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JABATAN PERANGKAAN MALAYSIA

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STATISTIK EKONOMI TAHUNAN

Annual Economic Statistics

2022

Perkhidmatan Maklumat dan Komunikasi
Information and Communication Services

JABATAN PERANGKAAN MALAYSIA
DEPARTMENT OF STATISTICS MALAYSIA



**KEMENTERIAN EKONOMI
JABATAN PERANGKAAN MALAYSIA**

STATISTIK EKONOMI TAHUNAN *ANNUAL ECONOMIC STATISTICS* **2022**

PERKHIDMATAN MAKLUMAT DAN KOMUNIKASI
INFORMATION AND COMMUNICATION SERVICES

Dikeluarkan pada: 1 Mac 2023
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Pemakluman

Jabatan Perangkaan Malaysia (DOSM) akan menjalankan Banci Ekonomi pada tahun 2023. DOSM amat menghargai kerjasama daripada responden untuk memberikan maklumat kepada DOSM serta menjayakan banci ini. Sila layari www.dosm.gov.my untuk maklumat lanjut.

DOSM telah melancarkan OpenDOSM NextGen sebagai platform yang menyediakan katalog data dan visualisasi bagi memudahkan pengguna menganalisis pelbagai jenis data. OpenDOSM NextGen ialah medium perkongsian data sumber terbuka dan boleh diakses melalui portal <https://open.dosm.gov.my>.

Dimaklumkan bahawa Kerajaan Malaysia telah mengisytiharkan Hari Statistik Negara (MyStats Day) pada 20 Oktober setiap tahun. Tema sambutan MyStats Day adalah "Connecting the World with Data We Can Trust".

Announcement

The Department of Statistics Malaysia (DOSM) will conduct the Economic Census in 2023. DOSM greatly appreciates the cooperation from respondents to provide information with DOSM and make this census a success. Please visit www.dosm.gov.my for more information.

DOSM has launched OpenDOSM NextGen as a platform that provides a catalogue of data and visualisation that facilitates users in analysing various types of data. OpenDOSM NextGen is an open source data sharing medium and accessible through <https://open.dosm.gov.my> portal.

Please be informed that the Government of Malaysia has declared National Statistics Day (MyStats Day) on October 20 each year. MyStats Day theme is "Connecting the World with Data We Can Trust".

JABATAN PERANGKAAN MALAYSIA
DEPARTMENT OF STATISTICS MALAYSIA

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KATA PENGANTAR

Penerbitan ini memaparkan statistik bagi perkhidmatan Maklumat dan komunikasi daripada Survei Ekonomi Tahunan 2022 bagi tahun rujukan 2021. Perkhidmatan Maklumat dan komunikasi diklasifikasikan dibawah Seksyen J dalam Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Ver. 1.0, selaras dengan *International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4*.

Statistik yang dilaporkan dalam penerbitan ini adalah nilai output kasar, nilai input perantaraan, nilai ditambah, bilangan pekerja, gaji & upah yang dibayar dan nilai harta tetap. Statistik ini juga boleh digunakan sebagai sumber rujukan oleh kerajaan, ahli ekonomi, ahli akademik, pihak swasta serta individu.

Penerbitan ini mengandungi tiga bahagian utama. Bahagian pertama membentangkan infografik dan ringkasan penemuan. Bahagian kedua memuatkan jadual terperinci manakala di bahagian ketiga menerangkan aspek teknikal bagi skop & liputan, konsep & definisi untuk memudahkan pengguna memahami statistik yang diterbitkan.

Jabatan Perangkaan Malaysia merakamkan setinggi-tinggi penghargaan atas kerjasama dan sumbangan yang diberikan oleh semua pihak dalam menjayakan survei ini. Setiap maklum balas dan cadangan untuk penambahbaikan penerbitan ini pada masa akan datang amatlah dihargai.

DATO' SRI DR. MOHD UZIR MAHIDIN

Ketua Perangkawan Malaysia

Mac 2023

PREFACE

This publication presents statistics on Information and communication services resulted from the Annual Economic Survey 2022 for reference year 2021. Information and communication services is classified under the Section J in the Malaysia Standard Industrial Classification (MSIC) 2008 Ver. 1.0, in accordance with the International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4.

Statistics reported in this publication are value of gross output, intermediate input, value added, numbers of persons engaged, salaries & wages paid and value of fixed assets. These statistics are also useful as a source of reference by government agencies, economists, academicians, private sectors and individuals.

This publication is divided into three main parts. The first part displays the infographic and summary of findings. The second part shows the detailed statistical table, meanwhile the third part describes technical aspects on scope & coverage and concepts & definitions to assist users in understanding the published statistics.

Department of Statistics Malaysia (DOSM) gratefully acknowledges the co-operation and contribution rendered by all parties in making this publication a success. Every feedback and suggestion towards improving future publications is highly appreciated.

DATO' SRI DR. MOHD UZIR MAHIDIN

Chief Statistician Malaysia

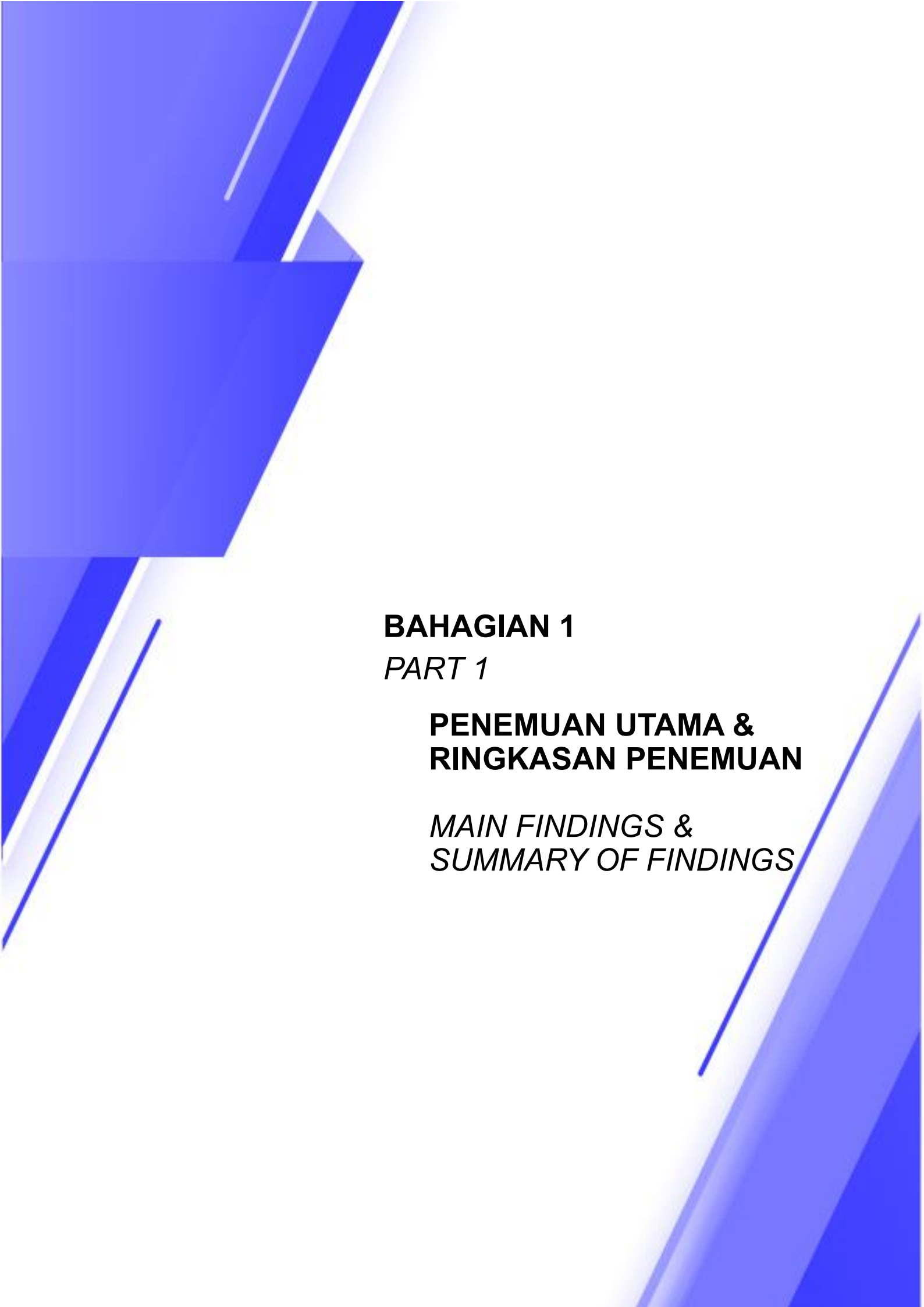
March 2023

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BAHAGIAN 1

PART 1

PENEMUAN UTAMA & RINGKASAN PENEMUAN

MAIN FINDINGS & SUMMARY OF FINDINGS

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STATISTIK EKONOMI TAHUNAN, 2022 PERKHIDMATAN MAKLUMAT DAN KOMUNIKASI

PENEMUAN UTAMA

Nilai Output Kasar

2021: RM 182.2 bilion
2020: RM 172.9 bilion

▲ 5.4%

Nilai Input Perantaraan

2021: RM87.4 bilion
2020: RM82.9 bilion

▲ 5.5%

Nilai Ditambah

2021: RM94.8 bilion
2020: RM90.0 bilion

▲ 5.3%

Bilangan Pekerja

2021: 241,711 orang
2020: 236,372 orang

▲ 2.3%

Gaji & Upah Dibayar

2021: RM14.8 bilion
2020: RM14.4 bilion

▲ 2.2%

Nilai Harta Tetap

2021: RM107.0 bilion
2020: RM104.8 bilion

▲ 2.1%

Perubahan Peratusan (%): Tahun ke Tahun

AS 2022

ANNUAL ECONOMIC STATISTICS, 2022 INFORMATION AND COMMUNICATION SERVICES

MAIN FINDINGS

Value of Gross Output



2021: RM 182.2 billion
2020: RM 172.9 billion

▲ 5.4%

Value of Intermediate Input



2021: RM87.4 billion
2020: RM82.9 billion

▲ 5.5%

Value Added



2021: RM94.8 billion
2020: RM90.0 billion

▲ 5.3%

Number of Persons Engaged



2021: 241,711 persons
2020: 236,372 persons

▲ 2.3%

Salaries & Wages Paid



2021: RM14.8 billion
2020: RM14.4 billion

▲ 2.2%

Value of Fixed Assets



2021: RM107.0 billion
2020: RM104.8 billion

▲ 2.1%

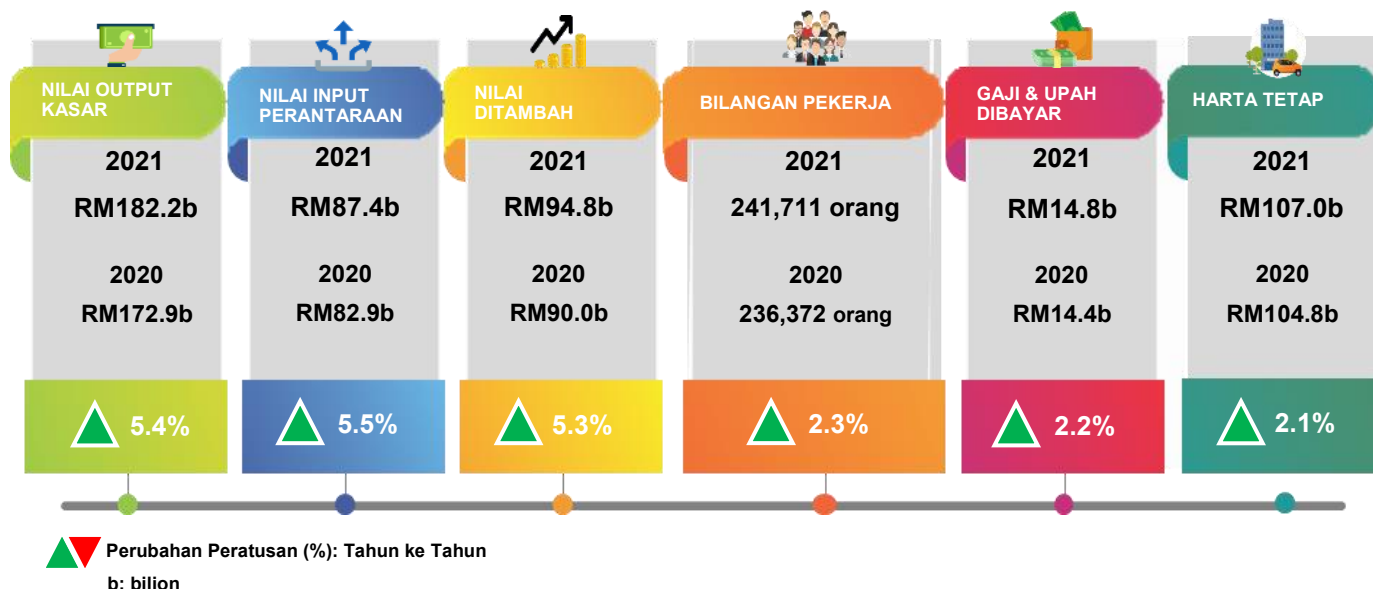
Percentage Change (%): Year-on-Year

1. PENGENALAN

Penerbitan ini memaparkan statistik bagi perkhidmatan Maklumat dan komunikasi yang diperoleh daripada Survei Ekonomi Tahunan 2022 bagi tahun rujukan 2021. Perkhidmatan Maklumat dan komunikasi merangkumi 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. Statistik utama seperti nilai output kasar, nilai input perantaraan, nilai ditambah, bilangan pekerja, gaji & upah yang dibayar dan nilai harta tetap yang turut dipaparkan dalam penerbitan ini.

