



KEMENTERIAN EKONOMI
JABATAN PERANGKAAN MALAYSIA

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STATISTIK EKONOMI TAHUNAN

Annual Economic Statistics

2022

Perkhidmatan Profesional
Professional Services



**KEMENTERIAN EKONOMI
JABATAN PERANGKAAN MALAYSIA**

STATISTIK EKONOMI TAHUNAN PERKHIDMATAN PROFESIONAL *ANNUAL ECONOMIC STATISTICS PROFESSIONAL SERVICES*

2022

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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Pengguna yang mengeluarkan sebarang maklumat dari terbitan ini sama ada yang asal atau diolah semula hendaklah meletakkan kenyataan berikut:

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KATA PENGANTAR

Penerbitan Statistik Ekonomi Tahunan 2022, Profesional memaparkan statistik utama bagi perkhidmatan profesional yang diperoleh daripada Survei Ekonomi Tahunan 2022 bagi tahun rujukan 2021. Liputan industri yang digunakan adalah berdasarkan Seksyen M; aktiviti Profesional, Saintifik dan Teknikal, Klasifikasi Industri Malaysia (MSIC) 2008 Versi 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 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

The Annual Economic Statistics 2022, Professional presents main statistics on professional services of Annual Economic Survey, 2022 for the reference year 2021. The statistics represent industry as classified in Section M: Professional, Scientific and Technical activities, 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 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

