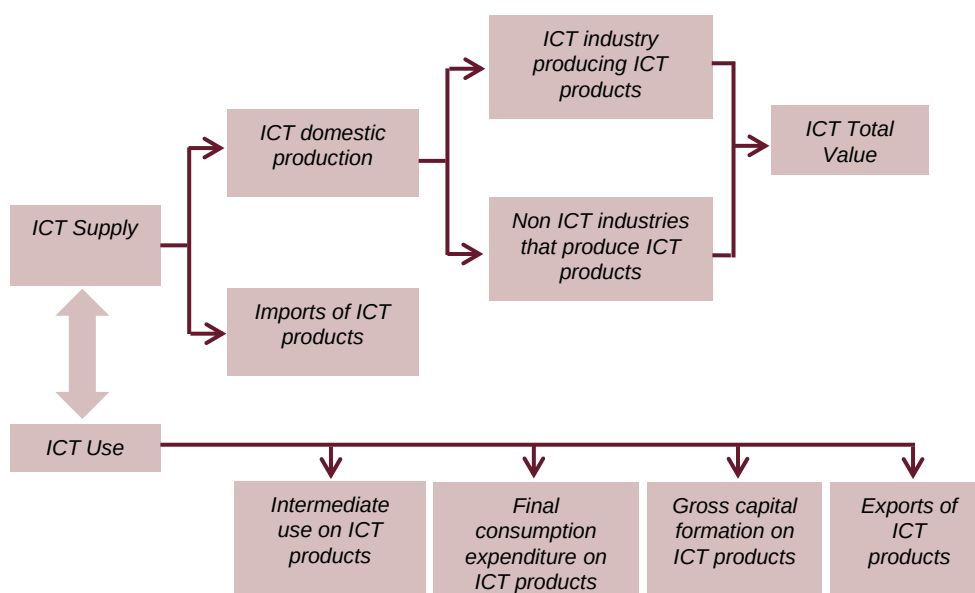
2. *ICT services*

- 2.1. *Manufacturing services for ICT equipment*
- 2.2. *Business and productivity software and licensing services*
- 2.3. *Information technology consultancy and services*
- 2.4. *Telecommunications services*
- 2.5. *Leasing or rental services for ICT equipment*
- 2.6. *Other ICT services*

3. *Content and media products*

- 3.1. *Printed and other text-based content on physical media, and related services*
- 3.2. *Motion picture, video, television and radio content, and related services*
- 3.3. *Music content and related services*
- 3.4. *Games software*
- 3.5. *On-line content and related services*
- 3.6. *Other content and related services*

e. **Schematic view of ICTSA**



- f. **E-commerce** transaction is the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders. E-commerce transaction can be between enterprises, households, individuals, governments and other public or private organisations.

Method of payment and the ultimate delivery of the e-commerce goods or services might be done through computer network/internet or traditionally.

E-commerce transactions include orders made in web pages, extranet or Electronic Data Interchange (EDI). Nevertheless, orders made by telephone calls, facsimile or manually typed e-mail are not categorised as an e-commerce transactions.

- g. **E-Commerce of non ICT industries** is an industries that is not categorised under the ICT industry classification.

- h. **ICT to economy** consists of ICT industry and e-commerce.

4. **CODE AND CLASSIFICTAION**

The code and classification of ICT industry is based on Malaysia Standard Industrial Classification (MSIC) 2008 Ver.1.0. which is in concordance with International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 4. The code and classification of ICT products is based on Malaysian Classification of Products by Activity (MCPA) 2009 which conforms with Central Products Classification (CPC) Ver. 2.

a. ICT industry

<i>Description</i>	<i>ISIC Rev. 4</i>	<i>MSIC 2008</i>
1. ICT manufacturing		
1.1 <i>Computers and peripheral equipment</i>		
1.1.1 <i>Manufacture of computers and peripheral equipment</i>	2620	26201, 26202
1.2 <i>Electronic components & boards, communication equipment and consumer electronics</i>		
1.2.1 <i>Manufacture of electronic components and boards</i>	2610	26101, 26102, 26103, 26104, 26105, 26109
1.2.2 <i>Manufacture of communication equipment</i>	2630	26300
1.2.3 <i>Manufacture of consumer electronics</i>	2640	26400
1.2.4 <i>Manufacture of magnetic and optical media</i>	2680	26800
2. ICT trade		
2.1 <i>Wholesale trade</i>		
2.1.1 <i>Wholesale of sports goods, games, leather, travelling goods and musical instruments</i>	4643	46432, 46434
2.1.2 <i>Wholesale of other household goods n.e.c.</i>	4649	46496
2.1.3 <i>Wholesale of computers, computer peripheral equipment and software</i>	4651	46510
2.1.4 <i>Wholesale of electronic and telecommunications equipment and parts</i>	4652	46521, 46522
2.1.5 <i>Wholesale of other machinery and equipment</i>	4659	46593
2.1.6 <i>Wholesale of waste and scrap and other products n.e.c.</i>	4669	46699
2.2 <i>Retail trade</i>		
2.2.1 <i>Retail sale of computers, peripheral units, software and telecommunications equipment in specialized stores</i>	4741	47411, 47412, 47413
2.2.2 <i>Retail sale of audio and video equipment in specialized stores</i>	4742	47420
2.2.3 <i>Retail sale of electrical household appliances, furniture, lighting equipment and other household articles in specialized stores</i>	4759	47597, 47598
2.2.4 <i>Retail sale of books, newspapers and stationary in specialized stores</i>	4761	47611
2.2.5 <i>Retail sale of music and video recordings in specialized stores</i>	4762	47620
2.2.6 <i>Retail sale of games and toys in specialized stores</i>	4764	47640
2.2.7 <i>Other retail sale of new goods in specialized stores</i>	4773	47731

<i>Description</i>	<i>ISIC Rev. 4</i>	<i>MSIC 2008</i>
2.2.8 Retail sale of second-hand goods	4774	47742
2.2.9 Retail sale via stall and market of other goods	4789	47892, 47893, 47894, 47895
2.2.10 Retail sale via mail order houses or via Internet	4791	47911, 47912, 47913, 47914
2.2.11 Other retail sale not in stores, stalls or markets	4799	47992
3. ICT services		
3.1 Telecommunications		
3.1.1 Wired telecommunications activities	6110	61101, 61102
3.1.2 Wireless telecommunications activities	6120	61201, 61202
3.1.3 Satellite telecommunications activities	6130	61300
3.1.4 Other telecommunications activities	6190	61901, 61902, 61903, 61904, 61905, 61909
3.2 Computer programming, consultancy, information and related activities		
3.2.1 Computer programming activities	6201	62010
3.2.2 Computer consultancy and computer facilities management activities	6202	62021, 62022
3.2.3 Other information technology and computer service activities	6209	62091, 62099
3.2.4 Data processing, hosting and related activities	6311	63111, 63112
3.2.5 Web portals	6312	63120
3.3 Other ICT services		
3.3.1 Repair of machinery	3312	33120
3.3.2 Repair of electronic and optical equipment	3313	33131, 33133
3.3.3 Repair of electrical equipment	3314	33140
3.3.4 Installation of industrial machinery and equipment	3320	33200
3.3.5 Electrical installation	4321	43212, 43213, 43214, 43216
3.3.6 Plumbing, heat and air-conditioning installation	4322	43223
3.3.7 Publishing of ready-made (non-customized) software	5820	58201, 58202, 58203
3.3.8 Research and experimental development on natural sciences and engineering	7210	72106
3.3.9 Other professional, scientific and technical activities n.e.c.	7490	74903

<i>Description</i>	<i>ISIC Rev. 4</i>	<i>MSIC 2008</i>
3.3.10 Security systems service activities	8020	80200
3.3.11 General public administration activities	8411	84111, 84112
3.3.12 Repair of computers and peripheral equipment	9511	95111, 95112, 95113
3.3.13 Repair of communication equipment	9512	95121, 95122, 95123, 95124, 95125, 95126, 95127
3.3.14 Repair of consumer electronics	9521	95211, 95212, 95213, 95214
3.3.15 Repair of household appliances and home and garden equipment	9522	95221

4. Content and media

4.1 Publishing of books, periodicals and other publishing activities	1811, 1812, 1820, 5811, 5812, 5813, 5819, 8219	18110, 18120, 18200, 58110, 58120, 58130, 58190, 82196, 82199
4.2 Motion picture, video and television programme activities	5911, 5912, 5913, 5914, 7410, 7420, 9000	59110, 59120, 59130, 59140, 74102, 74200, 90009
4.3 Other content and media		
4.3.1 Sound recording and music publishing activities	5920	59200
4.3.2 Programming and broadcasting activities	6010, 6020	60100, 60200
4.3.3 Other information service activities	6391, 6399, 8220, 9329	63910, 63990, 82200, 93297

b. ICT products

<i>Description</i>	<i>CPC Ver. 2</i>	<i>MCPA 2009 (5 Digit)</i>
1. ICT goods		
1.1 Computers and peripheral equipment	45142, 45221, 45222, 45230, 45240, 45250, 45261, 45262, 45263, 45264, 45265, 45266, 45269, 45271, 45272, 45289, 45290, 47315, 47550	26201, 26202, 28170
1.2 Communication equipment	46921, 47211, 47212, 47213, 47221, 47222, 47223, 47401, 54612, 54613	26300, 43216