2. PRESTASI PERKHIDMATAN MAKLUMAT DAN KOMUNIKASI

Paparan 1: Statistik Utama bagi Perkhidmatan Maklumat dan Komunikasi, 2020 dan 2021

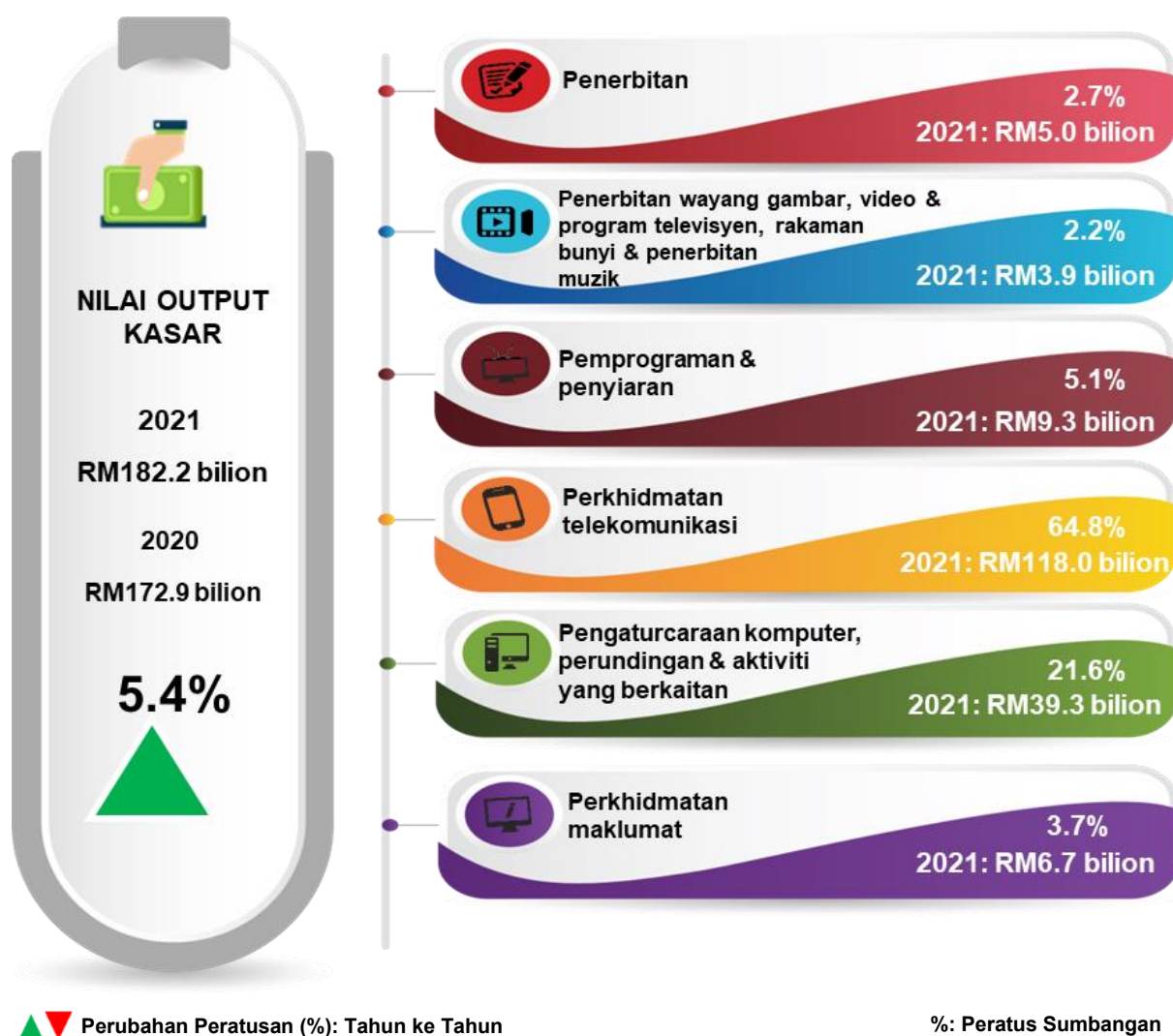


Perkhidmatan Maklumat dan komunikasi mencatatkan nilai output kasar sebanyak RM182.2 bilion pada tahun 2021, mencatatkan pertumbuhan 5.4 peratus berbanding 2020 (RM172.9 bilion). Selaras dengan pertumbuhan nilai output kasar, nilai input perantaraan turut meningkat sebanyak RM4.6 bilion untuk mencatatkan RM87.4 bilion (2020: RM82.9 bilion), seterusnya menghasilkan nilai ditambah sebanyak RM94.8 bilion pada tahun 2021 (2020: RM90.0 bilion). Bilangan pekerja di subsektor ini juga melaporkan peningkatan sebanyak 2.3 peratus kepada 241,711 orang berbanding 236,372 orang pada tahun 2020. Sementara itu, jumlah gaji & upah yang dibayar pada tahun 2021 adalah RM14.8 bilion berbanding RM14.4 bilion pada tahun 2020. Nilai harta tetap juga menunjukkan peningkatan sebanyak RM2.2 bilion yang mencatatkan RM107.0 bilion pada tahun 2021 (2020: RM104.8 bilion), seperti yang ditunjukkan dalam **Paparan 1**.

3. NILAI OUTPUT KASAR

Nilai output kasar perkhidmatan maklumat dan komunikasi meningkat 5.4 peratus kepada RM182.2 bilion. Perkhidmatan telekomunikasi merupakan penyumbang utama dengan nilai output kasar sebanyak RM118.0 bilion atau 64.8 peratus sumbangan diikuti dengan aktiviti pengaturcaraan komputer, perundingan & aktiviti yang berkaitan sebanyak RM39.3 bilion (21.6%) dan aktiviti pemrograman & penyiaran sebanyak RM9.3 bilion (5.1%) seperti yang ditunjukkan dalam **Paparan 2**. Sumbangan ketiga-tiga aktiviti ini merekodkan 91.5 peratus kepada nilai output kasar perkhidmatan Maklumat dan komunikasi. Aktiviti lain yang turut menyumbang ialah penerbitan, perkhidmatan maklumat dan penerbitan wayang gambar, video & program televisyen rakaman bunyi & penerbitan muzik yang berjumlah RM15.6 bilion.

Paparan 2: Nilai Output Kasar bagi Perkhidmatan Maklumat dan Komunikasi mengikut Aktiviti, 2021



3.1 NILAI OUTPUT KASAR MENGIKUT NEGERI

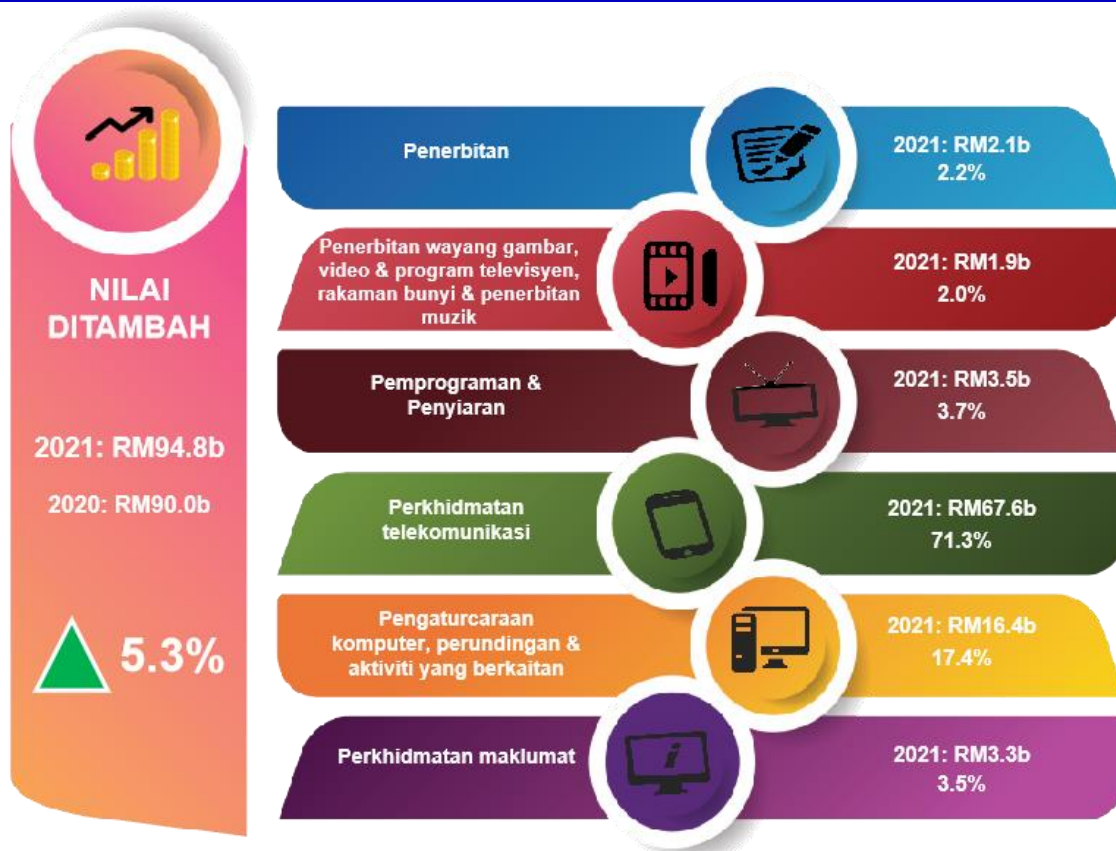
W.P. Kuala Lumpur kekal sebagai penyumbang utama nilai output kasar bagi perkhidmatan Maklumat dan komunikasi pada tahun 2021 dengan nilai RM120.6 bilion iaitu 66.2 peratus sumbangan. Ini diikuti oleh Selangor dan Pulau Pinang dengan nilai output kasar masing-masing sebanyak RM53.2 bilion atau 29.2 peratus sumbangan dan RM5.1 bilion (2.8%). Nilai sumbangan ketiga-tiga negeri ini adalah RM178.9 bilion (98.2%).

4. NILAI DITAMBAH

Nilai ditambah perkhidmatan Maklumat dan komunikasi pada tahun 2021 yang dicatatkan adalah sebanyak RM94.8 bilion atau meningkat sebanyak 5.3 peratus berbanding tahun sebelumnya.

Paparan 3 menunjukkan perkhidmatan telekomunikasi merekodkan nilai ditambah tertinggi pada tahun 2021 sebanyak RM67.6 bilion atau 71.3 peratus sumbangan. Ini diikuti aktiviti pengaturcaraan komputer, perundingan & aktiviti yang berkaitan sebanyak RM16.4 bilion (17.4%) dan aktiviti pemrograman & penyiaran sebanyak RM3.5 bilion (3.7%).

Paparan 3: Nilai Ditambah bagi Perkhidmatan Maklumat dan Komunikasi mengikut Aktiviti, 2021



▲ ▼ Perubahan Peratusan (%): Tahun ke Tahun

%: Peratus Sumbangan

b: bilion

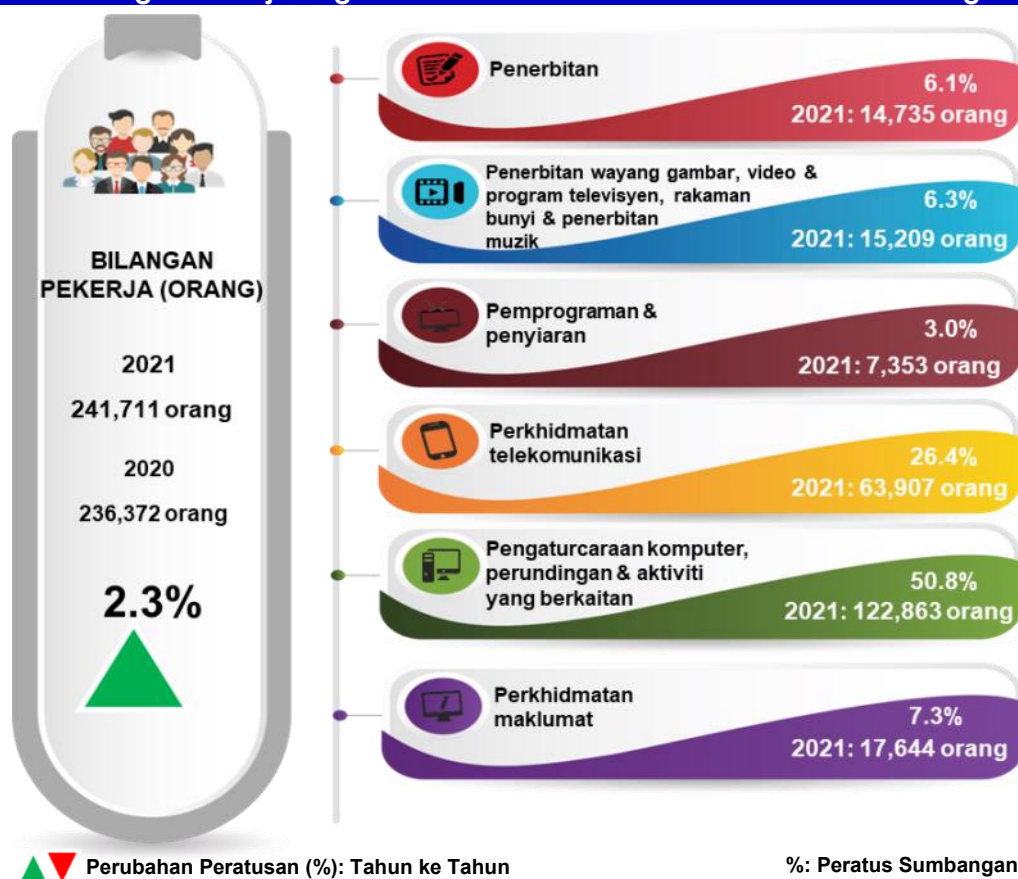
4.1 NILAI DITAMBAH MENGIKUT NEGERI

Prestasi nilai ditambah mengikut negeri pada tahun 2021 menunjukkan tiga negeri iaitu W.P. Kuala Lumpur, Selangor dan Pulau Pinang sebagai penyumbang utama nilai ditambah perkhidmatan Maklumat dan komunikasi. W.P. Kuala Lumpur kekal sebagai penyumbang utama kepada nilai keluaran kasar bagi perkhidmatan Maklumat dan komunikasi pada 2021 mencatatkan nilai ditambah tertinggi iaitu RM64.7 bilion dengan sumbangan sebanyak 68.2 peratus. Ini diikuti oleh Selangor dan Pulau Pinang masing-masing sebanyak RM26.0 bilion (27.4%) dan RM2.4 bilion (2.5%). Nilai sumbangan ketiga-tiga negeri ini adalah RM93.1 bilion (98.1%).