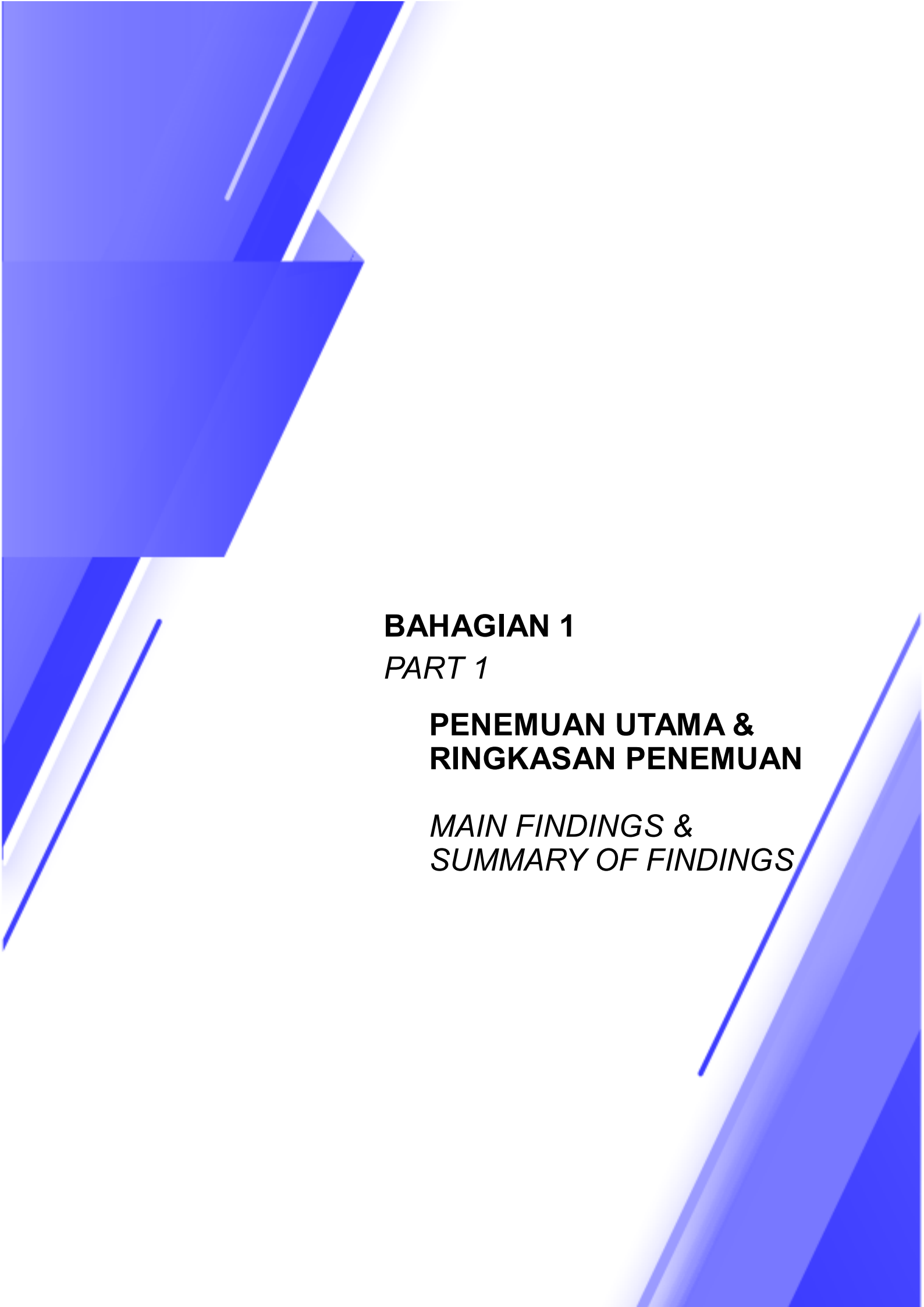
Chief Statistician Malaysia

March 2023

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BAHAGIAN 1

PART 1

PENEMUAN UTAMA & RINGKASAN PENEMUAN

MAIN FINDINGS & SUMMARY OF FINDINGS

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KEMENTERIAN EKONOMI
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BK23
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**MALAYSIA
MADANI**

AS 2022

STATISTIK EKONOMI TAHUNAN PERKHIDMATAN PROFESIONAL

PENEMUAN UTAMA

Nilai Output Kasar



2021: RM44.3 bilion

2020: RM45.7 bilion

▼ -3.0%

Nilai Input Perantaraan



2021: RM16.4 bilion

2020: RM16.8 bilion

▼ -2.2%

Nilai Ditambah



2021: RM27.9 bilion

2020: RM28.9 bilion

▼ -3.4%

Bilangan Pekerja



2021: 347,005 orang

2020: 347,593 orang

▼ -0.2%

Gaji & Upah Dibayar



2021: RM12.3 bilion

2020: RM12.4 bilion

▼ -1.1%

Nilai Harta Tetap



2021: RM13.2 bilion

2020: RM13.3 bilion

▼ -1.2%

Perubahan peratusan (%): Tahun ke tahun



MINISTRY OF ECONOMY
DEPARTMENT OF STATISTICS MALAYSIA

BK23
BANKI EKONOMI 2023
DATA PERANGKAI EKONOMI



AS2022

ANNUAL ECONOMIC STATISTICS PROFESSIONAL SERVICES

MAIN FINDINGS

Value of Gross Output



2021: RM44.3 billion

2020: RM45.7 billion

▼ -3.0%

Value of Intermediate Input



2021: RM16.4 billion

2020: RM16.8 billion

▼ -2.2%

Value Added



2021: RM27.9 billion

2020: RM28.9 billion

▼ -3.4%

Number of Persons Engaged

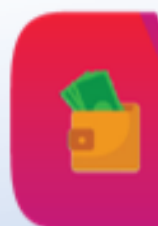


2021: 347,005 persons

2020: 347,593 persons

▼ -0.2%

Salaries & Wages Paid



2021: RM12.3 billion

2020: RM12.4 billion

▼ -1.1%

Value of Fixed Assets



2021: RM13.2 billion

2020: RM13.3 billion

▼ -1.2%

Percentage change (%): Year-on-year



Source: Annual Economic Statistics, Professional Services, 2022,
Department of Statistics Malaysia (DOSM)