<i>Description</i>	<i>CPC Ver. 2</i>	<i>MCPA 2009 (5 Digit)</i>
1.3 Consumer electronic equipment	38581, 47214, 47215, 47311, 47312, 47313, 47314, 47321, 47323, 47330, 47402, 48321, 48322, 48323, 48324, 48330, 48353, 88748	26400, 26701, 26702, 32400
1.4 Miscellaneous ICT components and goods	45281, 47130, 47140, 47150, 47160, 47173, 47403, 47530, 47540, 47590, 47910, 47920, 48315, 48354, 48220, 48244	26101, 26102, 26104, 26105, 26109, 26511, 26800, 32909
2. ICT services		
2.1 Manufacturing services for ICT equipment	88741, 88742, 88743, 88744, 88749	26103
2.2 Business and productivity software and licensing services	47811, 47812, 47813, 47814, 47821, 47829, 73311, 81129, 83143, 84341, 84342, 84392, 85220, 85230	58201, 58203, 72106, 74903, 80200
2.3 Information technology consultancy and services	83117, 83131, 83132, 83141, 83142, 83151, 83152, 83159, 83161, 83162	62010, 62021, 62022, 63111, 63112, 70201
2.4 Telecommunications services	84110, 84121, 84122, 84131, 84132, 84140, 84150, 84190, 84210, 84221, 84222, 84290, 85931, 85939	61101, 61201, 61300, 61901, 61902, 61903, 61904, 61905, 61909, 82200
2.5 Leasing or rental services for ICT equipment	73124, 73210, 73215	77292, 77301, 77307
2.6 Other ICT services	54614, 83325, 87120, 87130, 87151, 87152, 87153, 87155, 87331, 87332, 87340, 87350	33120, 33140, 33200, 43213, 43214, 62099, 71102, 95111, 95112, 95113, 95121, 95122, 95123, 95124, 95125, 95126, 95127, 95211, 95212, 95213, 95214, 95221
3. Content and media products		
3.1 Printed and other text-based content on physical media, and related services	32210, 32220, 32230, 32291, 32292, 32299, 32300, 32410, 32420, 32490, 32511, 32530, 32540, 32620, 32630, 32690, 32800, 47691, 47692, 83631, 84311, 85951, 89121	18110, 18120, 58110, 58120, 58130, 58190, 82196, 82199

<i>Description</i>	<i>CPC Ver. 2</i>	<i>MCPA 2009 (5 Digit)</i>
3.2 <i>Motion picture, video, television and radio content, and related services</i>	38950, 47620, 83632, 83919, 84611, 84612, 84621, 84622, 84631, 84632, 84633, 84634, 96121, 96122, 96123, 96131, 96132, 96133, 96134, 96135, 96136, 96137, 96139, 96140, 96150	59110, 59120, 59130, 59140, 60100, 60200, 74102
3.3 <i>Music content and related services</i>	32520, 47610, 89123, 96111, 96112, 96113	18200, 59200
3.4 <i>Games software</i>	38582, 47822, 84391	58202
3.5 <i>On-line content and related services</i>	73312, 83633, 84311, 84312, 84313, 84321, 84322, 84331, 84332, 84393, 84394, 84399	63120
3.6 <i>Other content and related services</i>	38941, 38942, 47699, 73320, 83611, 83620, 83639, 83811, 83812, 83813, 83814, 83815, 83819, 83820, 83940, 84410, 84420, 85991, 89110, 96330	63910, 63990, 73100, 74200, 90001, 90002, 90003, 90004, 90005, 90006, 90007, 90009

5. PRODUCTION ACCOUNTS OF ICT INDUSTRY

- a. **Gross Domestic Product (GDP)** is the total value of all goods and services produced in a certain period after deducting the cost of goods and services used up in the process of production. This value is before deducting the allowances for consumption of fixed capital i.e. the sum of value added of resident producer in producers' prices plus import duties. GDP is equivalent to expenditure on the GDP (in purchasers' prices) i.e. the sum of all components of final expenditure on goods and services less imports of goods and services.

GDP can be measured by using three approaches namely Production, Expenditure and Income Approach.

- b. **Value added** is the difference between output and intermediate consumption. It represents the added value of goods and services by economic activity. Hence, it is approximately equivalent to commercial profit, salaries and wages, depreciation and indirect taxes; plus interest paid less interest received.
- c. **Gross Value Added of ICT Industry (GVAICT)** is the sum of Gross Value Added of all ICT industry.

6. GENERATION INCOME ACCOUNTS OF ICT INDUSTRY

- a. **Compensation of employees** includes remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done during the accounting period.
- b. **Gross operating surplus** refers the operating surplus before deducting the consumption of fixed capital and mixed income.
 - i. **Operating surplus** refers to measures the surplus or deficit accruing from processes of production before deducting any explicit or implicit interest charges, rent or other property income payable on the financial assets, land or other natural resources required to carry on the production. By definition, operating surplus can only be earned by industries.
 - ii. **Mixed income** includes an unknown element of remuneration for work done by the owner of the enterprise or other members of the household, as well as operating surplus accruing from the production.
 - iii. **Consumption of fixed capital** is defined as the decline in the current value of the stock of fixed assets owned and used by a producer during the course of the accounting period as a result of physical deterioration, normal obsolescence or nominal accidental damage.
- c. **Taxes less subsidies on production and imports** consists of taxes on products and other taxes on production less subsidies on product and other subsidies on production.
 - i. **Taxes on products**

Taxes that are payable per unit of some goods or services and usually become payable when they are produced, delivered, sold, transferred or otherwise disposed by their producer. The tax may be a specific amount of money per unit of quantity of a good or service, or it may be calculated ad valorem as a specified percentage of the price per unit or value of the goods or services transacted. For example, sales taxes, excise taxes, import duties, export duties, etc.

ii. Other taxes on production

Other taxes on production consists of all taxes except taxes on products that enterprises incur as a result of engaging in production such as taxes payable on land, fixed assets or labour employed in the production process or certain activities or transactions. Examples of other taxes on production are taxes payable by enterprises for business licenses, payroll taxes, stamp duties, etc.

iii. Subsidies on products

A subsidy payable per unit of a good or service. The subsidy may be a specific amount of money per unit of quantity of a good or service, or it may be calculated ad valorem as a specified percentage of the price per unit of the goods or services. A subsidy on products usually becomes payable when the good or service is produced, sold or imported, but it may be also payable in other circumstances such as when a good is transferred, leased, delivered or used for own consumption or own capital formation.

The subsidy may be designed to influence resident enterprises' levels of production or the prices at which their outputs are sold.

iv. Other subsidies on production

Other subsidies on production consists of subsidies except subsidies on products that resident enterprises may receive as a consequence of engaging in production such as subsidies on payroll or workforce. The subsidy may be designed to influence the remuneration of the institutional units engaged in production.

7. FRAMEWORK OF ICTSA

The basis of ICTSA compilation in Malaysia is the framework of supply and use tables (SUT). However, it only focuses on ICT products and industries. The supply table indicates the goods and services of ICT products that are supplied by each producer. Meanwhile, use table tracks the usage of those ICT products by industries, government, households and exports.

Supply of each product (valued at purchasers' prices) consists of;

- *Domestic production by industry (valued at basic prices);*
- *Imports;*
- *Transport, retail and wholesale trade margins; and*
- *Taxes less subsidies on production and imports.*

Use of each product (valued at purchasers' prices) consists of:

- Intermediate use by industries (products that are consumed by industries in the process of producing other products); and
- Final use by type of expenditure. Final use includes consumption households and government, products that have been capitalised, changes in inventories and exports.

A comprehensive use table includes primary inputs of production namely compensation of employees, gross operating surplus and other taxes less subsidies on products and production for each industry.

The SUT are used to assemble and integrate all data required to produce estimates of economic aggregates related to ICT. Output consists of those goods and services produced within an establishment which become available for use outside that establishment. The value of ICT output is the market value of ICT goods and services. Value added will be computed for ICT industry and non ICT industries which produce ICT products. The following table illustrates the basic structure of SUT.

Supply Table

Supply of product	Output of industries at basic prices* (economic activities)				Imports	Total supply at basic prices	Trade and transport margins	Taxes less subsidies on products	Total supply at purchasers' prices**
	Industry A	Industry B	Industry ...	Total industry (1)					
ICT product A									
ICT product B									
ICT product C	Output by product and by industry				Imports by product		Supply by product		
ICT product									
Total Supply (ICT product)	Total output by industry				Total imports		Total supply by product		

Use Table

Use of product	Intermediate use by industry (economic activities)				Final consumption expenditure	Gross capital formation	Exports	Total use at purchasers' prices**
	Industry A	Industry B	Industry ...	Total intermediate use (1)	(2)	(3)	(4)	(5) = (1) + (2) + (3) + (4)
ICT product A								
ICT product B	Intermediate consumption by product and by industry				Final use by product and by type of expenditure***			
ICT product C								
ICT product ...								
Total use (ICT product)	Total intermediate consumption by industry				Total final use by product and by type of expenditure***			
Compensation of employees								
Gross operating surplus								
Taxes less subsidies on production and imports	Value added by component and by industry							
Industry output at basic prices*								

Note:

* Basic prices is the price received by the producer for a unit of good and service produced as output, excluding any tax payable or including any subsidy receivable on the product as a subsequent of its sales or use. It also excludes any delivery charges invoiced separately by the producer.

** Purchasers' prices is the price paid by the purchaser to take delivery of a good and service at the time and place required by the purchaser. It includes any transport charges paid separately by the purchaser.