5. BILANGAN PEKERJA DAN KATEGORI PEKERJA

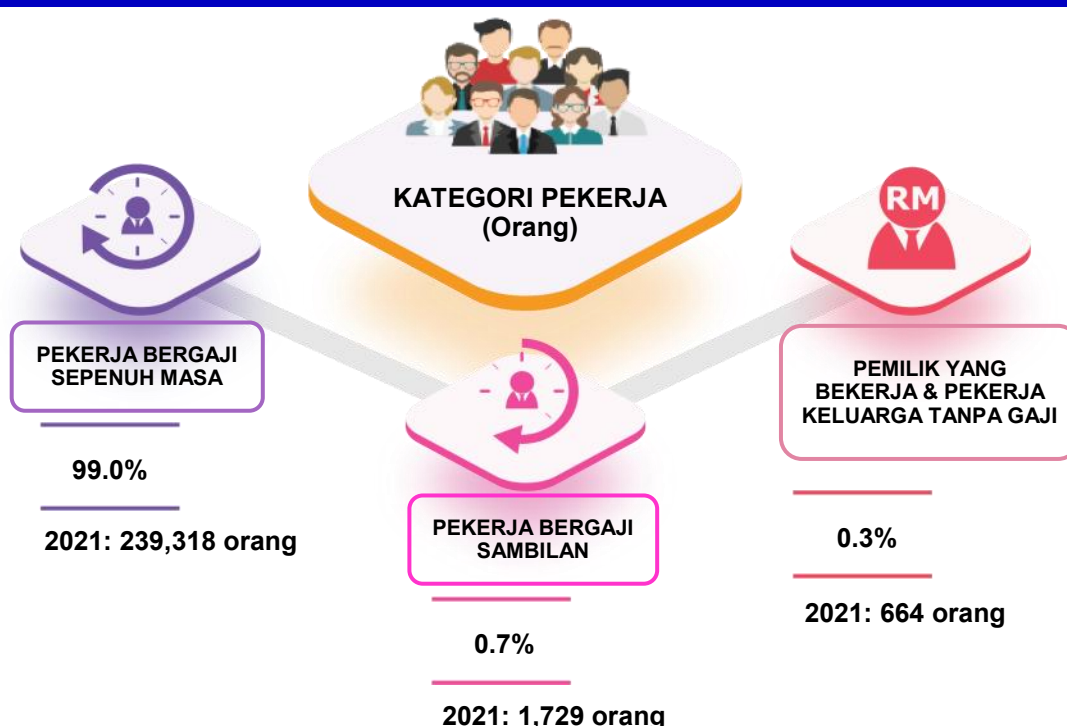
Aktiviti pengaturcaraan komputer, perundingan & aktiviti yang berkaitan merekodkan bilangan pekerja tertinggi iaitu 122,863 orang atau 50.8 peratus sumbangan. Penyumbang kedua tertinggi adalah perkhidmatan telekomunikasi dengan 63,907 orang atau 26.4 peratus sumbangan, diikuti perkhidmatan maklumat 17,644 orang atau 7.3 peratus sumbangan seperti yang ditunjukkan di **Paparan 4**. Tiga aktiviti ini menyumbang bilangan pekerja tertinggi (84.5%) kepada jumlah bilangan pekerja dalam perkhidmatan Maklumat dan komunikasi pada tahun 2021.

Paparan 4: Bilangan Pekerja bagi Perkhidmatan Maklumat dan Komunikasi mengikut Aktiviti, 2021



Pekerja bergaji sepenuh masa merekodkan sejumlah 239,318 orang dengan sumbangan 99.0 peratus berbanding pekerja bergaji sambilan 1,729 orang atau 0.7 peratus sumbangan dan pemilik yang bekerja & pekerja keluarga tanpa gaji (664 orang; 0.3%) seperti yang ditunjukkan di **Paparan 5**. Berdasarkan jumlah keseluruhan pekerja bergaji sepenuh masa, kategori pengurus, profesional dan penyelidik merekodkan bilangan pekerja yang tertinggi (84,398 orang; 35.3%), diikuti oleh pekerjaan dan pekerjaan yang berkaitan (79,502 orang; 33.2%), juruteknik dan profesional bersekutu (49,610 orang; 20.7%) dan pekerja asas (25,808 orang; 10.6%).

Paparan 5: Bilangan Pekerja bagi Perkhidmatan Maklumat dan Komunikasi mengikut kategori Pekerja, 2021

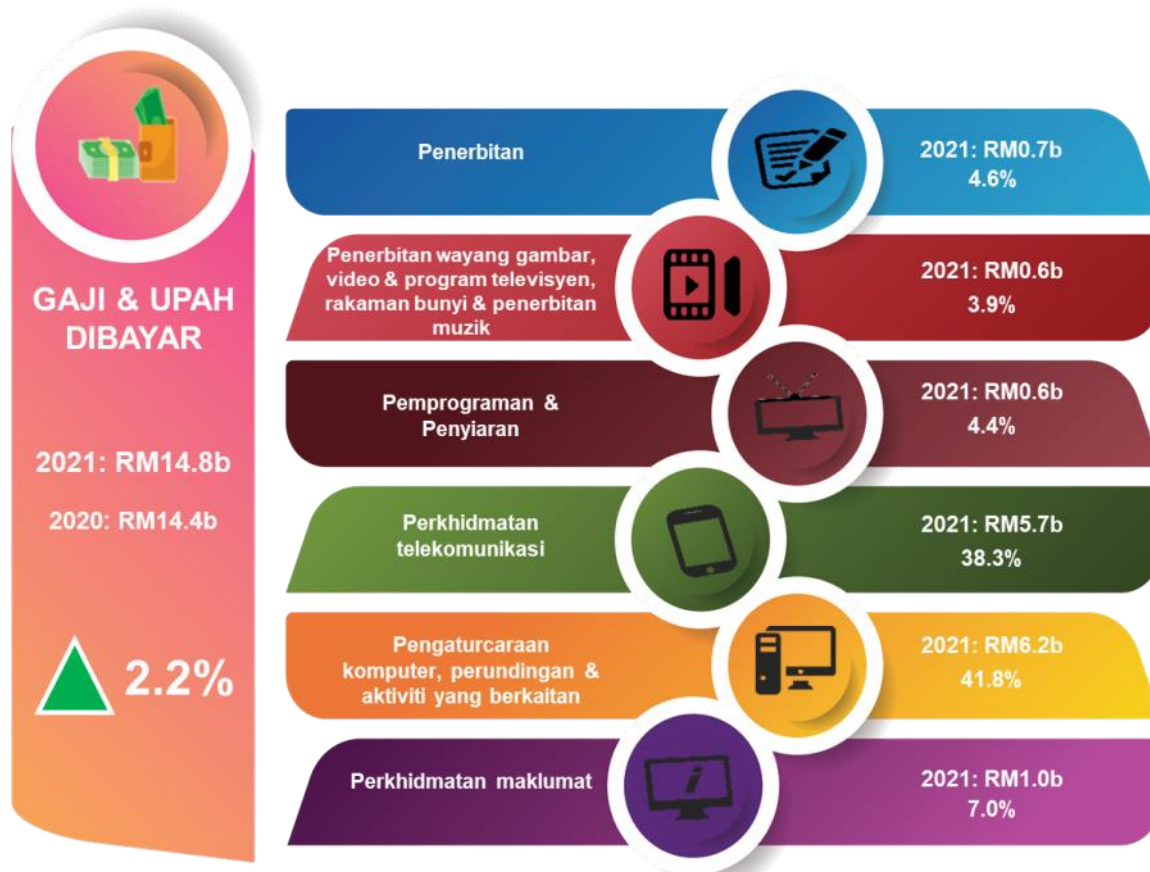


%%: Peratus Sumbangan

6. GAJI & UPAH DIBAYAR

Jumlah gaji & upah yang dibayar dalam perkhidmatan Maklumat dan komunikasi pada tahun 2021 adalah sebanyak RM14.8 bilion. Pengaturcaraan komputer, perundingan & aktiviti yang berkaitan merekodkan gaji & upah tertinggi iaitu RM6.2 bilion atau 41.8 peratus daripada keseluruhan gaji & upah yang dibayar. Penyumbang kedua tertinggi adalah perkhidmatan telekomunikasi dengan RM5.7 bilion atau 38.3 peratus sumbangan diikuti dengan perkhidmatan maklumat RM1.0 bilion atau 7.0 peratus sumbangan seperti yang ditunjukkan dalam **Paparan 6**. Sumbangan gaji & upah yang dibayar bagi ketiga-tiga aktiviti ini kepada perkhidmatan Maklumat dan komunikasi secara kolektif ialah RM12.9 bilion (87.1%). Secara purata, gaji & upah yang diterima oleh pekerja dalam perkhidmatan Maklumat dan komunikasi adalah sebanyak RM5,119 sebulan.

Paparan 6: Gaji & Upah Dibayar bagi Perkhidmatan Maklumat dan Komunikasi mengikut Aktiviti, 2021



▲ ▼ Perubahan Peratusan (%): Tahun ke Tahun

%: Peratus Sumbangan

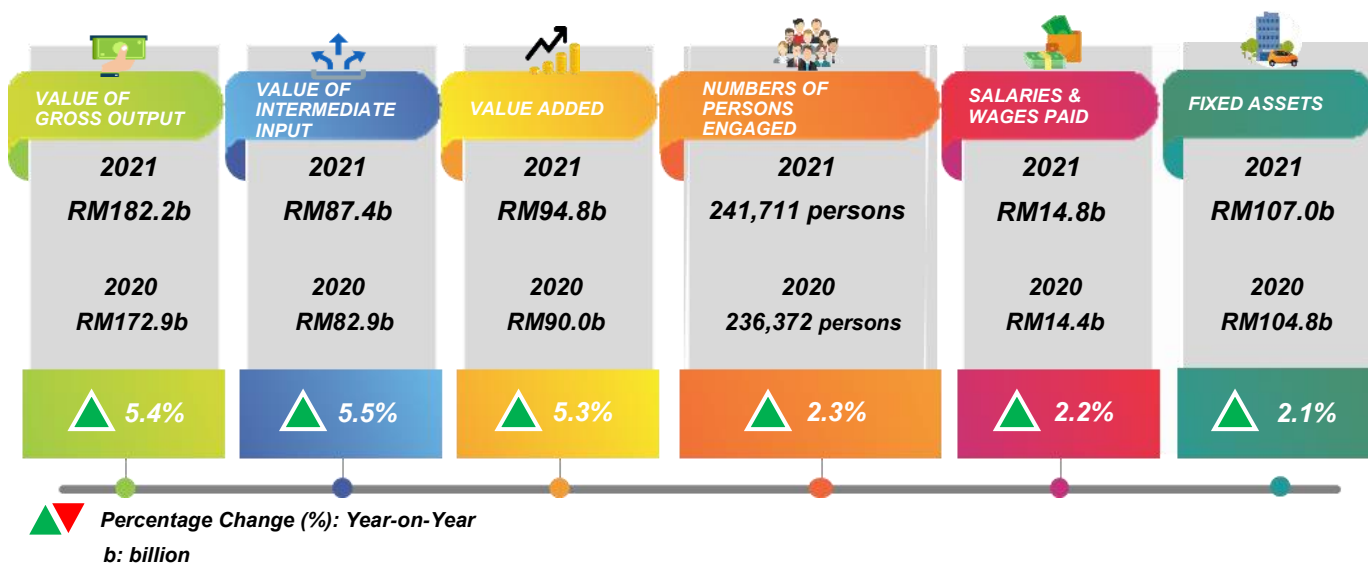
b: bilion

1. INTRODUCTION

This publication presents statistics on the Information and communication services which resulted from the Annual Economic Survey 2022 for reference year 2021. Information and communication services comprises activity of publishing; motion picture, video & television programme production, sound recording & music publishing; programming & broadcasting; telecommunications services; computer programming, consultancy & related activities, and information services. The main statistics such as the value of gross output, value of intermediate input, value added, number of persons engaged, salaries & wages paid as well as value of fixed assets are also presented in this publication.