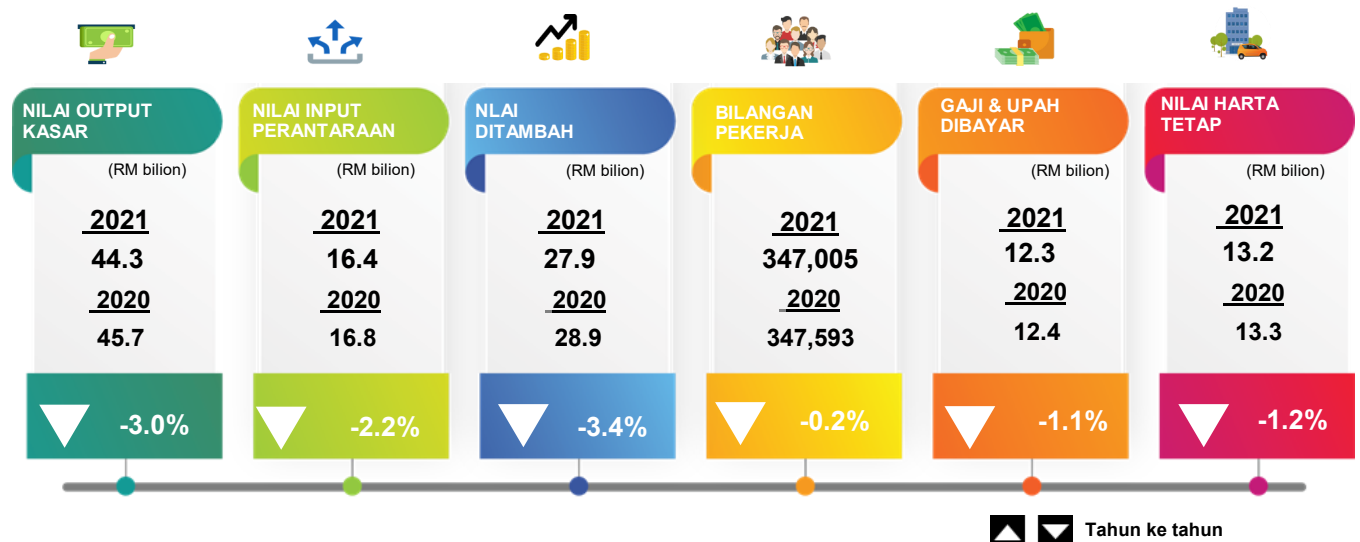
RINGKASAN PENEMUAN

1. PENGENALAN

Penerbitan ini memaparkan statistik bagi perkhidmatan profesional yang diperoleh daripada Survei Ekonomi Tahunan 2022 bagi tahun rujukan 2021. Perkhidmatan profesional merangkumi aktiviti arkitek, kejuruteraan, juru ukur tanah & bahan, perakaunan, guaman, pengiklanan, pakar runding pengurusan dan penyelidikan pasaran, veterinar, penyelidikan & pembangunan saintifik dan ujian teknikal & analisis dan profesional lain. Statistik utama seperti nilai output kasar, nilai input perantaraan, nilai ditambah, bilangan pekerja, gaji & upah yang dibayar dan nilai harta tetap yang dimiliki turut dipaparkan dalam penerbitan ini.

2. PRESTASI PERKHIDMATAN PROFESIONAL

Paparan 1: Statistik Utama bagi Perkhidmatan Profesional 2020 dan 2021



Perkhidmatan profesional mencatatkan nilai output kasar sebanyak RM44.3 bilion pada tahun 2021 berbanding RM45.7 bilion pada tahun 2020 dengan pertumbuhan -3.0 peratus. Nilai input perantaraan turut berkurang sebanyak RM0.4 bilion untuk mencatatkan RM16.4 bilion dengan pertumbuhan -2.2 peratus, menghasilkan nilai ditambah sebanyak RM27.9 bilion pada tahun 2021. Bilangan pekerja di sektor ini mencatatkan penurunan sebanyak 0.2 peratus kepada 347,005 orang berbanding 347,593 orang pada tahun 2020. Sementara itu, jumlah gaji & upah yang dibayar adalah RM12.3 bilion berbanding RM12.4 bilion pada tahun 2020. Nilai harta tetap juga mencatatkan penurunan 1.2 peratus kepada RM13.2 bilion seperti ditunjukkan dalam **Paparan 1**.