*** Type of expenditure refers to the final consumption expenditure, gross capital formation and exports.

8. MEASUREMENT OF E-COMMERCE

Measurement of e-commerce value added is based on the manual OECD Internet Economy Outlook 2012. There are two recommended approaches, which are narrow and broad approaches. Narrow approach only takes into account value added from the wholesale and retail sectors. While, broad approach includes all industries across the economy.

It is assumed that the share of revenue from e-commerce to total revenue for each industry is proportional to the percentage of value added from e-commerce to the total value added for the same industry. Broad approach is used in measuring the e-commerce in Malaysia. E-commerce consists of the value of ICT industry and non ICT industries.

9. DATA SOURCES

The data sources in compiling ICT Satellite Account are as follows:

INDUSTRY / DATA	DATA SOURCES
ICT manufacturing industries	• GDP
ICT trade industries	• Economic Census
ICT services industries	• Annual Survey
Publishing of books, periodicals and other publishing activities	• SUT
Motion picture, video and television programme activities	
Sound recording and music publishing activities	
Programming and broadcasting activities	
Other information service activities	
Non ICT industries	
Exports and imports of ICT goods and services	• External Trade Statistics • Statistics of International Trade in Services
Tax and subsidies	• GDP Income Approach
Government final consumption expenditure	• Financial Accounts of Federal Government, State Government, Local Authorities and Statutory Bodies
Private final consumption expenditure	• GDP • Household Expenditure Survey
Gross capital formation	• GDP • Gross Fixed Capital Formation
Compensation of employees	• GDP Income Approach
Gross operating surplus	• GDP Income Approach

INDUSTRY / DATA	DATA SOURCES
Employment	• Annual Labour Force Survey • Annual Economic Survey • Quarterly Survey of Services • Monthly Manufacturing Survey • Monthly Survey of Wholesale & Retail Trade

10. MAIN TABLES ICTSA

ICTSA comprises of nine (9) tables of each table and the explanation are as follows:

Table A1: ICT industry and non ICT industries that produce ICT products

Table A1 contains the statistics on all industries that produce ICT products. This table derived from SUT 2015 according to the ICT product classification. For the subsequent years, data is based on published Annual GDP.

Table A2.1, A2.2 and A2.3: Supply and use of ICT products

Table A2.1, A2.2 and A2.3 present the statistics on the supply and use of ICT products. The value of supply must be equal to the value of use of ICT product. The data on the supply and use of ICT products are derived from the SUT 2015. For the subsequent years, data are based on published Annual GDP. Industry and products have been selected based on the ICTSA classification. Supply of ICT products data comprises of domestic production of ICT products, imports of ICT products and tax less subsidies on ICT products. Use of ICT products data consists of intermediate use of ICT products, final consumption expenditure of ICT products by households and governments, gross capital formation for ICT products and export of ICT products.

Table A3 and Table A4: Exports and imports of ICT products

Tables A3 and A4 consists the exports and imports statistics for ICT products. Data from goods extracted from the customs declaration (International Trade Statistics) where the compilation is based on the Harmonized Commodity Description and Coding Systems (HS) code. Meanwhile, the value of the exports and imports services is derived from the balance of payments statistics. The arrangement also took into account the recommendations by the 2008 SNA and Balance of Payments and International Investment Position Manual Sixth Edition (BPM6) particularly in implementation on treatment of Goods for Processing from Abroad (GFP) and Manufacturing Services (MS).

Net exports are one of the important variables used to calculate the GDP. When net exports are positive, it shows a trade surplus and when it is negative, it represents a trade deficit.

$$\text{Net Exports} = \text{Exports Value} - \text{Imports Value}$$

Table A5: Income components of ICT industry

Table A5 consists statistics on Income components of ICT industry comprises of compensation of employees, gross operating surplus and taxes less subsidies on production and imports. This statistics is derived using on SUT 2015 according to the ICT industry. For the subsequent years, data is based on published Annual GDP Income Approach.

Table A6: Employment in the ICT industry

Table A6 is statistics on employment data in the ICT industry. The statistics is compiled using Annual Labor Force Survey, Annual Economic Survey, Quarterly Survey of Services, Monthly Manufacturing Survey and Monthly Survey of Wholesale & Retail Trade are obtained by the Department of Statistics Malaysia.

Table A7.1, A7.2 and A7.3: Gross Value Added of ICT Industry

Table A7.1, A7.2 and A7.3 comprise the Value Added statistics of ICT Industry at current prices. The measurement of Gross Value Added of ICT Industry is the sum of Gross Value Added of all ICT industry. Statistics is obtained from published Annual GDP.

Table A8.1 and A8.2: Gross Value Added of e-commerce

There are two table for e-commerce. **Table A8.1** are present the Gross Value Added of e-commerce by ICT industry while **Table A8.2** was Gross Value Added of e-commerce by main sector. Measurement of e-commerce value added is based on the OECD Internet Economy Outlook 2012. Data are based on the percentage of e-commerce revenues by industries from the Economic Census 2016. For the subsequence years, data is based on Usage of ICT and E-Commerce (ICTEC).

Table A9: ICT contribution to economy

Table A9 is statistics to economy which is comprises Gross Value Added of the ICT Industry (**Table A7**) and the Gross Value Added of e-commerce by non ICT industries (**Table A8**).

11. PUBLICATION AND DATA REVISION

This publication presents ICTSA for the year 2015 to 2024. The series will be updated whenever any latest data available.

12. SYMBOLS

- : *negative*
- .. : *not applicable*
- e : *estimate*
- p : *preliminary*
- 0 : *value less than 0.05*
- % : *per cent*

C) INFORMATION & COMMUNICATION SERVICES (QUARTERLY)

1. INTRODUCTION

The data for Information & Communication was collected through the Quarterly Survey of Services and Monthly Survey.

However, for this publication, the data presented commenced from 2020.

2. OBJECTIVES

This publication presents information on revenue/ sales value, number of persons engaged and salaries & wages in Services sector. The main objectives of this survey are to:

- Provide short term indicators of Services sector;*
- Provide input towards the compilation of Quarterly Index of Services;*
- Provide information for the compilation of Quarterly Gross Domestic Product; and*
- Assist the government and other organisation as well as business community in planning and decision making.*

3. SCOPE AND COVERAGE

The surveys cover all registered establishments of the relevant regulatory bodies engaged in Information & Communication.

4. CONCEPTS AND DEFINITIONS

The classification of the industry is based on the Malaysia Standard Industrial Classification 2008 Ver. 1.0. The classification conforms to the International Standard Industrial Classification of All Economic Activities, Revision 4, United Nations Statistics Division. Meanwhile, the concepts of wholesale and retail trade adopted in this publication is based on recommendation in the Manual of International Recommendations for Distributive Trade Statistics 2008 (IRDTS 2008) published by the United Nations Statistics Division.

5. INFORMATION & COMMUNICATION

Refers to activities publishing, motion picture, video & television programme production, sound recording & music publishing, programming & broadcasting, telecommunications services, computer programming, consultancy & related activities and information services.

6. REPORTING UNIT

The reporting unit is an establishment. An establishment is defined as 'an economic unit that engaged in one activity, under a single legal entity and operating in a single physical location'. Each establishment was assigned an industry classification based on its principal activity and not by its parent company.

7. REVENUE

Revenue refers to the amount received and receivable for services rendered and other transactions made during the reference quarter. It comprised both operating and non-operating revenue.

8. NUMBER OF PERSONS ENGAGED

The total number of persons engaged includes all working proprietors and active business partners, unpaid family workers and employees who worked during the last pay period of the reference quarter. It also includes part-time workers in the payroll and persons on strike and short-term leave (sick leave, emergency leave or vacation). Not included are workers on indefinite leave as well as pensioners.

9. SALARIES & WAGES PAID

Salaries & wages paid refers to cash payments, including bonuses, commissions, overtime pay, cost of living allowances and other allowances made to all employees during the reference quarter. The employees' contributions to Employees' Provident Fund (EPF) and Social Security Organisation (SOCSO) are included, while the employer's contributions are excluded. Allowances to working proprietors, working partners and unpaid family workers are also excluded.

10. CONFIDENTIALITY REQUIREMENTS

The information is gathered under the provisions of the Statistics Act 1965 (Revised 1989). Section 5 of this Act requires all establishments services operating in Malaysia to provide actual information or best estimates to the Department. The Act stipulates that the content of individual returns are confidential and only aggregated figures are published. Meanwhile, Section 7 under the same Act provides the penalty to the respondents that could not comply with the surveys undertaken.

11. REVISION POLICY

- For monthly data, subject to changes in data source, revision is t-1 where t refers to current month.*
- For quarterly data, subject to changes in data source, revision is t-1 where t refers to current quarter.*
- For annual data, subject to changes in data source, revision is t-3 where t refers to current year.*

12. METHODOLOGY

12.1 Population

All establishments encompass Quarterly Survey of Services in Information and Communication that consist of 35 industries at five (5) digits based on Malaysia Standard Industrial Classification 2008 Ver 1.0.

12.2 Sampling Frame

From the identified population, establishments that are still operating as at December 2024 were listed as sampling frame.

12.3 Sampling Design

Sampling design of the survey is a one-stage stratified random sampling. Categories of industries at national level have been classified as stratum and the establishment as the sampling unit.

Each stratum (industry) has been set up to four substratum to ensure the distributed sample takes into account the economic characteristics of the industry. The main substratum is heterogeneous covered in full coverage. Whereas, the others homogenous substratum was sampled.