2. PERFORMANCE OF INFORMATION AND COMMUNICATION SERVICES

Exhibit 1: Principle Statistics of information and Communication Services 2020 and 2021

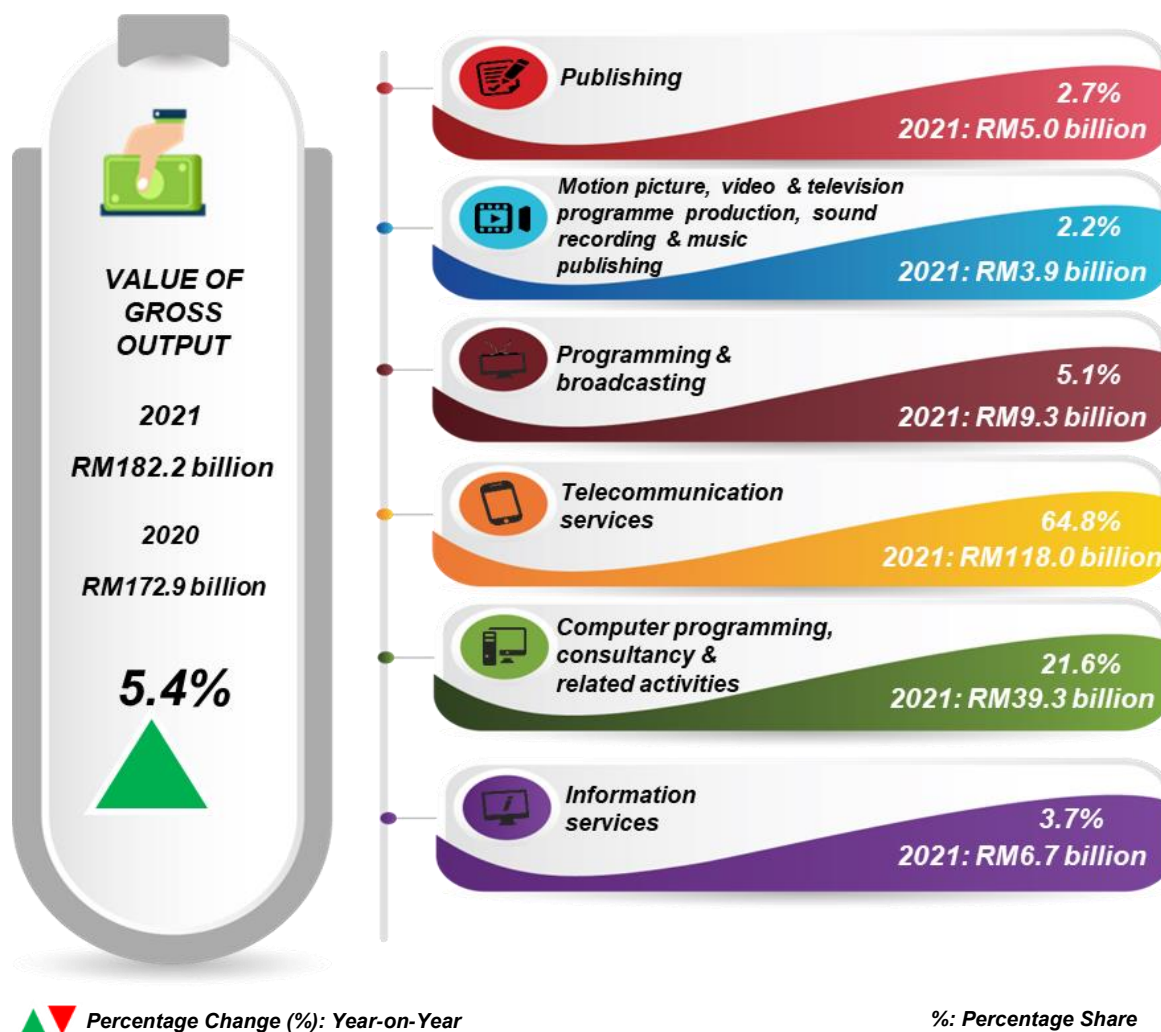


The Information and communication services recorded a gross output value of RM182.2 billion in 2021, registered a growth of 5.4 per cent as compared to 2020 (RM172.9 billion). In line with the growth in gross output, the value of intermediate input also increased by RM4.6 billion to record RM87.4 billion (2020: RM82.9 billion), thus resulting a value added of RM94.8 billion for the year 2021 (2020: RM90.0 billion). The number of persons engaged in this subsector also reported an increase of 2.3 per cent to 241,711 persons as compared to 236,372 persons in 2020. Meanwhile, the salaries & wages paid in 2021 amounted to RM14.8 billion, as compared to RM14.4 billion in 2020. The value of fixed assets also showed an increase of RM 2.2 billion to record RM107.0 billion in 2021 (2020: RM104.8 billion), as shown in **Exhibit 1**.

3. VALUE OF GROSS OUTPUT

The gross output value of Information and communication services rose by 5.4 per cent to RM182.2 billion. Telecommunications services was the major contributor of gross output value with RM118.0 billion or 64.8 per cent share followed by computer programming, consultancy & related activities with RM39.3 billion (21.6%), and programming & broadcasting with RM9.3 billion (5.1%), as shown in **Exhibit 2**. These three activities together contributed 91.5 per cent to the value of gross output in Information and communication services. Other activities that also contributed were publishing, information services, and motion picture, video & television programme production, sound recording & music publishing with a value of RM15.6 billion.

Exhibit 2: Value of Gross Output for Information and Communication Services by Activity, 2021



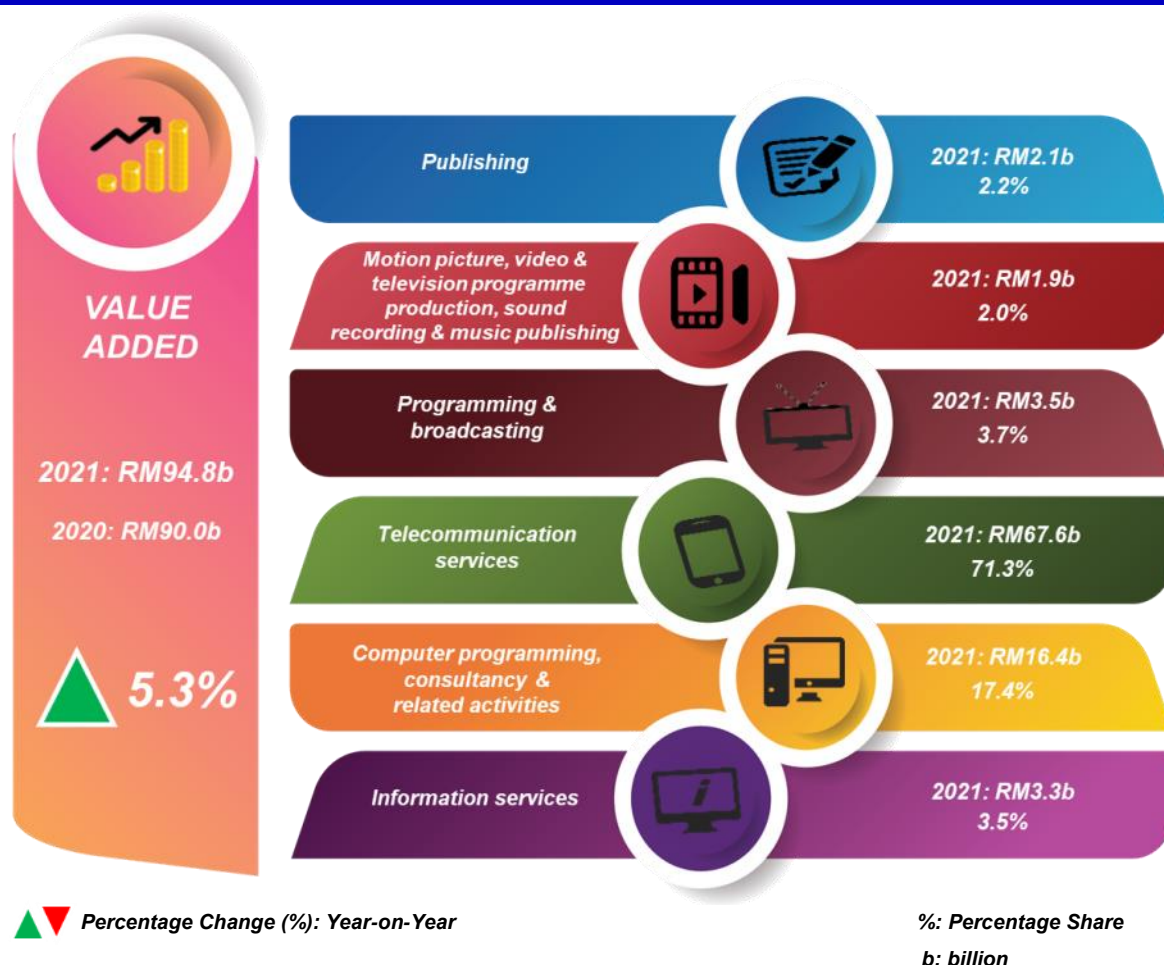
3.1 VALUE OF GROSS OUTPUT BY STATE

W.P. Kuala Lumpur remained as the main contributor to the gross output value for Information and communication services in 2021, recorded RM120.6 billion with 66.2 per cent share. This was followed by Selangor and Pulau Pinang with the gross output value of RM53.2 billion or 29.2 per cent share and RM5.1 billion (2.8%), respectively. The total value of gross output for the three states amounted to RM178.9 billion (98.2%).

4. VALUE ADDED

The total value added recorded in Information and communication services for 2021 was RM94.8 billion or rose 5.3 per cent as compared to previous year. **Exhibit 3** shows that the telecommunications services recorded the highest value added in 2021 which amounted to RM67.6 billion or 71.3 per cent share. This was followed by the computer programming, consultancy & related activities of RM16.4 billion (17.4%), and programming & broadcasting of RM3.5 billion (3.7%), respectively.

Exhibit 3: Value Added for Information and Communication Services by Activity, 2021



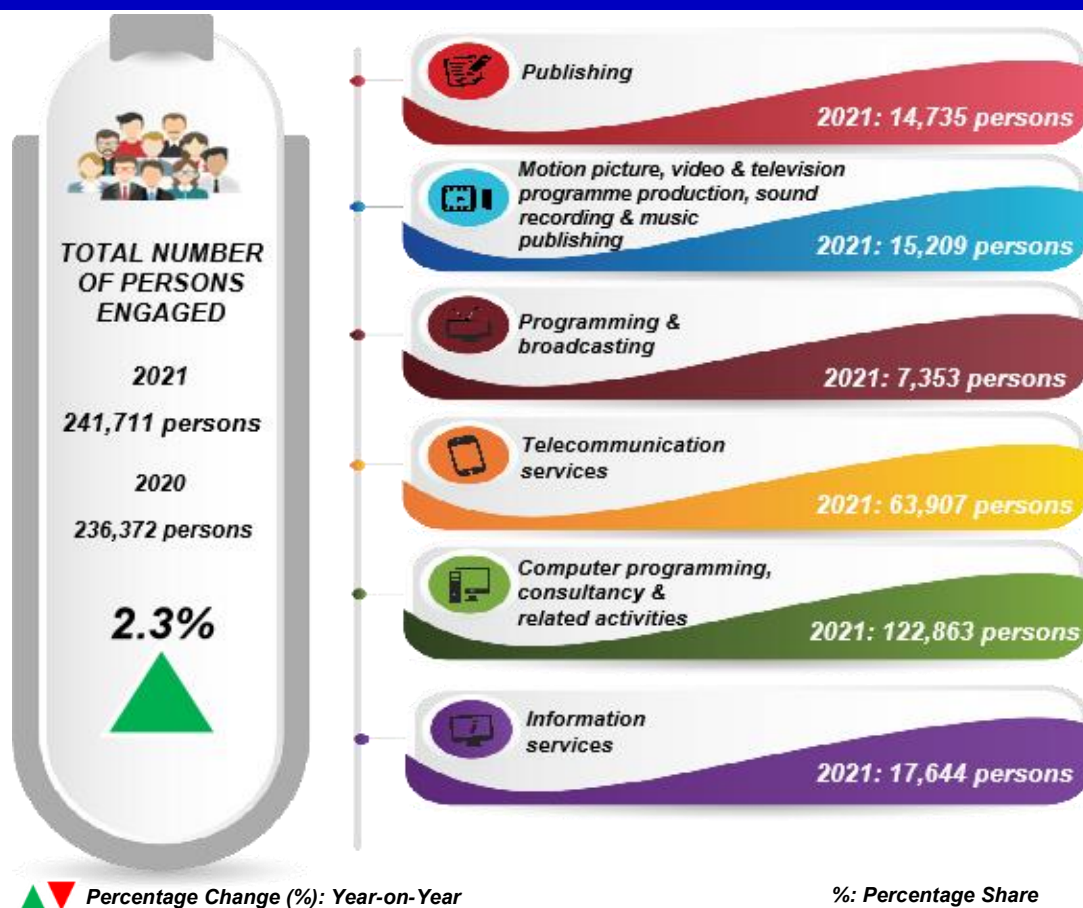
4.1 VALUE ADDED BY STATE

Performance of value added by state in 2021 indicated that three states, i.e., W.P. Kuala Lumpur, Selangor and Pulau Pinang were the main contributors to the value added of Information and communication services. W.P. Kuala Lumpur remained as the main contributor to the gross output value of Information and communication services in 2021, recorded RM64.7 billion with a 68.2 per cent share. This was followed by Selangor and Pulau Pinang with gross output value of RM26.0 billion (27.4%), and RM2.4 billion (2.5%), respectively. The total value of gross output for the three states amounted to RM93.1 billion (98.1%).