RINGKASAN PENEMUAN

3. NILAI OUTPUT KASAR

Nilai output kasar perkhidmatan profesional pada 2021 mencatatkan RM44.3 bilion berkurang sebanyak 3.0 peratus berbanding tahun sebelumnya. Aktiviti kejuruteraan merupakan penyumbang terbesar dengan nilai output kasar sebanyak RM9.3 bilion (21.0%). Penyumbang kedua terbesar adalah aktiviti guaman sebanyak RM5.9 bilion (13.3%) diikuti dengan aktiviti profesional lain sebanyak RM5.6 bilion (12.6%) dan aktiviti pengiklanan sebanyak RM5.4 bilion (12.2%) seperti yang ditunjukkan dalam **Paparan 2**. Sumbangan empat aktiviti ini merekodkan 59.1 peratus kepada nilai output kasar perkhidmatan profesional.

Paparan 2: Nilai Output Kasar bagi Perkhidmatan Profesional mengikut Aktiviti, 2021

	<u>RM bilion</u>	<u>Peratus sumbangan 2021 (%)</u>
 Arkitek	3.2	7.1
 Kejuruteraan	9.3	21.0
 Juru ukur	1.2	2.6
 Perakaunan	5.3	11.9
 Guaman	5.9	13.3
 Pengiklanan	5.4	12.2
 Pakar runding	4.1	9.3
 Veterinar	0.2	0.4
 Penyelidikan	4.3	9.7
 Profesional Lain	5.6	12.6