Major substratum includes large-scale establishments that have significant revenue streams in the coverage industry while for second and fourth sub-sectors based on micro, small and medium enterprise (MSMEs) categories.

12.4 Sample size

The main statistics used to estimate the sample size is the total revenue. The formula used in the estimation of the sample size using Neyman Allocation Method is as follows:

$$n = \frac{(\sum N_i S_i)^2}{V + \sum N_i S_i^2}$$

where;

n	=	Sample size
N_i	=	Population size for stratum i
S_i^2	=	Variance for stratum i
V	=	Desired variance

$$V = RSE^2 \cdot \left(\frac{\hat{Y}_i}{Z} \right)^2$$

where;

$\hat{Y}_i$	=	Estimated total revenue for stratum i
RSE	=	Relative standard error
Z	=	Value of confidence level

Sample is distributed to substratum of the industry using method as follows:

$$n_{hi} = \left(\frac{N_h S_h}{\sum N_h S_h} \right) n_i$$

$h = 2, 3 \text{ and } 4$

$i = 1, 2, \dots, k$

where;

n_{hi} = Sample size for substratum h of stratum i

N_h = Population size for substratum h

S_h = Standard deviation for substratum h

n_i = Sample size for stratum i

h = substratum

i = Stratum

Establishments for the major substratum are categorized into 4 groups, namely large 1, large 2, large 3 and large 4. Establishments of the large 1 category were fully covered while establishments of the large 2, 3 and 4 as well as MSMEs substratum were randomly selected using systematic random sampling.

12.5 Weight

Weighted analysis is done using sampling weight to ensure that the selected sample can reflect population survey. The weights required are the sampling design weight and non-response weight.

The sampling design weight for the establishment at stratum h is as follows:

$$W_h = \frac{N_h}{n_h}, h = 1, \dots, 4$$

where,

N_h = Total population of substratum h ; and

n_h = Total sample of substratum h

Non response weight at substratum h as below:

$$NRW_h = \frac{1}{n'_h/n_h}, \quad h = 1, \dots, 4$$

where;

$$\begin{aligned} n'_h &= \text{Number of response sample for substratum } h; \text{ and} \\ n_h &= \text{Number of sample for substratum } h \end{aligned}$$

The method of calculating the sampling design weight after the survey (adjusted weight) on substratum h as below:

$$W'_h = W_h \times NRW_h, \quad h = 1, \dots, 4$$

where,

$$\begin{aligned} W_h &= \text{Sampling design weight at substratum } h \\ NRW_h &= \text{Non response weight at substratum } h \end{aligned}$$

13. ROUNDING

The sum of component figures may not tally with the sub total or total figures due to rounding.

D) USAGE OF ICT AND E-COMMERCE BY ESTABLISHMENT

1. INTRODUCTION

This report provides information on usage of ICT and e-commerce by establishment for reference year 2023. The data were collected and compiled from Annual E-Commerce Survey in 2024.

The ICT indicators has been developed by the World Summit on the Information Society (WSIS) and was launched in June 2004. The purpose of the core list as a guidance/ input to countries that are conducting ICT surveys. The core list also assists in produce quality and internationally comparable ICT data.

There are 48 ICT indicators in six groups as follows:

• ICT infrastructure and access	- 10 indicators
• Usage and access of ICT by households and individuals	- 13 indicators
• Usage of ICT by businesses	- 12 indicators
• ICT sector (producing)	- 2 indicators
• International trade in ICT goods	- 2 indicators
• ICT in education	- 9 indicators

2. LEGAL AUTHORITY

*The Annual E-Commerce Survey is conducts under the **Statistics Act 1965 (Revised 1989)**. Section 5 under this Act requires any establishment operating in Malaysia to provide actual or best estimate information to the Department. According to the Act, the contents of the questionnaire are **confidential** and only aggregate figures are published.*

3. SCOPE AND COVERAGE

*This publication used data from Annual E-Commerce Survey 2024 (reference year 2023). The survey collected information from registered establishments in Agriculture, Mining & quarrying, Manufacturing, Construction and Services sectors. This classifications for industries were referring to Malaysia Standard Industrial Classification (MSIC) 2008 Version 1.0, which is in accordance with the International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4 United Nations. The coverage for all sectors encompasses 1,122 categories of industries as shown in **Table 1**.*

Table 1: Number of industries by sector

Sector	Name of Industries
Agriculture*	140
Mining & Quarrying	56
Manufacturing	259
Construction	72
Services	595
Jumlah	1,122

Note:

(*) Entrepreneurs in the Agriculture sector which registered with relevant government agencies for the purpose of receiving aid were NOT covered except palm oil's entrepreneurs.

4. SOURCE OF STATISTICAL FRAME

The main source for the establishment statistics frame is from the Malaysia Statistical Business Register (MSBR), while for the accommodation sub-sector, includes unregistered homestay. MSBR is a list of organisations/ enterprises operating in Malaysia that includes the Register of Companies (ROC), Register of Business (ROB), and Limited Liability Partnership (LLP) registered with the Companies Commission of Malaysia (CCM) as well as organisations registered with local authorities (LA) and professional bodies. The list in MSBR is updated regularly based on surveys and censuses conducted by the Department of Statistics Malaysia (DOSM) and administrative data sources from various agencies. The main source of administrative data is from the CCM.

In addition, DOSM also works together to obtain the latest information from other agencies such as the Employees' Provident Fund (EPF), the Royal Malaysian Customs Department, the Inland Revenue Board (IRB), Social Security Organisation (SOCSO), LA and professional bodies. The frame is updated by taking into account new establishments such as closed down, not in operation, change in activity and location/ correspondence address so as to ensure that the frame is at the most current status.

5. TYPES OF BUSINESS ACTIVITY

Type of business activity refers to both principal and secondary activities. The principal activity refers to the activity to which the establishment devoted most of its resources or activity which derived most of its income. Secondary activities are defined as those incidental or ancillary to the principal activity. The classification of the industry of the establishment is based on the principal activity and is in accordance with the Malaysia Standard Industrial Classification (MSIC), 2008 Ver. 1.0. The MSIC 2008 conforms to the International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4, published by United Nations Statistics Division, with modifications to suit local conditions.

6. CONCEPT AND DEFINITIONS

The industries are categorised into five main sectors namely Agriculture, Mining & quarrying, Manufacturing, Construction and Services. The sectoral definitions include the following activities:

6.1 Agriculture

Agriculture comprising the activities of growing, breeding and rearing of animals and production of animal products, felling of trees and other plants, as well as capture fishery and aquaculture includes the use/ utilisation of plants/ vegetal and animals natural resources. There are four subsectors:

6.1.1 Crops *refer to production of crops products including organic farming. Crops also include the growing of non-perennial and perennial crops for the purpose of seed production;*

6.1.2 Livestocks *refer to animals or bird that are preserved for commercial and breeding purposes. Livestock production includes raising (farming) and breeding of all animals, also production of livestock products such as eggs, milk, honey, etc;*

6.1.3 Forestry and logging includes the production of round wood for the forest based manufacturing industries as well as the extraction and gathering of wild growing non-wood forest product. Besides the production of timber, forestry activities which produce the product through the minimum process, such as fire wood, charcoal, wood chips and round wood used in unprocessed form are also included. These activities can be carried out in natural or forests plantation. This also includes part of the forestry operation based on fee or contract basis; and

6.1.4 Fisheries comprise of fishing and aquaculture, covering the use of fishery resources from marine, brackish or freshwater, with the purpose of capturing or gathering fish, crustaceans, molluscs and other marine organisms and products. Aquaculture refers to the production process involving the culturing or farming (including harvesting) of aquatic organisms using techniques designed to increase the production of the organisms beyond the natural capacity of the environment.

6.2 Mining & Quarrying

Mining & quarrying include the extraction of minerals occurring naturally as solids (coal and ores), liquids (petroleum) or gases (natural gas). Extraction can be achieved by different methods such as underground or surface mining, well operation, seabed mining, etc. However, the sub-sector of mineral mining & quarrying was not covered in this publication.

6.3 Manufacturing

The physical or chemical transformation of materials or components into new products, whether the work is performed by power-driven machines or by hand, whether it is done in a factory or in the worker's home, and whether the products are sold at wholesale or retail.

The classification of eight (8) sub-sectors by division are as follows:

Division	Description
Food products	
10	Manufacture of food products
Beverages and tobacco products	
11	Manufacture of beverages
12	Manufacture of tobacco products

Division	Description
<i>Textiles, wearing apparel and leather products</i>	
13	<i>Manufacture of textiles</i>
14	<i>Manufacture of wearing apparel</i>
15	<i>Manufacture of leather and related products</i>
<i>Wood products, furniture, paper products and printing</i>	
16	<i>Manufacture of wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials</i>
17	<i>Manufacture of paper and paper products</i>
18	<i>Printing and reproduction of recorded media</i>
31	<i>Manufacture of furniture</i>
<i>Petroleum, chemical, rubber and plastic products</i>	
19	<i>Manufacture of coke and refined petroleum products</i>
20	<i>Manufacture of chemicals and chemical products</i>
21	<i>Manufacture of basic pharmaceutical, medicinal chemical and botanical products</i>
22	<i>Manufacture of rubber and plastics products</i>
<i>Non-metallic mineral products, basic metal & fabricated metal products</i>	
23	<i>Manufacture of other non-metallic mineral products</i>
24	<i>Manufacture of basic metals</i>
25	<i>Manufacture of fabricated metal products, except machinery and equipment</i>
<i>Electrical, electronic and optical products</i>	
26	<i>Manufacture of computer, electronics and optical products</i>
27	<i>Manufacture of electrical equipment</i>
28	<i>Manufacture of machinery and equipment n.e.c.</i>
<i>Transport equipment, other manufacturing and repair</i>	
29	<i>Manufacture of motor vehicles, trailers and semi-trailers</i>
30	<i>Manufacture of other transport equipment</i>
32	<i>Other manufacturing</i>
33	<i>Repair and installation of machinery and equipment</i>

6.4 Construction

New construction, alteration, repair and demolition. The installation of any machinery or equipment installed which is built-in at the time of the original construction is included, as well as installation of machinery or equipment after the original construction but which requires structural alteration in order install.