5. NUMBER OF PERSONS ENGAGED AND CATEGORY OF WORKERS

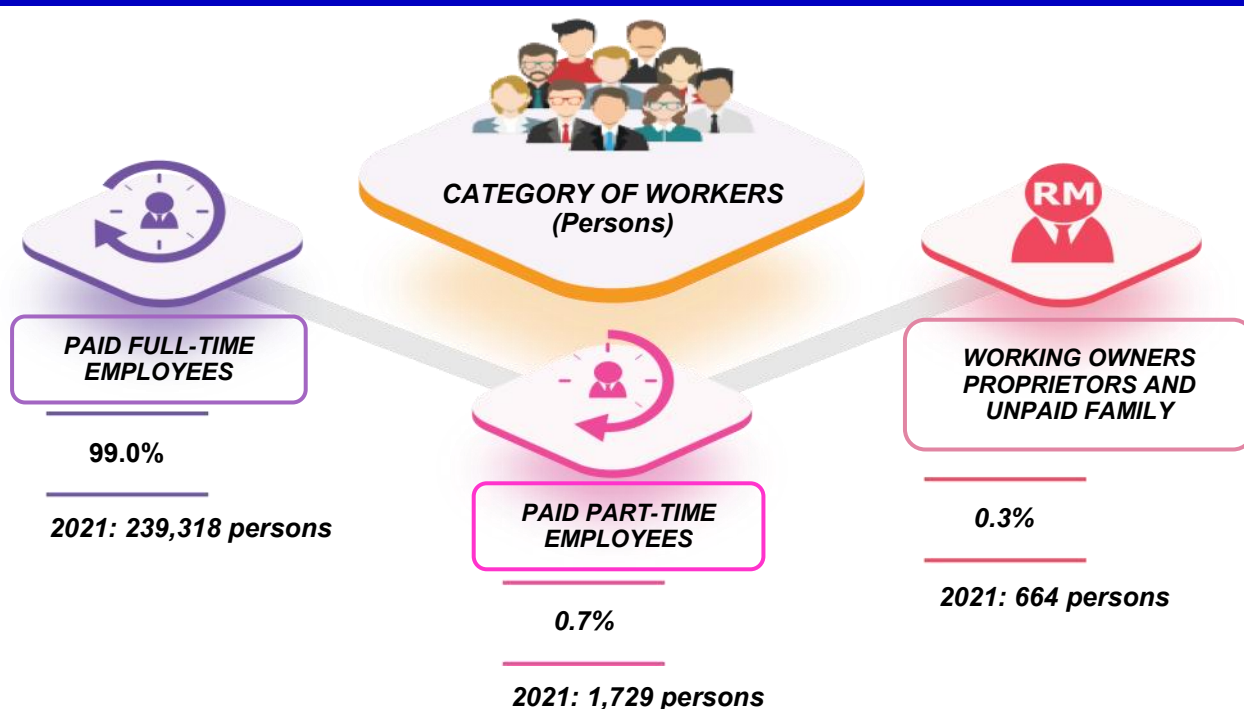
Computer programming, consultancy & related activities registered the highest number of persons engaged, of 122,863 persons or 50.8 per cent share. The second highest contributor was telecommunications services with 63,907 persons or 26.4 per cent share, followed by information services activity with 17,644 persons or 7.3 per cent share, as shown in **Exhibit 4**. These three activities contributed the most (84.5%) of the total number of persons engaged in the Information and communication services in 2021.

Exhibit 4: Number of Persons Engaged for Information and Communication Services by Activity, 2021



Paid full-time employees recorded a total of 239,318 persons with percentage share of 99.0 per cent, as against to paid part-time employees 1,729 persons or 0.7 per cent share, and working proprietors & unpaid family workers (664 persons; 0.3%), as shown in **Exhibit 5**. Based on the total number of full-time employees, manager, professional and researcher recorded the highest number of persons engaged (84,398 persons; 35.3%), followed by clerical and related occupations (79,502 persons; 33.2%), technicians and associate professionals (49,610 persons; 20.7%), and elementary occupations (25,808 persons; 10.6%), respectively.

Exhibit 5: Number of Persons Engaged for Information and Communication Services by Category of Workers, 2021

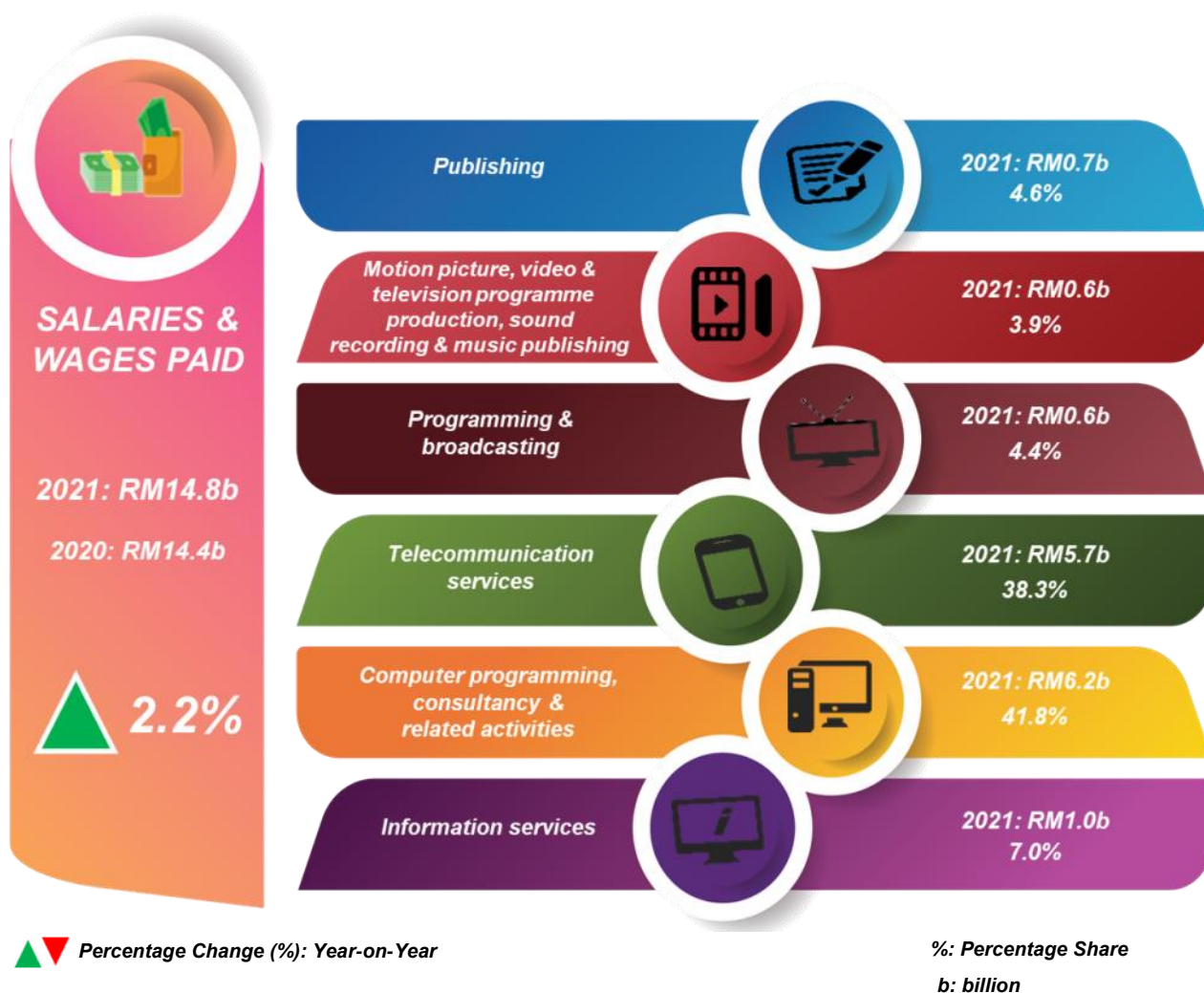


?: Percentage Share

6. SALARIES & WAGES PAID

The total salaries & wages paid in Information and communication services for the year 2021 amounted to RM14.8 billion. Computer programming, consultancy & related activities recorded the highest salaries & wages at RM6.2 billion or 41.8 per cent to the salaries & wages paid. The second highest contributor was telecommunications services with RM5.7 billion or 38.3 per cent share, followed by information services with RM1.0 billion or 7.0 per cent share, as shown in **Exhibit 6**. Collectively, the share of salaries & wages paid to Information and communication services for all three activities were RM12.9 billion (87.1%). On average, salaries & wages received by employees in the Information and communication services amounted to RM5,119 monthly.

Exhibit 6: Salaries & Wages Paid in Information and Communication Services by Activity, 2021



BAHAGIAN 2
PART 2

JADUAL
TABLES

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Jadual 1: Statistik Utama Perkhidmatan Maklumat dan Komunikasi, 2015, 2017-2021
Table 1: Principal Statistics of Information and Communication Services, 2015, 2017-2021

Tahun <i>Year</i>	Nilai output kasar <i>Value of gross output</i> (RM'000)	Nilai input perantara <i>Value of intermediate input</i> (RM'000)	Nilai ditambah <i>Value added</i> (RM'000)	Jumlah pekerja <i>Total number of persons engaged</i>	Gaji & upah yang dibayar <i>Salaries & wages paid</i> (RM'000)	Nilai harta tetap <i>Value of fixed assets</i> (RM'000)
2021	182,162,740	87,410,149	94,752,590	241,711	14,774,591	106,954,062
2020	172,853,710	82,850,923	90,002,787	236,372	14,449,965	104,755,703
2019	163,785,200	78,171,808	85,613,392	240,693	14,938,599	101,008,145
2018	154,975,847	74,482,977	80,492,869	233,543	14,368,584	96,889,860
2017	144,763,525	70,419,094	74,344,431	225,665	13,751,293	93,749,354
2015*	124,606,402	62,047,504	62,558,898	203,017	11,659,440	82,778,363

Nota / Note

***Merujuk kepada tahun banci**

***Refer to census year**

Jadual 1.1: Statistik Utama Perkhidmatan Maklumat dan Komunikasi mengikut Aktiviti, 2021
Table 1.1: Principal Statistics by Information and Communication Services by Activities, 2021

Aktiviti <i>Activities</i>	Nilai output kasar <i>Value of gross output</i> (RM'000)	Nilai input perantaraan <i>Value of intermediate input</i> (RM'000)	Nilai ditambah <i>Value added</i> (RM'000)	Jumlah pekerja <i>Total number of persons engaged</i>	Gaji & upah yang dibayar <i>Salaries & wages paid</i> (RM'000)	Nilai harta tetap <i>Value of fixed assets</i> (RM'000)
Jumlah Total	182,162,740	87,410,149	94,752,590	241,711	14,774,591	106,954,062
Penerbitan <i>Publishing</i>	4,967,517	2,908,401	2,059,116	14,735	686,139	1,840,560
Penerbitan wayang gambar, video dan program televisyen, rakaman bunyi dan penerbitan muzik <i>Motion picture, video and television programme production, sound recording and music publishing</i>	3,933,819	2,071,795	1,862,023	15,209	577,753	2,551,517
Pemrograman dan penyiaran <i>Programming and broadcasting</i>	9,293,246	5,774,782	3,518,464	7,353	645,372	6,667,854
Perkhidmatan telekomunikasi <i>Telecommunication services</i>	117,982,624	50,396,579	67,586,045	63,907	5,655,471	80,637,171
Pengaturcaraan komputer, perundingan dan aktiviti yang berkaitan <i>Computer programming, consultancy and related activities</i>	39,297,919	22,850,336	16,447,583	122,863	6,183,297	13,870,801
Perkhidmatan maklumat <i>Information services</i>	6,687,615	3,408,256	3,279,359	17,644	1,026,558	1,386,160

Jadual 2: Statistik Utama Perkhidmatan Maklumat dan Komunikasi mengikut Negeri, 2021
Table 2: Principal Statistics of Information and Communication Services by State, 2021

Negeri State	Nilai output kasar Value of gross output (RM'000)	Nilai input perantara Value of intermediate input (RM'000)	Nilai ditambah Value added (RM'000)	Jumlah pekerja Total number of persons engaged	Gaji & upah yang dibayar Salaries & wages paid (RM'000)	Nilai harta tetap Value of fixed assets (RM'000)
Jumlah Total	182,162,740	87,410,149	94,752,590	241,711	14,774,591	106,954,062
Johor	867,333	427,007	440,326	3,695	112,954	836,456
Kedah	103,759	57,398	46,362	535	16,983	42,265
Kelantan	5,157	2,979	2,177	68	1,204	481
Melaka	166,911	83,297	83,613	707	15,627	71,341
Negeri Sembilan	163,051	83,586	79,465	493	18,459	57,481
Pahang	192,581	64,184	128,398	348	10,905	546,690
Pulau Pinang	5,105,077	2,721,633	2,383,444	11,395	352,736	4,978,027
Perak	411,276	229,244	182,033	1,143	42,310	119,896
Perlis	2,774	1,574	1,201	45	1,032	1,564
Selangor	53,215,083	27,185,287	26,029,796	101,402	5,532,694	20,681,711
Terengganu	23,213	12,408	10,805	229	6,347	12,592
Sabah	265,292	158,702	106,590	1,169	29,307	235,272
Sarawak	995,215	507,817	487,397	2,982	86,479	1,401,209
W.P. Kuala Lumpur	120,561,009	55,825,049	64,735,961	117,225	8,537,584	77,930,040
W.P. Labuan	3,191	1,015	2,176	15	413	452
W.P. Putrajaya	81,818	48,970	32,848	260	9,556	38,587

Jadual 3: Bilangan Pekerja dan Gaji & Upah Perkhidmatan Maklumat dan Komunikasi mengikut Kategori Pekerja, 2021
Table 3: Number of Persons Engaged and Salaries & Wages of Information and Communication Services by Category of Workers, 2021