**NILAI
OUTPUT
KASAR**



RINGKASAN PENEMUAN

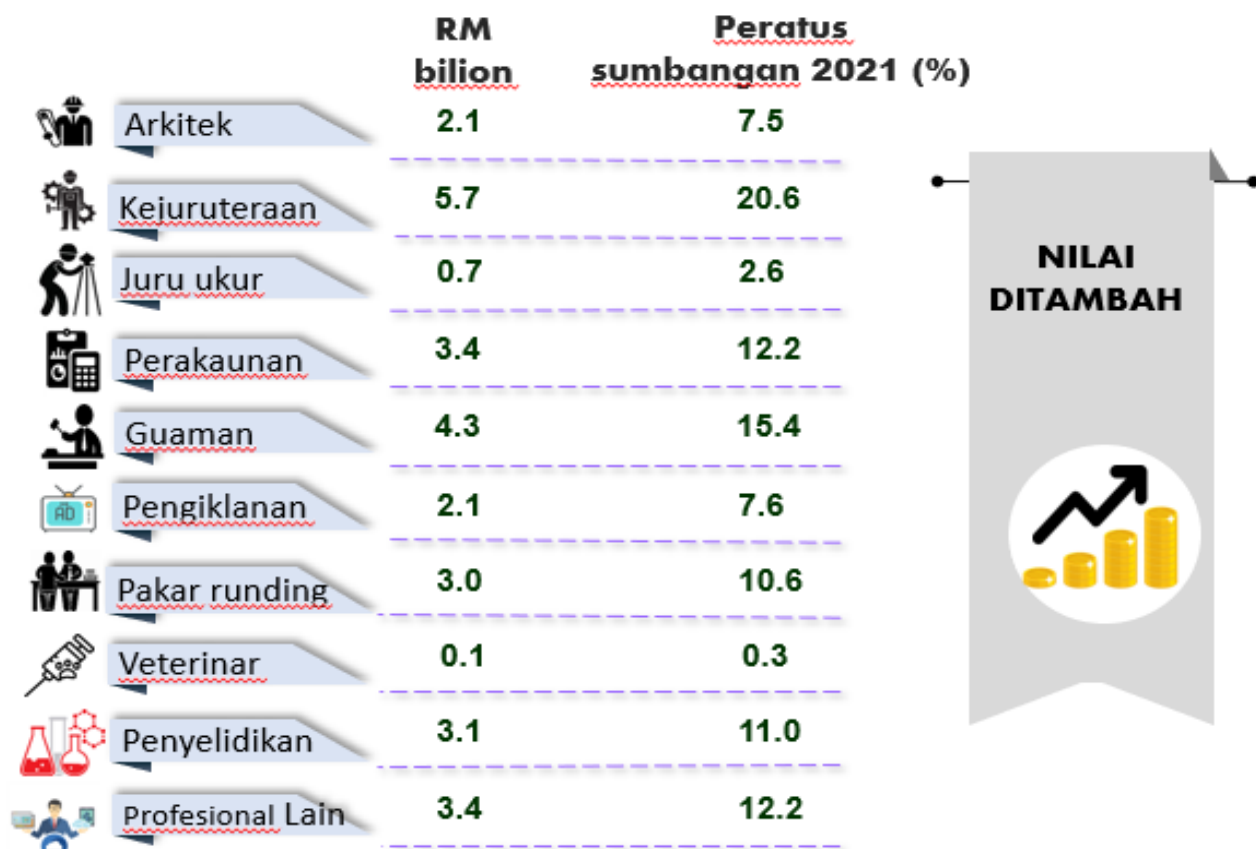
3.1 NILAI OUTPUT KASAR MENGIKUT NEGERI

W.P. Kuala Lumpur adalah sebagai penyumbang utama nilai output kasar bagi perkhidmatan profesional pada tahun 2021 dengan nilai RM19.8 bilion iaitu 44.7 peratus sumbangan. Ini diikuti oleh Selangor dan Pulau Pinang dengan nilai output kasar masing-masing sebanyak RM14.1 bilion (31.8%) dan RM2.3 bilion (5.2%). Nilai sumbangan ketiga-tiga negeri ini adalah RM36.2 bilion (81.7%).

4. NILAI DITAMBAH

Nilai ditambah perkhidmatan profesional pada tahun 2021 yang dicatatkan adalah sebanyak RM27.9 bilion dengan pertumbuhan tahun ke tahun -3.4 peratus. **Paparan 3** menunjukkan aktiviti kejuruteraan merekodkan nilai ditambah tertinggi pada tahun 2021 sebanyak RM5.7 bilion (20.6%). Ini diikuti aktiviti guaman sebanyak RM4.3 bilion (15.4%) dan aktiviti perakaunan sebanyak RM3.4 bilion (12.2%).

Paparan 3: Nilai Ditambah bagi Perkhidmatan Profesional mengikut Aktiviti, 2021



RINGKASAN PENEMUAN

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 profesional. W.P. Kuala Lumpur mencatatkan nilai ditambah tertinggi iaitu RM12.6 bilion dengan sumbangan sebanyak 45.0 peratus, diikuti Selangor sebanyak RM8.5 bilion (30.5%) dan Pulau Pinang sebanyak RM1.5 bilion (5.4%). Sumbangan nilai ditambah bagi ketiga-tiga negeri ini kepada perkhidmatan profesional ialah RM22.6 bilion (80.8%).

5. BILANGAN PEKERJA DAN KATEGORI PEKERJA

Aktiviti kejuruteraan merekodkan bilangan pekerja tertinggi iaitu 64,516 orang atau 18.6 peratus. Penyumbang kedua tertinggi adalah aktiviti guaman dengan 52,485 orang atau 15.1 peratus, diikuti oleh aktiviti profesional lain 48,661 orang atau 14.0 peratus seperti yang ditunjukkan di **Paparan 4**. Tiga aktiviti ini menyumbang 47.7 peratus kepada jumlah bilangan pekerja dalam perkhidmatan profesional pada tahun 2021.

Paparan 4: Bilangan Pekerja bagi Perkhidmatan Profesional mengikut Aktiviti, 2021

	Orang	Peratus sumbangan 2021 (%)
 Arkitek	28,859	8.3
 Kejuruteraan	64,516	18.6
 Juru ukur	11,680	3.4
 Perakaunan	39,035	11.2
 Guaman	52,485	15.1
 Pengiklanan	34,402	9.9
 Pakar runding	46,399	13.4
 Veterinar	1,578	0.5
 Penyelidikan	19,390	5.6
 Profesional Lain	48,661	14.0