6.5 Services

Services related to Electricity, gas, steam & air conditioning supply; Water supply, sewerage, waste management & remediation activities, Wholesale & retail trade; Transportation & storage; Information & communication; Accommodation; Food & beverage; Finance; Real estate; Professional, scientific & technical; Administrative & support services; Private education; Private health & social work; Art, entertainment & recreation and Personal services & other activities.

6.5.1 Electricity, gas, steam & air conditioning are defined as an activity of providing electric power, natural gas, steam, hot water and the like through a permanent infrastructure (network) of lines, mains and pipes. The dimensions of the network is not decisive; also included are the distribution of electricity, gas, steam, hot water and the like in industrial parks or residential buildings. This section therefore includes the operation of electric gas utilities, which generate, control and distribute electric power or gas. Also included is the provision of steam & air-conditioning supply;

6.5.2 Water supply; sewerage, waste management & remediation activities comprised of activities related to waste management includes collection, treatment & disposal such as scheduled waste, solid waste and waste water from industrial and household, including recovery materials & contaminated sites. The waste from the treatment process can be disposed of or used as input for other production process. Related activities in water treatment and supply are also included in this sector;

6.5.3 Wholesale & retail trade encompasses of wholesale and retail trades, sales and repair of motor vehicles & motorcycles;

- 6.5.4 Transportation & storage** includes all establishments provided land transport, freight transport by road, other land transport, water transport, warehousing & supporting activities such as storage & warehousing, terminal operations, car parking services, highway operations, port operations, cargo handling/stevedoring, shipping agencies & forwarding of eight and other supporting activities for transportation services;
- 6.5.5 Information & communication** comprises activities of publishing, motion picture, video & television programme production, sound recording & music publishing, programming & broadcasting, telecommunication services, computer programming, consultancy & related activities and information services;
- 6.5.6 Accommodation services** refer to the provision on a fee of short-term lodging, whether open to the general public or restricted to members of a particular organisation. It excludes rental of long term furnished accommodation which is classified in Real Estate;
- 6.5.7 Food & beverages services** include food and beverage serving activities providing complete meals or drinks fit for immediate consumption, whether in traditional restaurants, self-service or take-away restaurants, whether as permanent or temporary stands with or without seating;
- 6.5.8 Financial services** include monetary intermediation activities; other financial service activities and activities auxiliary to financial services; insurance/ takaful, reinsurance/ retakaful and pension & provident funding activities; and activities auxiliary to insurance/ takaful and pension funding;
- 6.5.9 Real estate services** include acting as lessors, agents and/or brokers in one or more of the following: selling or buying real estate, renting real estate, providing other real estate services such as appraising real estate, property management or acting as real estate escrow agents. Activities in this division may be carried out on own or leased property and may be done on a fee or contract basis. Also included is the building of structures, combined with maintaining ownership of leasing of such structures;

- 6.5.10 Professional, scientific & technical** includes specialised professional, scientific & technical activities which require a high degree of expertise and training, and specialised knowledge and skills available to users. Activities performed include legal & accounting activities, activities of head offices, management consultancy activities, architecture & engineering activities, technical testing & analysis, scientific research & development, advertising & market research, other professional, scientific & technical activities and veterinary activities;
- 6.5.11 Administrative & support services** includes a variety of activities that support general business operations, including rental & leasing activities, employment activities, travel agency, tour operator & other reservation service activities, security & investigation activities, services to buildings and landscape activities & office administrative, office support & other business support activities;
- 6.5.12 Private educational services** refer to establishments registered with the Ministry of Education, Malaysia and the Ministry of Higher Education that provides academic, pre-primary & primary education, secondary education, higher education, other education and educational support activities;
- 6.5.13 Private health & social work services** include hospital services, medical & dental practice activities, other human health activities, residential care activities and social work activities without accommodation;
- 6.5.14 Arts, entertainment & recreation services** include a wide range of activities to meet varied cultural, entertainment & recreational interests of the general public, including live performances, operation of museum sites, gambling, sport and recreation activities;
- 6.5.15 Personal services & other activities** includes activities of membership organisations, activities of business, employers and professional membership organisations, activities of trade unions, activities of others membership organisations, repair of computers and personal & household goods and other personal services activities such as washing and dry-cleaning of textiles and fur products; hairdressing and other beauty treatment and funeral and other services activities.

7. ICT DEFINITION

Based on Organisation for Economic Co-operation and Development (OECD) 2015 definition:

a) Computer

*Computer includes personal computer, portable computer (e.g. laptop), tablet and other devices such as *smartphone.*

b) Intranet

Refers to the internal communications network using internet protocols and allowing communication within the organisation.

c) Extranet

Refers to a closed network that uses internet protocols to secure the sharing of business information with suppliers, vendors, customers or other business partners. It also can be part of a personal website business, where business partners can navigate after being confirmed in the login page.

d) Local area network (LAN)

A network connecting computers and associated devices within a localised area such as a single building, department or site; it may be wireless.

e) Wireless local area network (WLAN)

Local area network using high frequency radio waves instead of wires to communicate between networks-enabled devices. WLAN allows users to move around a small area within a radius of 20 to 91 meters.

f) Wide area network (WAN)

A network that connects computers and associated devices within a wide geographic area, such as a region or country.

Note:

** Malaysia including smartphone*

g) Fixed broadband

Refers to a technology with a speed of at least 256 kbit/s in one or both directions. It consists of wired fixed broadband and fixed wireless broadband.

Wired fixed broadband internet access most commonly used to send/ receive information via cable/ fiber optic (ADSL, SDSL, VDSL), fiber optic technology/ cable technology.

h) Mobile broadband

Refers to technology at speeds of not less than 256 kbit/s in one or both directions. It covers technologies such as 3G/ LTE/ 4G, 5G, UMTS, CDMA2000 and future technologies including both standard and dedicated data subscriptions. Typically used by mobile devices (e.g. laptops, tablets, USB wireless modems, smart phones and other mobile device.

Mobile broadband connection to the internet refers to access via WIFI hotspot (tethering) and not through a router (e.g. USB dongle/ modem/ surfstick such as YES dongle etc.).

i) Website

A website is a collection of network-related web resources such as a website, multimedia content that is usually identified by a common domain name and published by at least one web server. Websites can be accessed through public Internet Protocol (IP) networks such as the Internet or private local area network (LAN) by the URL that identifies the site. A website can be a personal website, a corporate website for a company, a government website, an organisation website and so on.

j) Social media

Refers to those who have a user profile, account or user license depending on the needs and types of social media. Types of social media are social networks (e.g. Facebook, Instagram and TikTok), enterprise blogs or enterprise microblogs (e.g. X) and multimedia content sharing websites (e.g. YouTube).

k) **Mobile internet and technologies**

Refers to an inevitable product in the development of the PC internet. It combines mobile and internet communications into one. This is a general term for activities where technology, platforms, business models and internet applications are combined with mobile communication technology (e.g. mobile IT equipment, Global Positioning System (GPS) equipment, wireless debit/ credit card payment terminals).

l) **Cloud computing**

Cloud computing refers to ICT services used over the internet to access software, computing power, storage capacity, etc. (e.g. HUAWEI Cloud Server, AVM Cloud).

m) **Data analytic**

Data analytic is a process or effort to process data into new information so that the characteristics of the data become easier to understand and useful for solving problems, especially those related to research (e.g. Tableau, Big Data Analytics, Mobile Business Intelligence).

n) **Management software**

Management software is application software that helps users while performing management activities (e.g. Enterprise Resource Planning, etc.).

o) **Collaborative online platforms**

Refers to economic partnerships (e.g. Lazada, Shopee, Grab, etc.).

8. **E-COMMERCE DEFINITIONS**

Based on OECD, 2015, e-commerce transaction is defined as sale or purchase of goods or services, through a network of computers that have been designed for this purpose. E-commerce transactions can occur between enterprises, households, individuals, governments and public or private organisation to another.

Goods or services that have been ordered through e-commerce methods, but the payment or receipt of goods or services can be received either through online or offline.

E-commerce transaction, includes orders placed on websites, extranet or Electronic Data Interchange (EDI). However, the transactions made by telephone, fax, e-mail (mail that is typed manually) and the similar transactions are not categorised as e-commerce transactions.

a) E-commerce income means the total income of establishments with e-commerce transactions. Income for wholesale and retail trade establishments refers to the value of sales of goods and services. Sales value means the value of all items for which ownership or effective right to use with a view to ultimate purchase, has been transferred to others.

b) E-commerce expenditure means the amount of expenses for establishments that have e-commerce transactions.

c) E-commerce by type of market

(i) **Domestic** means e-commerce transactions sales/ purchase that conducted in Malaysia.