Kategori pekerja Category of workers	Bilangan pekerja Number of persons engaged			Gaji & upah yang dibayar Salaries & wages paid (RM'000)
	Jumlah Total	Lelaki Male	Perempuan Female	
Jumlah Total	241,711	144,665	97,046	14,774,591
Jumlah pemilik yang bekerja dan pekerja keluarga tidak bergaji Total working proprietors and unpaid family workers	664	533	131	-
Jumlah pekerja bergaji (sepenuh masa) Total paid employees (full-time)	239,318	142,899	96,419	14,748,829
Pengurus, profesional dan penyelidik Manager, professional and researcher	84,398	55,842	28,556	9,726,110
Juruteknik dan profesional bersekutu Technicians and associate professionals	49,610	37,129	12,481	2,575,975
Perkeranian dan pekerjaan yang berkaitan* Clerical and related occupations	79,502	35,785	43,717	1,946,545
Pekerja asas Elementary occupation	25,808	14,143	11,665	500,198
Pekerja bergaji (sambilan) Paid employees (part-time)	1,729	1,233	496	25,762

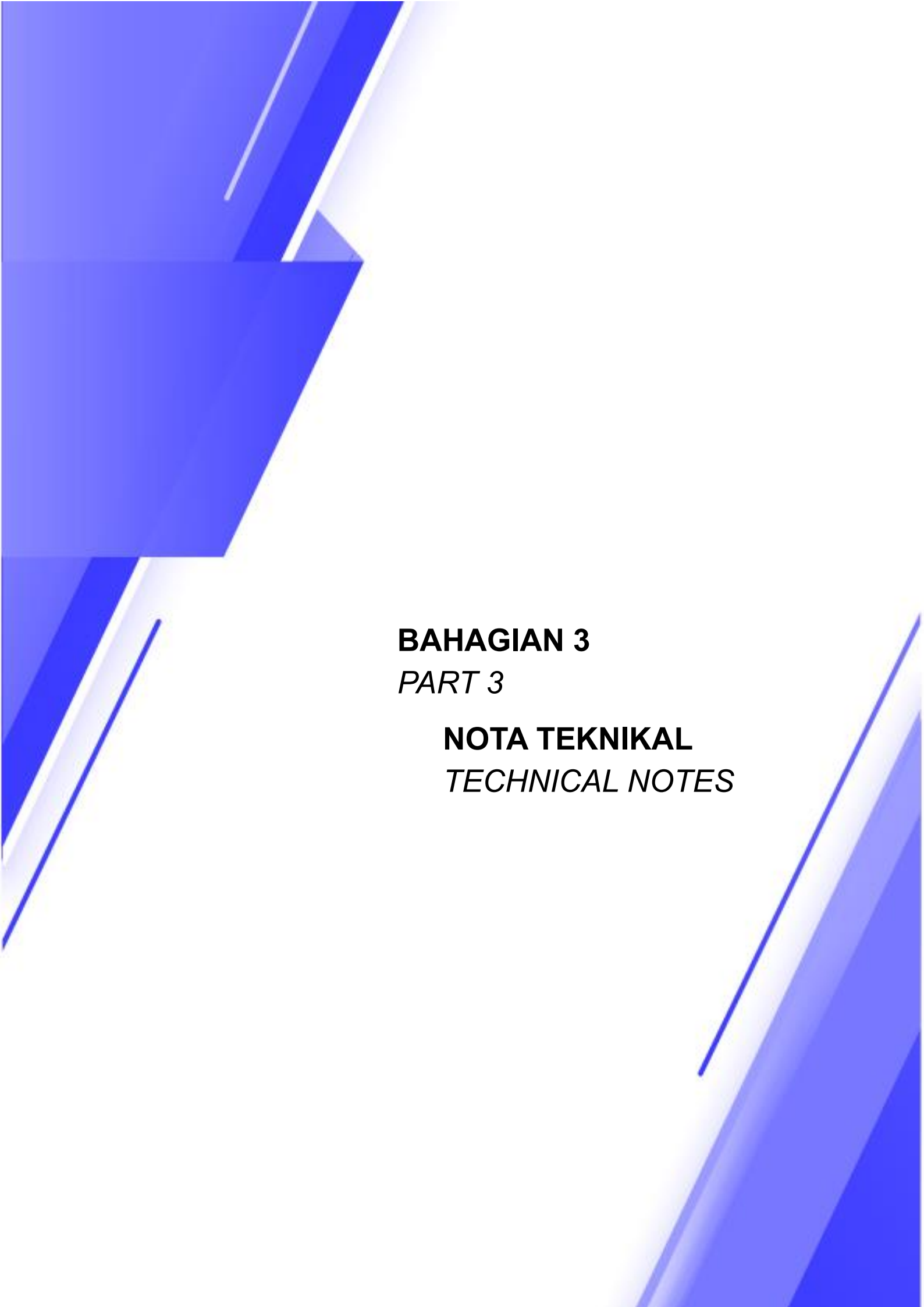
* Termasuk pekerja perkhidmatan & jualan, pekerja kemahiran & pekerja pertukangan yang berkaitan dan operator mesin & loji pemasangan
Includes service & sales workers, craft & related trades workers and plant & machine operators & assemblers

Jadual 4: Bilangan Pekerja dan Gaji & Upah Perkhidmatan Maklumat dan Komunikasi mengikut Kategori Kemahiran dan Jantina, 2021
Table 4: Number of Persons Engaged and Salaries & Wages of Information and Communication Services by Category of Skills and Sex, 2021

Kategori kemahiran Category of skills	Bilangan pekerja Number of persons engaged		Gaji & upah yang dibayar Salaries & wages paid (RM'000)
	Jumlah Total	Lelaki Male	Perempuan Female
Jumlah Total	239,318	142,899	96,419
* Mahir High-Skilled	134,008	92,971	41,037
** Separuh Mahir Semi-Skilled	79,502	35,785	43,717
*** Berkemahiran rendah Low-Skilled	25,808	14,143	11,665
* Termasuk pengurusan & profesional dan juruteknik & profesional bersekutu <i>Includes managers & professionals and technicians & associate professionals</i>			
** Termasuk pekerja sokongan perkeranian, pekerja perkhidmatan & jualan, pekerja kemahiran & pekerja pertukangan yang berkaitan dan operator mesin & loji pemasangan <i>Includes clerical support workers, service & sales workers, craft & related trades workers and plant & machine operators & assemblers</i>			
*** Termasuk pekerja asas <i>Includes elementary occupations</i>			

Jadual 5: Perbelanjaan Modal dan Nilai Harta Tetap Perkhidmatan Maklumat dan Komunikasi, 2021
Table 5: Capital Expenditure and Value of Fixed Asset of Information and Communication Services, 2021

Aktiviti <i>Activities</i>	Perbelanjaan modal <i>Capital expenditure</i> (RM'000)	Pelupusan <i>Disposal</i> (RM'000)	Susut nilai <i>Current depreciation</i> (RM'000)	Nilai harta tetap <i>Value of fixed assets</i> (RM'000)
Jumlah <i>Total</i>	12,305,200	196,283	4,129,260	106,954,062
Penerbitan <i>Publishing</i>	182,684	4,289	105,605	1,840,560
Penerbitan wayang gambar, video dan program televisyen, rakaman bunyi dan penerbitan muzik <i>Motion picture, video and television programme production, sound recording and music publishing</i>	191,250	7,026	148,472	2,551,517
Pemrograman dan penyiaran <i>Programming and broadcasting</i>	2,384,991	5,488	82,291	6,667,854
Perkhidmatan telekomunikasi <i>Telecommunication services</i>	7,279,808	88,401	3,255,034	80,637,171
Pengaturcaraan komputer, perundingan dan aktiviti yang berkaitan <i>Computer programming, consultancy and related activities</i>	1,983,410	31,192	454,857	13,870,801
Perkhidmatan maklumat <i>Information services</i>	283,058	59,887	83,001	1,386,160



BAHAGIAN 3

PART 3

NOTA TEKNIKAL

TECHNICAL NOTES

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1. Skop dan liputan Survei ini meliputi pertubuhan berdaftar yang terlibat dalam **perkhidmatan Maklumat dan komunikasi** yang merangkumi aktiviti utama berikut:

- i. Penerbitan;
- ii. Penerbitan wayang gambar, video & program televisyen, rakaman bunyi & penerbitan muzik;
- iii. Pemrograman & penyiaran;
- iv. Perkhidmatan telekomunikasi;
- v. Pengaturcaraan komputer, perundingan & aktiviti yang berkaitan; dan
- vi. Perkhidmatan maklumat.

Keseluruhan liputan survei bagi perkhidmatan maklumat dan komunikasi terdiri daripada 35 industri di peringkat 5-digit mengikut Piawaian Klasifikasi Industri Malaysia (MSIC), 2008. Senarai lengkap industri yang diliputi ditunjukkan di **Lampiran**.

Liputan bagi tahun 2010 ke atas dan 2009 ke bawah adalah tidak sama disebabkan pengelasan aktiviti yang berbeza (tahun 2010 ke atas – MSIC 2008; tahun 2009 ke bawah - MSIC 2000). Aktiviti penerbitan tidak diliputi dalam perkhidmatan maklumat dan komunikasi sebelum tahun 2009 dan aktiviti penerbitan wayang gambar, video dan program televisyen, rakaman bunyi dan penerbitan muzik hanya diliputi dalam perkhidmatan ini selepas tahun 2010.

2. Sumber rangka pertubuhan

Sumber utama rangka statistik perniagaan adalah daripada *Malaysia Statistical Business Register* (MSBR). 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 dan badan profesional. Senarai di MSBR dikemas kini secara berkala berdasarkan tinjauan dan bancian yang dijalankan oleh Jabatan Perangkaan Malaysia dan sumber data pentadbiran daripada agensi lain. Sumber utama data pentadbiran adalah daripada Suruhanjaya Syarikat Malaysia (SSM). Selain itu, DOSM juga bekerjasama untuk mendapatkan maklumat terkini daripada agensi lain seperti Kumpulan Wang Simpanan Pekerja (KWSP), Jabatan Kastam Diraja Malaysia, Lembaga Hasil Dalam Negeri (LHDN), pihak berkuasa tempatan 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.

3. 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 Versi 1.0. MSIC 2008 yang diselaraskan dengan *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4, United Nations* dan pengubahsuaian mengikut keperluan tempatan.

4. Konsep dan definisi

Definisi perkhidmatan maklumat dan komunikasi yang diguna pakai dalam penerbitan ini berasaskan kepada Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Ver 1.0:

i. Aktiviti penerbitan

Aktiviti penerbitan termasuk pemerolehan hak cipta terhadap kandungan (produk informasi) dan menjadikan kandungan ini tersedia kepada umum menerusi (atau mengatur bagi) pengeluaran semula dan pengedaran dalam pelbagai bentuk. Semua bentuk penerbitan yang boleh dihasilkan (dalam bentuk cetakan, elektronik atau audio, di internet, sebagai produk multimedia seperti buku rujukan dalam bentuk CD-ROM, dll.), diliputi dalam bahagian ini kecuali penerbitan wayang gambar.

ii. Aktiviti penerbitan wayang gambar, video dan program televisyen, rakaman bunyi dan penerbitan muzik

Aktiviti penerbitan wayang gambar, video dan program televisyen, rakaman bunyi dan penerbitan muzik termasuk pengeluaran wayang gambar untuk panggung dan bukan panggung sama ada filem, pita video atau cakera untuk tayangan di pawagam atau siaran televisyen; aktiviti sokongan seperti suntingan, tapisan dan alih suara filem dll; pengedaran wayang gambar dan produksi filem lain kepada industri lain; termasuk tayangan wayang gambar atau produksi filem lain.

Juga termasuk pembelian dan penjualan wayang gambar atau hak penyebaran pengeluaran filem lain. Selain itu, ia juga termasuk aktiviti rakaman bunyi seperti mengeluarkan, menyiar, mempromosi dan mengedar rakaman bunyi asal, penerbitan muzik dan juga aktiviti perkhidmatan rakaman bunyi di studio dan di tempat lain.

4. Konsep dan definisi (samb.)**iii. Aktiviti pemrograman dan penyiaran**

Aktiviti pemrograman dan penyiaran termasuk aktiviti mencipta atau mendapat hak untuk mengedar dan menyiar kandungan rancangan radio, televisyen dan program data hiburan, berita, bual bicara dan seumpamanya. Termasuk juga penyiaran data biasanya diintegrasikan bersama siaran radio atau televisyen. Penyiaran boleh dilakukan menggunakan pelbagai teknologi melalui siaran ke udara, satelit, kabel atau internet. Bahagian ini juga termasuk pengeluaran rancangan yang tertumpu kepada langganan atau dasar yuran kepada pihak ketiga untuk siaran umum (format khusus seperti berita, sukan, pendidikan, program remaja).

iv. Perkhidmatan telekomunikasi

Perkhidmatan telekomunikasi termasuk aktiviti menyediakan perkhidmatan telekomunikasi dan aktiviti yang berkaitan, seperti transmisi suara, data, teks, bunyi dan video. Kemudahan transmisi ini mungkin berasaskan satu teknologi atau kombinasi bagi teknologi tersebut. Lazimnya aktiviti yang diklasifikasikan dalam bahagian ini adalah transmisi kandungan tanpa melibatkan penciptaannya. Pecahan di dalam bahagian ini adalah bergantung kepada jenis infrastruktur yang beroperasi.

v. Pengaturcaraan komputer, perundingan dan aktiviti yang berkaitan

Pengaturcaraan komputer, perundingan dan aktiviti yang berkaitan termasuk aktiviti penyediaan kepakaran di dalam bidang teknologi maklumat seperti penulisan, pengubahsuaian, percubaan dan perisian sokongan bagi memenuhi kehendak pelanggan tertentu; merancang dan mereka bentuk sistem komputer dengan mengintegrasikan teknologi perkakasan, perisian komputer dan komunikasi, pengurusan di lapangan dan operasi sistem komputer pelanggan dan / atau kemudahan memproses data; menyediakan infrastruktur untuk *hosting* atau perkhidmatan prosesan data, dan aktiviti perkhidmatan profesional dan teknikal yang berkaitan dengan komputer.

vi. Aktiviti perkhidmatan maklumat

Aktiviti perkhidmatan maklumat termasuk aktiviti carian web portal, prosesan data dan hosting, serta aktiviti lain pembekalan maklumat.