(ii) **International** means e-commerce transactions sales/ purchase that conducted which involves international transaction.

d) E-commerce by type of customers

i) Other business

Business to Business (B2B) is related to e-commerce transaction between businesses which sell/ buy products or services to/ from another business. For example, a manufacturer can sell to a wholesaler or a wholesaler can sell to a retailer.

ii) Individual consumers

Business to Consumer (B2C) is related to e-commerce transaction between businesses and consumers which sell/ buy products or services. For example, business sells garment to consumer (income) or business provide discount coupon to consumers through e-commerce platform (expenditure).

iii) Government and other non-business organisations

Business to Government (B2G) is a business model that refers to businesses selling/ paying for products, services or information governments or government agencies. B2G networks or models provide a way for businesses to bid on government projects or products that governments might purchase or need for their organisations. This can encompass public sector organisations that propose the bids. B2G activities are increasingly being conducted via the internet through real-time bidding. B2G is also referred to as public sector marketing.

9. USAGE OF ICT PERCENTAGE CALCULATION

a) Usage of Computer, Internet and Web Presence

(i) Percentage of computer usage

$$= \frac{\text{Number of establishment used computer}}{\text{Number of establishment operating}} \times 100$$

(ii) Percentage of internet usage

$$= \frac{\text{Number of establishment used internet}}{\text{Number of establishment operating}} \times 100$$

(iii) Percentage of business having web presence

$$= \frac{\text{Number of establishment having web presence}}{\text{Number of establishment operating}} \times 100$$

b) Type of Web Presence Owned

(i) Percentage of owned website

$$= \frac{\text{Number of establishment with owned website}}{\text{Number of establishment operating having web presence}} \times 100$$

(ii) Percentage of presence on another entity's website

$$= \frac{\text{Number of establishment with web presence on another entity's website}}{\text{Number of establishment operating having web presence}} \times 100$$

(iii) Percentage of social media

$$= \frac{\text{Number of establishment with social media}}{\text{Number of establishment operating having web presence}} \times 100$$

(iv) *Percentage of e-marketplace*

$$= \frac{\text{Number of establishment with e – marketplace}}{\text{Number of establishment operating having web presence}} \times 100$$

c) Type of Computer Network Infrastructure Used

(i) *Percentage of intranet*

$$= \frac{\text{Number of establishment owned intranet}}{\text{Number of establishment operating using internet}} \times 100$$

(ii) *Percentage of extranet*

$$= \frac{\text{Number of establishment owned extranet}}{\text{Number of establishment operating using internet}} \times 100$$

(iii) *Percentage of local area network (LAN)*

$$= \frac{\text{Number of establishment owned LAN}}{\text{Number of establishment operating using internet}} \times 100$$

(iv) *Percentage of wireless local area network (WLAN)*

$$= \frac{\text{Number of establishment owned WLAN}}{\text{Number of establishment operating using internet}} \times 100$$

(v) *Percentage of wide area network (WAN)*

$$= \frac{\text{Number of establishment owned WAN}}{\text{Number of establishment operating using internet}} \times 100$$

(vi) *Percentage of other area network*

$$= \frac{\text{Number of establishment owned other infrastructure network}}{\text{Number of establishment operating using internet}} \times 100$$

d) Type of Internet Access

(i) *Percentage of fixed broadband usage*

$$= \frac{\text{Number of establishment owned fixed broadband}}{\text{Number of establishment operating using internet}} \times 100$$

(ii) *Percentage of mobile broadband usage*

$$= \frac{\text{Number of establishment owned mobile broadband}}{\text{Number of establishment operating using internet}} \times 100$$

(iii) Percentage of both types of broadband usage

$$= \frac{\text{Number of establishment owned both types of broadband}}{\text{Number of establishment operating using internet}} \times 100$$

e) Purpose of Internet Usage

(i) Percentage of sending or receiving email

$$= \frac{\text{Number of establishment used for sending or receiving email}}{\text{Number of establishment operating using internet}} \times 100$$

(ii) Percentage of telephoning over the internet usage

$$= \frac{\text{Number of establishment used telephoning over the internet}}{\text{Number of establishment operating using internet}} \times 100$$

(iii) Percentage of posting information or instant messaging

$$= \frac{\text{Number of establishment posting information or instant messaging}}{\text{Number of establishment operating using internet}} \times 100$$

(iv) Percentage of getting information about goods or services

$$= \frac{\text{Number of establishment getting information about goods or services}}{\text{Number of establishment operating using internet}} \times 100$$

(v) Percentage of getting information from government organisations

$$= \frac{\text{Number of establishment getting information from gov. organisations}}{\text{Number of establishment operating using internet}} \times 100$$

(vi) Percentage of interacting with government organisations usage

$$= \frac{\text{Number of establishment interacting with government organisations}}{\text{Number of establishment operating using internet}} \times 100$$

(vii) Percentage of internet banking usage

$$= \frac{\text{Number of establishment used internet banking}}{\text{Number of establishment operating using internet}} \times 100$$

(viii) Percentage of accessing other financial services

$$= \frac{\text{Number of establishment accessing other financial services}}{\text{Number of establishment operating using internet}} \times 100$$

(ix) Percentage of providing customer service

$$= \frac{\text{Number of establishment providing customer service}}{\text{Number of establishment operating using internet}} \times 100$$

(x) Percentage of delivering products online

$$= \frac{\text{Number of establishment delivering product online}}{\text{Number of establishment operating using internet}} \times 100$$

(xi) Percentage of internal or external recruitment

$$= \frac{\text{Number of establishment used internal or external recruitment}}{\text{Number of establishment operating using internet}} \times 100$$

(xii) Percentage of staff training usage (e-learning applications)

$$= \frac{\text{Number of establishment used for staff (e – learning)}}{\text{Number of establishment operating using internet}} \times 100$$

(xiii) Percentage of internet usage for others

$$= \frac{\text{Number of establishment used for others}}{\text{Number of establishment operating using internet}} \times 100$$

f) Usage of Digital Technology

(i) Percentage of website usage

$$= \frac{\text{Number of establishment used for website}}{\text{Number of establishment operating using internet}} \times 100$$

(ii) Percentage of social media usage

$$= \frac{\text{Number of establishment used for social media}}{\text{Number of establishment operating using internet}} \times 100$$

(iii) Percentage of mobile internet and technologies usage

$$= \frac{\text{Number of establishment used for mobile internet and technologies}}{\text{Number of establishment operating using internet}} \times 100$$

(iv) Percentage of cloud computing usage

$$= \frac{\text{Number of establishment used for cloud computing}}{\text{Number of establishment operating using internet}} \times 100$$

(v) *Percentage of data analytics usage*

$$= \frac{\text{Number of establishment used for data analytics}}{\text{Number of establishment operating using internet}} \times 100$$

(vi) *Percentage of managements software usage*

$$= \frac{\text{Number of establishment used for management software}}{\text{Number of establishment operating using internet}} \times 100$$

(vii) *Percentage of online collaborative platforms usage*

$$= \frac{\text{Number of establishment used for online collaborative platforms}}{\text{Number of establishment operating using internet}} \times 100$$

(viii) *Percentage of digital technology usage for other purposes*

$$= \frac{\text{Number of establishment used for other purposes}}{\text{Number of establishment operating using internet}} \times 100$$

(ix) *Percentage of not using digital technologies*

$$= \frac{\text{Number of establishment not using digital technologies}}{\text{Number of establishment operating using internet}} \times 100$$

10. SURVEY YEAR

Survey year refers to the year in which a survey was conducted.

11. REFERENCE YEAR

The reference year of the survey was the calendar year 2023. Establishments whose accounting year differed from calendar year were requested to report according to the accounting year or financial year covering the major part of the reference period.

12. METHOD OF DATA COLLECTION

This survey generally conducted through three (3) methods, namely;

a) ***Data collection method via Online method through the e-survey portal***

This method targets respondents who have used this method for previous routine surveys.

b) **Data collection method via e-mail, post, fax and telephone**

This method targets respondents who have used this method for previous routine surveys. Respondents were given a period of one (1) month to complete and return the questionnaire to DOSM.

c) **Face-to-face data collection method**

Field work operation is carried out to get feedback from establishments that have not yet given answers from the two (2) methods above and this method also targets establishments that have never been involved in a routine DOSM survey.

13. REPORTING UNIT

The reporting unit used in the survey was establishment. An establishment is defined as “an economic unit that engaged in one activity, under a single legal entity and operating in a single physical location”. Each establishment was assigned an industry classification based on its principal activity.

Each branch of a multi-branch organisation at a different location was conceptually treated as a different establishment. The establishment was requested to give separate returns for each activity in terms of value. However, if in practice, the accounts were centrally kept such that it was not possible to obtain separate data for each individual unit or branch, that entity or enterprise was treated as a single reporting unit and allowed to submit a consolidated questionnaire covering all units or branches.

14. SAMPLING DESIGN

Sampling design of the survey is a one-stage stratified random sampling. Categories of industries at two (2) digit MSIC at national level have been classified as stratum and the establishment as the sampling unit.

Each stratum (industry) has been set up to four substrata to ensure the distributed sample takes into account the economic characteristics of the industry. The main substratum is heterogeneous, was fully covered. Whereas, other substratum that are homogeneous were sampled.

Main substratum include large establishments that have a significant total revenue in the Industry while for the second to fourth substratum are based on micro, small and medium enterprise (MSME) categories.

15. SAMPLE SIZE

The main statistics used to estimate the sample size is the total revenue. The formula used in the estimation of the sample size for a stratum is as follows:

$$n = \frac{(\sum N_i S_i)^2}{V + \sum N_i S_i^2}$$

where;

n = Sample size

N_i = Population size for stratum i

S_i = Variance for stratum i

V = Desired variance

$$V = RSE^2 \cdot \left(\frac{\hat{Y}_i}{Z} \right)^2$$

where;

$\hat{Y}_i$ = Estimated total revenue for stratum i

RSE = Relative standard error

Z = Value of confidence level

Sample is distributed to substratum of the industry using Neyman Allocation method as follows:

$$n_{hi} = \left(\frac{N_h S_h}{\sum N_h S_h} \right) n'_i$$

$$h = 2, 3, \text{ dan } 4, \quad i = 1, 2, \dots k$$

where;

n_{hi}	=	Sample size for substratum h of stratum i
N_h	=	Population size for stratum h
S_h	=	Standard deviation for substratum h
n_i	=	Sample size for stratum i
h	=	substratum
i	=	Stratum

The sample size for this survey is 15,000 establishments. Establishments of the large categories were fully covered while establishments of the second to fourth substratum were randomly selected using systematic random sampling.

16. WEIGHTS

Weighted analysis is done using sampling weight to ensure that the selected sample can reflect population survey. The weights required are the sampling design weight and non-response weight.

The sampling design weight for the establishment at stratum h is as follows :

$$W_h = \frac{N_h}{n_h}, n = 1, \dots, 4$$

where;

N_h	=	Total population of substratum h; and
n_h	=	Total sample of substratum h

Non response weight at substratum h as below:

$$NRH_h = \frac{1}{n'_h/n_h}, h = 1, \dots, 4$$

where;

n'_h	=	Sampling design weight at substratum h
n_h	=	Non response weight at substratum h

The method of calculating the sampling design weight after the survey (adjusted weight) on substratum h as below:

$$W'_h = W_h \times NRW_h, h = 1, \dots, 4$$

where;

W_h = Sampling design weight at substratum h

NRW_h = Non response weight at substratum h

17. PUBLICATION AND DATA REVISION

The publication presents the revision of the estimation e-commerce income for the year 2023 until First Quarter 2025. The revisions were based on the latest data of annual surveys and account of company for the year 2023. For the latest year 2022 until First Quarter 2025, estimation was based on the quarterly data sources.

18. ROUNDING

The sum of the component figures may not tally with the sub-total or total figures due to rounding.

19. SYMBOLS AND ABBREVIATIONS

-	:	Nil
&	:	and
%	:	per cent
b	:	billion
etc.	:	et cetera
e.g.	:	example
RM	:	Ringgit Malaysia
ISIC	:	International Standard Industrial Classification
MSIC	:	Malaysian Standard Industrial Classification
n.e.c.	:	not elsewhere classified

Ver. : *Version*
W.P. : *Federal Territory*
Q : *Quarter*
QoQ : *Percentage change quarter-on-quarter*
YoY : *Percentage change year-on-year*

E) ICT USE AND ACCESS BY INDIVIDUALS AND HOUSEHOLDS SURVEY (ICTHS)

1. INTRODUCTION

The statistics released in this report are findings of the ICT Use and Access by Individuals and Households Survey (ICTHS) 2024. It provides data at national, state and administrative district levels. The guidelines, concepts and definitions used in this publication are based on the Manual for Measuring ICT Access and Use by Households and Individuals, 2020 Edition published by the International Telecommunication Union (ITU).

ICTHS was carried out starting reference year 2013, followed by 2015 and 2017. Since 2018, this survey is conducted annually. These technical notes will facilitate users with better understanding pertaining to the published statistics.

2. OBJECTIVES

The main objectives are as follows:

- i. To collect the latest and specific information on ICT use and access by individuals and households (HH);*
- ii. To serve as an input in the compilation of ICT Satellite Account (ICTSA);*
- iii. To serve as input in ICT Development Index (IDI) and Telecommunication Infrastructure Index (TII); and*
- iv. The ICT indicators obtained can assist the government in the development of the country's ICT sector and the generation of the Digital Economy.*

3. METHOD OF DATA COLLECTION

- 3.1 ICTHS uses the personal interview method using the questionnaire form to obtain information from respondents. During the survey period, trained interviewers visit households (HH) in selected living quarters (LQs) to collect demographic information on all household members and detailed information on the use and access of ICT equipment and services.*
- 3.2 Quality checks were done by experienced officers from the DOSM State office to detect and correct any possibility of errors or omissions at the time when the survey is conducted. The review processes were also implemented for selected HH to ensure the quality of the data collected.*

4. REFERENCE PERIOD

ICTHS 2024 was conducted for two months from November to December 2024. The reference period for ICT use by individuals was for the last three months prior to the interview. Example, if the survey month is in November 2024, then the reference period for individuals is calculated from 1st August 2024 until 31th October 2024.

5. SCOPE AND COVERAGE

- 5.1 The selection of the sample of this survey has taken into consideration both urban and rural areas in administrative district for all states in Malaysia.*
- 5.2 The coverage of the survey is households living in private LQs only and excluding those who are living in residential institutions such as hostels, hotels, hospitals, old folk's homes, military barracks and police, prisons, welfare homes and other institutions.*
- 5.3 This survey involved individuals aged five years and above. However, to enable the comparison to be made with the previous survey, the analysis for the use of ICT only involves individuals aged 15 years and above.*
- 5.4 This survey covered citizens and non-citizens in private residences in Malaysia during the survey period.*

6. SAMPLING FRAME

- 6.1 The sampling frame used for the selection of ICTHS 2024 sample are based on the Household Sampling Frame which is made up of enumeration blocks (EBs) created for the 2020 Population and Housing Census which was updated from time to time. EBs are geographical contiguous areas of land with identifiable boundaries created for survey operation purposes, which on average, contains about 80 to 120 LQs. All EBs are formed within gazette boundaries i.e. within administrative districts, sub-districts or local authority areas.*
- 6.2 The EBs in the sampling frame is classified by urban and rural areas. Urban areas are defined as in 2020 Population and Housing Census. Urban areas are gazetted areas with their adjoining built-up areas which had a combined population of 10,000 or more. Meanwhile, gazetted area with population less than 10,000 and not gazetted area are classified as rural area.*

- 6.3 Built-up areas are the areas contiguous to a gazetted area and have at least 60 per cent of their population (aged 15 years and above) engaged in non-agricultural activities.
- 6.4 The definition of urban areas also takes into account the special development areas i.e. areas that are not gazetted and development can be identified and separated from the gazetted areas or built-up area of more than five kilometres and has a population of at least 10,000 people with 60 per cent of the population (aged 15 years and above) engaged in non-agricultural activities.
- 6.5 Urbanisation is a dynamic process and keeps changing with development and growth. Thus, the urban areas for 2010 and 2020 Population and Housing Censuses do not necessarily refer to the same areas, as areas fulfilling the above criteria of urban continue to expand and grow within the time.
- 6.6 The classification of areas by strata is as follows:

Strata	Population of gazetted, built-up areas and special development area
<i>Metropolitan</i>	<i>75,000 and above</i>
<i>Urban large</i>	<i>10,000 to 74,999</i>
<i>Urban small</i>	<i>1,000 to 9,999</i>
<i>Rural</i>	<i>All other areas</i>

- 6.7 For sampling purposes, classification of areas as stated in item 6.6 is used for all states and federal territories. For Sabah and Sarawak, due to inaccessibility, the rural strata had to be further stratified based on the time taken to reach the area from the nearest urban centre
- 6.8 For the purpose of tabulation, the strata reclassified were combined as follows:
- Urban = Metropolitan + urban large
- Rural = Urban small + all rural

7. SAMPLE DESIGN

- 7.1 The two-stage stratified sampling design was used in ICTHS 2024. The first level sampling unit were EBs, randomly selected using Probability Proportionate to Size Sampling.

7.2 EBs were selected separately according to the following strata:

Primary strata	State
Secondary strata	Administrative district by state
Tertiary strata	Urban/ rural area by administrative district

7.3 Next, the second level sampling unit were LQs and sample for LQs were selected from the EBs by using Systematic Random Sampling method that generates random number and interval class to ensure every LQs have an equal probability to be selected as a sample. This procedure is performed systematically and scientifically to produce an unbiased sample and can represent the entire populations of HH in Malaysia.

8. SAMPLE SIZE

8.1 The sample of ICTHS 2024 represents the population of the analysis level. The sample size calculation has considered the following elements:

- Selected statistics from previous surveys;
- The level of sampling design;
- Desired error; and
- Respond rate

5.2 The distribution of sample size for ICTHS 2024 is as follows:

State	Number of selected EBs	Number of selected LQs
Johor	258	2,064
Kedah	316	2,528
Kelantan	282	2,256
Melaka	131	1,048
Negeri Sembilan	204	1,632
Pahang	271	2,168
Pulau Pinang	172	1,376
Perak	307	2,456
Perlis	73	584
Selangor	263	2,104
Terengganu	238	1,904
Sabah	437	3,392
Sarawak	442	3,536
W.P. Kuala Lumpur	60	480
W.P. Labuan	29	232
W.P. Putrajaya	25	200
MALAYSIA	3,508	27,960

9. DATA EVALUATION

9.1 Data obtained from probability sample survey are subject to two types of error i.e. sampling error and non-sampling error.

i. Sampling Error

Sampling error is a result of estimating data based on a probability sampling. This error can be measured by estimating the Relative Standard Error (RSE) and expressed as a percentage. It is used as an indicator of the precision of the estimated parameters studied. This estimate reflects the level of variation that was estimated through a survey variables compared with the population parameter.