5. Tahun survei

Tahun survei adalah merujuk kepada tahun pelaksanaan survei.

6. Tahun rujukan

Tahun rujukan bagi penyiasatan ini adalah tahun takwim 2021.

7. Kaedah pengumpulan data

Survei ini secara umumnya dijalankan melalui tiga (3) kaedah iaitu :

- i. Kaedah atas talian melalui portal e-AES: Kaedah ini mensasarkan responden yang telah menggunakan kaedah ini bagi survei rutin terdahulu.
- ii. Kaedah kutipan data melalui e-mel/pos/faks/telefon: Kaedah ini mensasarkan responden yang pernah terlibat dengan survei rutin terdahulu. Responden diberi tempoh satu bulan untuk melengkapkan dan mengembalikan borang soal selidik tersebut kepada Jabatan.
- iii. 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 di atas dan kaedah ini mensasarkan pertubuhan yang tidak pernah terlibat dengan survei rutin DOSM.

8. Reka bentuk pensampelan

Reka bentuk pensampelan bagi survei ini adalah pensampelan rawak strata satu peringkat. Kategori industri dua (2), tiga (3), empat (4) dan lima (5) digit MSIC di peringkat negeri 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).

9. Saiz sampel dan prosedur penganggaran

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
S_i^2	=	Varian bagi strata
V	=	Varian sasaran

$$V = RSE^2 \left(\frac{\hat{Y}_i}{Z} \right)^2$$

di mana,

$\hat{Y}_i$	=	Jumlah hasil bagi strata
RSE	=	Ralat piawai relatif
Z	=	Nilai aras keyakinan

Sampel akan diagihkan kepada substrata dalam industri liputan dengan menggunakan kaedah *Neyman Allocation* seperti berikut:

$$n_{hi} = \left(\frac{N_h S_h}{\sum N_h S_h} \right) n'_i$$

$$h = 2, 3 \text{ dan } 4$$

$$i = 1, 2, \dots k$$

di mana,

n_{hi}	=	Saiz sampel bagi substrata h dalam strata i
N_h	=	Saiz populasi bagi substrata h
S_h	=	Sisihan piawaian bagi substrata h
n_i	=	Saiz sampel bagi strata i
h	=	Substrata
i	=	Strata

9. Saiz sampel dan prosedur penganggaran (samb.)

Saiz sampel optimum bagi survei ini adalah 79,481 pertubuhan. Pertubuhan kategori besar diliputi sepenuhnya, manakala pertubuhan bagi substrata kedua hingga keempat dipilih secara rawak mengikut kaedah pensampelan bersistematik.

10. 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 adalah seperti berikut:

$$W_h = \frac{N_h}{n_h}, n = 1, \dots, 4$$

di mana,

N_h = Bilangan populasi bagi substrata

n_h = Bilangan sampel bagi substrata

Wajaran tiada respons pada substrata adalah seperti berikut:

$$NRW_h = \frac{1}{n'_h/n_h}, h = 1, \dots, 4$$

di mana,

n'_h = Bilangan sampel respons bagi substrata

n_h = Bilangan sampel bagi substrata

Kaedah pengiraan wajaran reka bentuk pensampelan selepas survei (*adjusted weight*) pada substrata seperti berikut:

$$W'_h = W_h \times NRW_h, h = 1, \dots, 4$$

di mana,

W_h = Wajaran reka bentuk persampelan pada substrata h

NRW_h = Wajaran tiada respons pada substrata h

11. 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.

12. Nilai output kasar Nilai output kasar **perkhidmatan Maklumat dan komunikasi** ditakrifkan dengan memasukkan perkara berikut:

- + Pendapatan daripada perkhidmatan yang diberikan
- + Pendapatan daripada perkhidmatan pembaikan dan penyelenggaraan telekomunikasi serta perkhidmatan instalasi rangkaian telekomunikasi
- + Pendapatan daripada pengiklanan dan ruang pengiklanan atas talian
- + Pendapatan langganan dan pendapatan daripada pembekalan rancangan kepada pertubuhan penyiaran lain
- + Royalti, hakcipta, perlesenan dan yuran francais dan lesen hak cipta untuk menggunakan kandungan sindiket media
- + Komisen dan brokeraj yang diperoleh dan pendapatan daripada perkhidmatan pengurusan
- + Pendapatan daripada sewa (kecuali tanah) dan pemajakan pemasangan komputer
- + Nilai jualan (barang / bahan yang dibeli untuk dijual semula tanpa melalui proses selanjutnya)
- + Pendapatan operasi lain
- + Perbelanjaan penyelidikan dan pembangunan dalaman
- + Harta tetap dibuat / dibina sendiri
- Kos barang dijual (barang / bahan yang dibeli untuk dijual semula tanpa melalui proses selanjutnya)

13. Nilai input perantaraan

Nilai input perantaraan **perkhidmatan Maklumat dan komunikasi** ditakrifkan dengan memasukkan perkara berikut:

- + Pembelian barangan, bahan dan perkhidmatan
- + Bayaran pemprosesan data dan lain-lain yang berkaitan dengan teknologi maklumat
- + Kos bahan yang digunakan termasuk bahan untuk pembaikan dan penyelenggaraan
- + Kos filem dibeli untuk tayangan, bayaran kepada pembekal rancangan dan bayaran untuk penyewaan filem
- + Jumlah bayaran *outsourcing*, bayaran pembaikan dan penyelenggaraan semasa yang dibuat oleh pihak lain serta bayaran untuk membekalkan pekerja
- + Bayaran perhubungan antara tempatan dan bayaran keluar antarabangsa
- + Bayaran royalti kepada organisasi bukan kerajaan / tajaan korporat (tempatan dan luar negara)
- + Bayaran telekomunikasi, percetakan serta pengiklanan & promosi
- + Perbelanjaan elektrik, air, bahan pembakar, pelincir, gas, alat tulis, bekalan pejabat dan bekalan lain
- + Bayaran perkhidmatan keselamatan dan tuntutan waranti
- + Perbelanjaan operasi dan sewaan operasi
- + Bayaran kepada pengarah tidak bekerja kerana kehadiran mereka dalam mesyuarat Lembaga Pengarah
- + Nilai pakaian percuma yang disediakan dan kos latihan kepada pekerja
- + Perbelanjaan operasi lain
- + Stok awal kecuali stok perdagangan
- Stok akhir kecuali stok perdagangan

Bermula tahun 2014, perbelanjaan penyelidikan dan pembangunan telah dikeluarkan daripada pengiraan input perantaraan dan diambilkira sebagai perbelanjaan harta selaras dengan penggunaan *Recommendation of System of National Accounts (SNA) 2008*

14. Nilai ditambah

Nilai ditambah adalah tambahan kepada nilai barangan dan perkhidmatan yang dikeluarkan oleh sesebuah pertubuhan. Nilai ditambah diperoleh daripada perbezaan antara nilai output kasar dengan nilai input perantaraan.

15. Bilangan pekerja Bilangan pekerja merujuk kepada bilangan orang yang bekerja pada bulan Disember atau pada tempoh pembayaran gaji terakhir bagi tahun rujukan. Bilangan orang yang bekerja dikategorikan seperti berikut:

i. Pemilik yang bekerja dan rakan niaga yang aktif

Kategori ini merujuk kepada semua pemilik perseorangan dan rakan niaga, sambilan atau sepenuh masa, yang bekerja dengan aktif dalam sesebuah pertubuhan itu. Justeru, ia tidak termasuk rakan niaga yang tidak aktif.

ii. Pekerja keluarga tidak bergaji

Kategori ini meliputi semua ahli isi rumah kepada pemilik pertubuhan yang melaksanakan kerja tertentu (sepenuh masa atau sambilan) dan bekerja sekurang-kurangnya satu pertiga daripada waktu bekerja biasa yang diamalkan oleh pertubuhan berkenaan tanpa mendapat bayaran secara tetap, sama ada dalam bentuk wang tunai atau harta benda bagi kerja yang dilakukan. Biasanya pekerja berkenaan mendapat makanan, tempat tinggal dan bantuan lain sebagai sebahagian daripada ahli isi rumah pemilik tersebut dan terus mendapatnya sama ada ia bekerja atau tidak dalam pertubuhan itu.

iii. Pekerja bergaji (sepenuh masa)

Ia merujuk kepada semua pekerja bergaji yang bekerja sekurang-kurangnya 6 jam sehari dan sekurang-kurangnya 20 hari sebulan.

iv. Pekerja bergaji (sambilan)

Ia merujuk kepada semua pekerja bergaji yang bekerja kurang daripada

16. Kategori kemahiran

Kategori kemahiran telah dikelaskan berdasarkan Piawaian Pengkelasan Pekerjaan Malaysia (MASCO) 2020 adalah seperti berikut:

i. Pekerja mahir

Pengurus dan profesional, penyelidik, juruteknik dan profesional bersekutu;

ii. Pekerja separuh mahir

Pekerja sokongan perkeranian, perkhidmatan & jualan, kemahiran & pertukangan yang berkaitan serta operator mesin, loji dan pemasang; dan

iii. Pekerja berkemahiran rendah

Pekerja asas.

17. Nilai harta tetap Harta tetap meliputi semua barangan, baru atau terpakai, aset ketara atau aset tidak ketara yang digunakan secara berulang atau berterusan yang mempunyai hayat produktif lebih daripada setahun. Ia termasuk tanah, bangunan dan struktur, alat pengangkutan, komputer dan '*peripheral equipment*', mesin, peralatan serta perabot dan pemasangan lain. Nilai harta tetap awal dan akhir bagi tahun rujukan 2021 adalah berasaskan nilai buku bersih. Pembelian, pindaan dan pembaikan besar atau perbelanjaan modal pada tahun berkenaan dikira pada nilai kos sebenar yang dibayar. Nilai harta tetap yang dijual dalam tahun semasa juga dikira pada nilai sebenar. Perbelanjaan penyelidikan dan pembangunan turut diambil kira sebagai perbelanjaan harta selaras dengan *System of National Accounts (SNA) 2008*.

18. Pembundaran Penjumlahan komponen mungkin berbeza dengan angka jumlah kecil atau jumlah besar disebabkan pembundaran.

19. Perubahan peratusan tahun ke tahun Pengiraan adalah berdasarkan formula berikut;

$$Y_t = Y_o(1 + r)^t$$

$$r = \left[e^{\frac{1}{t} \ln \left(\frac{Y_t}{Y_o} \right)} - 1 \right] \times 100$$

Di mana r,

Di mana,

Y_t = Nilai pada tahun semasa

Y_o = Nilai pada tahun sebelum

t = Bilangan tahun, $Y_t - Y_o$

r = kadar pertumbuhan tahunan

20. Simbol dan singkatan

-	: tiada
%	: peratus
&	: dan
>	: lebih daripada
<	: kurang daripada
}	: digabungkan
RM	: Ringgit Malaysia
dll.	: dan lain-lain
samb.	: sambungan
spt.	: seperti
t.t.t.l.	: tidak terkelas di tempat lain
W.P.	: Wilayah Persekutuan

1. Scope and cover- The survey covered all registered establishments engaged in **Information and communication services** which included main activities as follows:

- i. Publishing;
- ii. Motion picture, video & television programme production, sound recording & music publishing;
- iii. Programming & broadcasting;
- iv. Telecommunication services;
- v. Computer programming, consultancy & related activities; and
- vi. Information services.

Overall, coverage of the survey for information and communication services was 35 industries at 5-digit level under the Malaysia Standard Industrial Classification (MSIC), 2008. The complete lists of industries are shown in **Appendix**.

Coverage for year 2010 and above are not the same as the coverage in 2009 and below, due to differences in the classification of activity (2010 and above - MSIC 2008; 2009 and below - MSIC 2000). Publishing activities are not covered in information and communication services prior to 2009 and motion picture, video and television programme production, sound recording and music publishing activities are covered only in this services after 2010.

2. Source of establishments

The main source of updating statistical business frame namely Malaysia Statistical Business Register (MSBR). MSBR is a list of establishments operating in Malaysia which 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 establishments registered with local authorities and professional bodies. The list in the MSBR is updated regularly based on surveys and censuses conducted by the Department of Statistics Malaysia and administrative data sources from other agencies. The main source of administrative data is from the Companies Commission of Malaysia (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), local authorities, and professional bodies.

The frame is updated to take into account new establishments and to record any changes in the status of the 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.

3. Type of business activity

The 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 to which it contributes the largest 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 to the Malaysia Standard Industrial Classification (MSIC) 2008 Ver.1.0. The MSIC 2008 Ver.1.0 conforms to the International Standard Industrial Classification of All Economic Activities.

4. Concepts and definitions

The definition of information and communication services adopted in this publication is based on the recommendations of the Malaysia Standard Industrial Classification (MSIC) 2008 Ver. 1.0:

i. Publishing activities

Publishing includes the acquisition of copyrights to content (information products) and making this content available to the general public by engaging in (or arranging for) the reproduction and distribution of this content in various forms. All the feasible forms of publishing (in print, electronic or audio form, on the internet, as multimedia products such as CD-ROM reference books, etc.), are included in this division except publishing of motion pictures.

ii. Motion picture, video and television programme production, sound recording and music publishing activities

Motion picture, video and television programme production, sound recording and music publishing activities include production of theatrical and non-theatrical motion pictures whether on film, video tape or disc for direct projection in theatres or for broadcasting on television; supporting activities such as film editing, cutting, dubbing, etc; distribution of motion pictures and other film productions projection to other industries; as well as motion picture or other film production projection.

Also included is buying and selling of motion picture or other film productions distribution rights. Besides, it also includes the sound recording activities, i.e. produce, release, promote and distribute the original sound master recordings, publishing of music as well as sound recording service activities in a studio or elsewhere.

4. Concepts and Definitions(cont.)

iii. Programming and broadcasting activities

Programming and broadcasting activities includes the activities of creating content or acquiring the right to distribute content and subsequently broadcasting that content, such as radio, television and data programme of entertainment, news, talk, and the like. Also included is data broadcasting, typically integrated with radio or TV broadcasting. The broadcasting can be performed using different technologies, over-the-air, via satellite, via a cable network or via internet. This division also includes the production of programme that are typically narrowcast in nature on a subscription or fee basis, to a third party, for subsequent broadcasting to the public (limited format, such as news, sports, education, or youth-oriented programming).

iv. Telecommunication services

Telecommunication services includes the activities of providing telecommunication and related service activities, i.e. transmitting voice, data, text, sound and video. The transmission facilities that carry out these activities may be based on a single technology or a combination of technologies. The commonality of activities classified in this division is the transmission of content, without being involved in its creation. The breakdown in this division is based on the type of infrastructure operated.

v. Computer programming, consultancy and related activities

Computer programming, consultancy and related activities includes the following activities of providing expertise in the field of information technologies such as writing, modifying, testing and supporting software to meet the needs of a particular customer; planning and designing computer systems that integrate computer hardware, software and communication technologies; on-site management and operation of clients' computer systems and / or data processing facilities; providing infrastructure for hosting or data processing services; and other professional and technical computer related activities.

vi. Information services activities

Information services activities include the activities of web search portals, data processing and hosting activities, as well as other activities that primarily supply information.

5. Survey year

Survey year refers to the year in which a survey was conducted.

6. Reference year

The reference year of the survey was the calendar year 2021.

7. Method of data collection

This survey is generally conducted through three (3) methods, namely:

- i. Data collection method via online method through the e-AES portal: This method targets respondents who have used this method for previous routine surveys.*
- ii. Respondents were given a period of one month to complete and return the questionnaire to the Department.*
- iii. Face-to-face data collection method: Field work operation is carried out to get feedback from organizations that have not yet given answers from the two methods above and this method also targets organizations that have never been involved in a routine DOSM survey.*

8. Sampling design

Sampling design of the survey is a one-stage stratified random sampling. Categories of industries at two (2), three (3), four (4) and five (5) digit MSIC at state level have been classified as stratum and the establishment as the sampling unit.

Each stratum (industry) has been set up into four substrata to ensure the distributed sample takes into account the economic characteristics of the industry. The main substratum is heterogeneous and was fully covered. Whereas, other substratum that is homogeneous were sampled.

Main substratum includes large establishments that have significant total revenue in the industry while for the second to fourth substratum are based on micro, small, and medium enterprise (MSME) categories.

9. Sample size and estimation procedure

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

S_i^2 = Variance for stratum

V = Desired variance

$$V = RSE^2 \cdot \left(\frac{\hat{Y}_i}{Z} \right)^2$$

where,

$\hat{Y}_i$ = Total revenues for stratum

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 and 4

i = 1, 2, ... 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

9. Sample size and estimation procedure (cont.)

The optimum sample size for this survey is 79,481 establishments. Establishments of the large categories were fully covered while establishments of the second to fourth substratum were randomly selected using systematic random sampling.

10. 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

n_h = Total sample of substratum

Non response weight at substratum h as below:

$$NRW_h = \frac{1}{n'_h/n_h}, h = 1, \dots, 4$$

where,

n'_h = Numbers of respond sample size for substratum

n_h = Number of sample size for 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

NRW_h = Non response weight at substratum

11. 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 to 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.

12. Value of gross output The value of gross output of **Information and communications services** is defined to include the following items:

- + Income from services rendered
- + Income from repair and maintenance services for telecommunication services and installation services for telecommunication networks,
- + Income from advertising and online advertising space
- + Subscription income and income from providing program to other broadcasting establishments
- + Royalties, copyrights, licensing, franchise fees and licensing of rights to use syndicated media content
- + Income from commissions and brokerage earned and management services
- + Rental income received (except land) and leasing of computer hardware
- + Value of sales (good / materials purchased for resales without undergoing further processing)
- + Other operating income
- + In-house research and development expenditure
- + Built / self-produced fixed assets
- Cost of goods sold (goods/material purchased for resale without undergoing further processing)

13. Value of intermediate input

The value of intermediate input of **Information and communications services** is defined to include the following elements:

- + Purchase of goods, materials and services
- + Payment for data processing and other services related to information technology
- + Cost of material used includes materials for repairs and maintenance
- + Costs of films purchased for projection, payment for programmed provider and payment for rental of films
- + Amount paid for outsourcing, payment for current repairs & maintenance work done by others and payment for providing workers
- + Domestic interconnect and international out payment
- + Royalties paid to non-government organizations / corporate sponsorship (local and foreign)
- + Telecommunication, printing cost and advertising and promotion
- + Expenditure for electricity, water, fuel, lubricants, gas, stationery, office supplies and others
- + Payment for security services and warranty claim
- + Operation expenditure and Operational lease
- + Fees paid to non-working directors for their attendance at Board of Directors' meetings
- + Other operating expenditure
- + Opening stock except trading stock
- Closing stock except trading stock

Effective 2014, research and development expenditure has been removed from calculation of intermediate input and treated as capital asset in line with the Recommendation of System of National Accounts (SNA) 2008.

14. Value added

Value added is increment to the value of commodities and services contributed by the establishment. Value added is derived as the difference between the value of gross output and value of intermediate input.

15. Number of person engaged

Employment covers all persons engaged during December or the last pay period of the reference year. The number of persons engaged was classified under the following categories:

i. Working proprietors and active business partners

This category refers to all individual proprietors and partners, part-time or full time, who are actively engaged in the work of the establishment. Therefore, it excludes silent and inactive partners.

This is defined as all paid workers who work for less than 6 hours a day and/or less than 20 days a month.

15. Number of person engaged(cont) **ii. Unpaid family workers**

This is defined as all persons (full-time or part-time) in the household of any of the owners of the establishment who perform a specified job and work for a minimum of one third of the normal working time for the establishment, but do not receive regular payment either in cash or in kind for the work done. Such workers generally receive food, shelter and other support as part of the household of an owner but this would continue whether they worked in the establishment or not.

iii. Paid employees (full-time)

This is defined as all paid workers who work for at least 6 hours a day and at least 20 days a month.

iv. Paid part-time employees

This is defined as all paid workers who work for less than 6 hours a day and/or less than 20 days a month

16. Category of skills *Category of skills has been categorized according to Malaysia Standard Classification of Occupations 2020(MASCO) as follow:*

i. High-skilled workers

Managers and professionals, researcher, technician and associate professionals;

ii. Semi-skilled workers

Clerical support, service and sales, craft and related trades workers and plant and machine operators and assemblers; and

iii. Low-skilled workers

Elementary occupations.

17. Value of fixed assets *Fixed assets covers all goods, new or used, tangible or intangible and repeated & continuously that have a normal economic life span of more than one year. Included are land, buildings and structure, transport equipment, other machinery equipment, computer software and furniture and fittings. Value of assets as at the beginning and end of 2021 were based on net book value. Purchases, alterations and major repairs or capital expenditure during the year valued at actual cost incurred. Value of assets sold during the year refers to the realized value. Research and development expenditure also treated as capital asset in line with the recommendation of System of National Accounts (SNA) 2008.*

18. Rounding The sum of the component figures may not tally with the sub-total or total figures due to rounding.

19. Percentage The calculation is based on the following formula:

$$Y_t = Y_o (1 + r)^t$$

Where r ,

$$r = \left[e^{\frac{1}{t} \ln \left(\frac{Y_t}{Y_o} \right)} - 1 \right] \times 100$$

g

Where,

year-on-year

Y_t = Value at current year

Y_o = Value at previous year

t = Number of years, $Y_t - Y_o$

r = Annual growth rate

20. Symbols and abbreviations

-	: nil
%	: per cent
&	: and
>	: more than
<	: less than
}	: combined
RM	: Ringgit Malaysia
etc.	: et cetera
cont.	: continue
i.e	: that is
n.e.c	: not elsewhere classified
W.P.	: Federal Territory

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Lampiran

Appendix

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PIAWAIAAN KLASIFIKASI INDUSTRI MALAYSIA (MSIC) 2008 Ver. 1.0
MALAYSIA STANDARD INDUSTRIAL CLASSIFICATION (MSIC) 2008 Ver.1.0

PERKHIDMATAN MAKLUMAT DAN KOMUNIKASI
INFORMATION AND COMMUNICATION SERVICES

MSIC 2008	Keterangan Description
58	Aktiviti penerbitan <i>Publishing activities</i>
58110	Penerbitan buku , brosur dan penerbitan lain <i>Publishing of books, brochures and other publications</i>
58120	Penerbitan senarai mel, buku telefon dan direktori lain <i>Publishing of mailing lists, telephone book, other directories</i>
58130	Penerbitan surat khabar, jurnal, majalah dan penerbitan berkala dalam bentuk cetakan atau elektronik <i>Publishing of newspapers, journals, magazines and periodicals in print or electronic form</i>
58190	Penerbitan katalog, gambar, turisan dan poskad, kad ucapan, borang, poster, penerbitan semula kerja-kerja seni, bahan pengiklanan dan bahan bercetak lain t.t.t.l. <i>Publishing of catalogues, photos, engraving and postcards, greeting cards, forms, posters, reproduction of works of art, advertising material and other printed matter n.e.c.</i>
58201	Aplikasi perniagaan dan aplikasi lain <i>Business and other applications</i>
58202	Permainan komputer untuk semua platform <i>Computer games for all platforms</i>
58203	Sistem operasi <i>Operating systems</i>
59	Aktiviti penerbitan wayang gambar, video dan program televisyen, rakaman bunyi dan penerbitan muzik <i>Motion picture video and television programme production, sound recording and music publishing activities</i>
59110	Aktiviti pengeluaran wayang gambar, video dan program televisyen <i>Motion picture, video and television programme production activities</i>
59120	Aktiviti pasca produksi wayang gambar, video dan program televisyen <i>Motion picture, video and television programme post-production activities</i>
59130	Aktiviti pengedaran wayang gambar, video dan program televisyen <i>Motion picture, video and television programme distribution activities</i>
59140	Aktiviti penayangan wayang gambar <i>Motion picture projection activities</i>
59200	Aktiviti rakaman bunyi dan penerbitan muzik <i>Sound recording and music publishing activities</i>
60	Aktiviti pemrograman dan penyiaran <i>Programming and broadcasting activities</i>
60100	Penyiaran radio <i>Radio broadcasting</i>
60200	Aktiviti pemrograman dan penyiaran televisyen <i>Television programming and broadcasting activities</i>
61	Perkhidmatan telekomunikasi <i>Telecommunications services</i>
61101	Perkhidmatan telekomunikasi berwayar <i>Wired telecommunications services</i>
61102	Pembekal akses internet oleh operator infrastruktur berwayar <i>Internet access providers by the operator of the wired infrastructure</i>

PIAWAIAAN KLASIFIKASI INDUSTRI MALAYSIA (MSIC) 2008 Ver. 1.0
MALAYSIA STANDARD INDUSTRIAL CLASSIFICATION (MSIC) 2008 Ver.1.0

PERKHIDMATAN MAKLUMAT DAN KOMUNIKASI
INFORMATION AND COMMUNICATION SERVICES

MSIC 2008	Keterangan Description
61902	Penyediaan perkhidmatan telekomunikasi melalui sambungan telekom sedia ada <i>Provision of telecommunications services over existing telecom connection</i>
61903	Penjualan semula telekomunikasi <i>Telecommunications resellers</i>
61904	Penyediaan perkhidmatan telekomunikasi melalui sambungan telekom VOIP (Voice Over Internet Protocol) sedia ada <i>Provision of telecommunications services over existing telecom connections VOIP (Voice Over Internet Protocol) provision</i>
61905	Penyediaan aplikasi telekomunikasi yang khusus <i>Provision of specialized telecommunications applications</i>
61909	Aktiviti telekomunikasi lain t.t.t.l. <i>Other telecommunications activities n.e.c.</i>
62	Aktiviti pengaturcaraan komputer, perundingan dan aktiviti yang berkaitan <i>Computer programming, consultancy and related activities.</i>
62010	Aktiviti pengaturcaraan komputer <i>Computer programming activities</i>
62021	Perundingan komputer <i>Computer consultancy</i>
62022	Aktiviti pengurusan kemudahan komputer <i>Computer facilities management activities</i>
62091	Sistem keselamatan teknologi maklumat dan komunikasi (ICT) <i>Information communication technology (ICT) system security</i>
62099	Aktiviti perkhidmatan teknologi maklumat t.t.t.l <i>Other information technology service activities n.e.c</i>
63	Aktiviti perkhidmatan maklumat <i>Information services activities</i>
63111	Aktiviti penyediaan infrastruktur untuk <i>hosting</i>, perkhidmatan prosesan data dan aktiviti yang berkaitan <i>Activities of providing infrastructure for hosting, data processing services and related activities</i>
63112	Aktiviti prosesan data <i>Data processing activities</i>
63120	Web portal <i>Web portals</i>
63910	Aktiviti agensi dan sindiket berita <i>News syndicate and news agency activities</i>
63990	Aktiviti perkhidmatan maklumat lain t.t.t.l <i>Other information service activities n.e.c.</i>

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