For instance, in ICTHS 2024, the percentage of Internet access by household for Malaysia was 96.8 per cent with RSE of 0.1 per cent. In other words, the standard error (SE) is approximately 0.1 per cent. Based on a 95 per cent confidence level ($\alpha=0.05$), the percentage of Internet access by households was found to be in the range of 96.6% - 97.0%.

ii. Non-Sampling Error

These errors may arise through incomplete survey coverage, weaknesses in the frame, response errors, non-response errors and also errors during processing such as editing, coding and data capture. To ensure high quality data, several administrative procedures were taken to keep **non-sampling errors** to a minimum. Intensive training was conducted for the supervisors and enumerators. In addition, close supervision and random checks were carried out on households which were covered by the enumerators to ensure the validity of the information recorded.

In order to resolve the case of non-response error due to several reasons such as vacant house, no one at home, refusal to co-operate or not qualified LQ, the sample size estimation for ICTHS 2024 has taken into account all the possibilities. The survey frame is updated regularly to overcome the problem of non-response due to vacant home. Wide publicity was carried out through electronic and printed media to minimise the case of 'no one at home' and refusal to cooperate.

In addition, at the data processing stage, each variable's consistency checking and validation process has been systematically implemented in order to minimise the non-sampling error.

10. LIMITATIONS OF SURVEY

Several challenges and limitations occurred during the implementation of this survey. Among them are:

- i. This survey was conducted among selected households and individuals throughout Malaysia. However, it can also be used to provide an overview of ICT accessibility and usage.*
- ii. The coverage of this survey only covers the state level for strata 1 and 2 for urban areas, whereas for strata 3 to 6 for rural areas.*
- iii. A detailed analysis of ICT use and access by individuals and households by administrative district level is based on a relative value reliability of not more than 20 per cent tolerance interval.*
- iv. The findings of the survey should be used with high precaution and DOSM will not be responsible for any implications resulting from the use of these statistics.*

11. CONCEPTS AND DEFINITIONS

11.1 LIVING QUARTERS

*Living quarters are defined as **independent** and **separate** structures and are usually used as place of abode. The terms separate and independent mean the following:*

- i. **Separate:** A structure is considered separate if it is surrounded by walls, fence, etc. and is covered by roof.*
- ii. **Independent:** A structure is said to be independent if it has direct access via public path, communal passageway or space (that is occupants can come in or go out of their LQs without passing through others' premises).*

11.2 HOUSEHOLD

A person or group of people, whether related or unrelated who usually live together in a living quarter and make provisions (expenses) for food and necessities of life together.

11.3 HEAD OF HOUSEHOLD

Head of household is defined as any members whether male or female which is considered as head of HH by other members. The Head of HH must be an income recipient and is aged 15 years and above.

11.4 ICT ACCESS AND USAGE

11.4.1 ICT access by households: In order for a household to have access to ICT services or equipment, it should be able to be used during interview.

11.4.2 ICT use by individuals:

- Use of ICT equipment and services by one or more individuals in a household, either it was used in LQ or elsewhere;
- Individuals in a household aged 15 years and above; and
- Use of mobile phone, computer and Internet for the last three months.

11.4.3 Core ICT Indicators

i. Radio

A radio is defined as a device capable of receiving broadcast radio signals, using common frequencies, such as FM, AM, LW and SW. A radio may be a stand-alone device, or it may be integrated with another device, such as an alarm clock, an audio player, a mobile phone or a computer. It includes radio in a car.

$$= \frac{(\text{number of in-scope household with a radio})}{(\text{total number of in-scope households})} \times 100$$

ii. Television

A television (TV) is a device capable of receiving broadcast television signals, using popular access means such as over-the-air, cable and satellite. A television set is typically a stand alone device, but it may also be integrated with another device, such as a computer or a mobile phone.

$$= \frac{(\text{number of in-scope household with a television})}{(\text{total number of in-scope households})} \times 100$$

iii. Fixed-line telephone

A fixed telephone refers to a telephone line connecting a customer's terminal equipment (e.g. telephone set, facsimile machine) to the Public Switched Telephone Network (PSTN) and which has a dedicated port on a telephone exchange. This term is synonymous with the terms main station or Direct Exchange Line (DEL) that are commonly used in telecommunication documents. It may not be the same as an access line or a subscription.

$$= \frac{(\text{number of in-scope household with a fixed-line telephone})}{(\text{total number of in-scope households})} \times 100$$

iv. Mobile phone

A mobile phone refers to a portable telephone subscribing to a public mobile phone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems and technologies such as IMT-2000 (3G) and IMT-Advanced. Users of both postpaid subscriptions and prepaid accounts are included.

$$= \frac{(\text{number of in-scope household with a mobile phone})}{(\text{total number of in-scope households})} \times 100$$

v. Computer

A computer refers to a desktop, a laptop (portable) computer or a tablet (or similar handheld computer). It does not include equipment with some embedded computing ability such as mobile phones, Personal Digital Assistant (PDA) or a TV set.

$$= \frac{(\text{number of in-scope household with a computer})}{(\text{total number of in-scope households})} \times 100$$

vi. Internet

The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer, it may also be by mobile phone, tablet, PDA, games machine, digital TV and etc.). Internet can be accessed via a fixed or mobile network.

$$= \frac{(\text{number of in-scope household with a Internet})}{(\text{total number of in-scope households})} \times 100$$

vii. Internet Activities

Internet activities are categorised as follows:

a) Access to information

- Finding information about goods or services*
- Reading or downloading online newspaper or magazines, electronic books*

b) Communication

- Participating in social networks (e.g. Facebook, WhatsApp, Instagram, X etc.)*
- Sending or receiving e-mail*
- Telephoning over the Internet/ VoIP*
- Uploading self - created content to a website*
- Managing personal homepage*
- Blogging: Maintaining or adding contents to a blog*
- Accessing chat sites, blogs, newsgroups or online discussions*

c) Professional

- Looking for a job or submitting a job application*
- Participating in professional networks (e.g. LinkedIn and Xing)*
- Accessing office's computing system for the purpose of doing work from home*

d) Civic and Politics

- *Posting opinions or voting on civic or political issues (e.g. blogs, social networks, websites)*

e) Other Online Services

- *Performing tasks online to generate income*
- *Using services related to travel or travel-related accommodation*
- *Selling goods or services (via mudah.my, Facebook, WhatsApp etc.)*
- *Purchasing or ordering goods or services other than e-Commerce (via mudah.my, Facebook, WhatsApp etc.)*
- *Internet Banking*
- *Using software run over the Internet for editing text documents, spreadsheets or presentations*
- *Downloading software or applications*

f) Storage Space

- *Using storage space on the Internet to save documents, pictures, music, video or other files (e.g. Google Drive, Dropbox, Window Sky Drive, iCloud, Amazon Cloud Drive)*

g) Learning Activities

- *Doing a formal online course*
- *Consulting wikis (Wikipedia etc.), online encyclopedias or other websites for formal learning purposes*
- *Doing an informal online course/ assessment*

h) e-Health

- *Seeking health related information or services related information (e.g. on disease, injuries, nutrition etc.)*
- *Making an appointment with a health practitioner via a website*

i) e-Government

- *Getting information from government organisations*
- *Interacting with government organisations*

j) Entertainment

- *Listening to radio online*
- *Watching television online*
- *Downloading images, movies, videos or music; playing or downloading games*

k) e-Commerce

- *Purchasing or ordering goods or services (e-Commerce)*
- *Selling goods or services via e-commerce*

l) Safety, Online Protection and Awareness

- *Owning online security tools & adopt measures to ensure online protection*
- *Verifying the reliability of information found online*
- *Setting up effective measure (E.g: strong password, log-in attempt notifications) to protect devices and online accounts*
- *Changing privacy settings on devices, accounts or app to limit the sharing of personal data and information (E.g: name, contact information, photos)*
- *As an Internet user are you aware of the following cybercrimes: (E.g: spam, hacking, online, fraud stalking, phishing, cyber-bullying, catfish, fake news and spreading of computer virus)*

11.4.4 Selected Statistics of Malaysia from Malaysian Communications and Multimedia Commission (MCMC)

i. Broadband

The broadband penetration rate per 100 inhabitants is calculated by dividing the sum of fixed and mobile-broadband subscriptions by total number of population and multiplying by 100. Public Wi-Fi subscriptions are not taken into account.

ii. Mobile-cellular

The mobile-cellular penetration rate refers to the total subscriptions divided by total number of population and multiplied by 100. A penetration rate over 100 per cent can occur because of multiple subscriptions.

iii. Fixed-telephone

The fixed-telephone penetration rate refers to the total subscriptions divided by total number of population and multiplied by 100.

iv. Pay TV

The pay TV penetration rate per 100 households is calculated by dividing the number of household subscriptions by the number of households and multiplied by 100.

11.5 ROUNDING OF ESTIMATES

The calculation of certain categories may not always be the same between tables due to independent rounding. However, the differences were insignificant.

Percentages shown in the tables were computed from actual absolute figures and may not always add up exactly to 100 per cent due to rounding, although the totals were shown as 100 per cent.

11.6 NOTES AND SYMBOLS

W.P.	Wilayah Persekutuan
n.a.	Not applicable
ICT	Information and Communication Technology
-	Not available
0.0	Less than half the smallest unit shown. For example, less than 0.05 per cent.

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ISSN 2710-5881



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