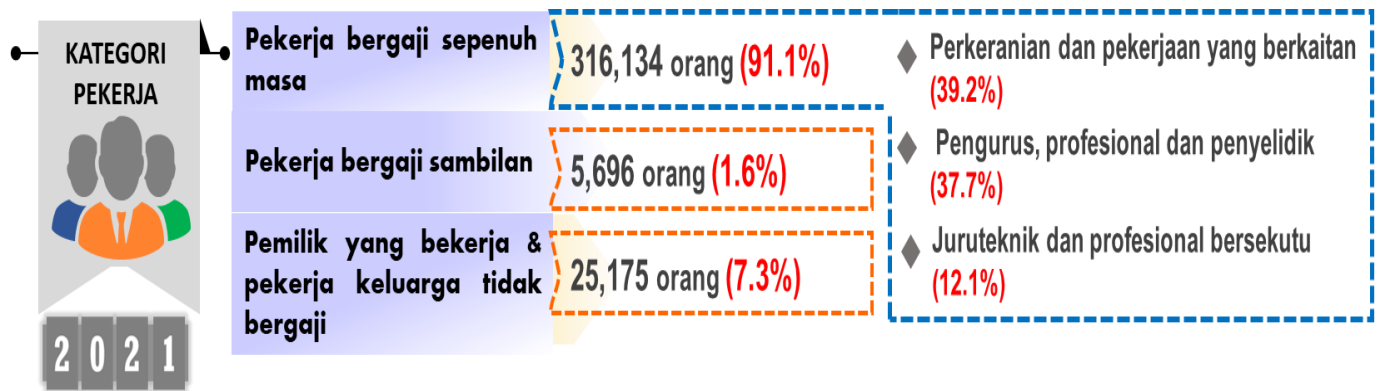
BILANGAN PEKERJA



RINGKASAN PENEMUAN

Pekerja bergaji sepenuh masa merekodkan sejumlah 316,134 orang dengan sumbangan 91.1 peratus berbanding pekerja bergaji sambilan (5,696 orang; 1.6%) dan pemilik yang bekerja dan pekerja keluarga tanpa gaji (25,175 orang; 7.3%) seperti yang ditunjukkan di **Paparan 5**. Berdasarkan kategori pekerja bergaji sepenuh masa, perkeranian dan pekerjaan yang berkaitan merekodkan bilangan pekerja yang tertinggi iaitu (123,976 orang; 39.2%), diikuti oleh pengurus, profesional dan penyelidik (119,093 orang; 37.7%) dan juruteknik dan profesional bersekutu (38,280 orang; 12.1%).

Paparan 5: Bilangan Pekerja bagi Perkhidmatan Profesional mengikut Kategori Pekerja, 2021



6. GAJI & UPAH

Jumlah gaji & upah yang dibayar dalam perkhidmatan profesional pada tahun 2021 adalah sebanyak RM12.3 bilion. Aktiviti kejuruteraan merekodkan gaji & upah tertinggi iaitu RM2.1 bilion atau 17.0 peratus daripada keseluruhan gaji & upah yang dibayar. Penyumbang kedua tertinggi adalah aktiviti pakar runding dengan RM1.8 bilion atau 14.6 peratus, diikuti dengan profesional lain RM1.8 bilion atau 14.4 peratus seperti yang ditunjukkan dalam **Paparan 6**. Sumbangan gaji & upah bagi ketiga-tiga aktiviti ini kepada perkhidmatan profesional ialah RM5.6 bilion (46.0%). Secara purata, gaji & upah yang diterima oleh pekerja dalam perkhidmatan profesional adalah sebanyak RM2,944 sebulan.

RINGKASAN PENEMUAN

Paparan 6: Gaji & Upah bagi Perkhidmatan Profesional mengikut Aktiviti, 2021

	RM bilion	Peratus sumbangan 2021 (%)
 Arkitek	0.8	6.9
 Kejuruteraan	2.1	17.0
 Juru ukur	0.3	2.6
 Perakaunan	1.6	12.9
 Guaman	1.6	13.2
 Pengiklanan	1.3	10.6
 Pakar runding	1.8	14.6
 Veterinar	0.04	0.4
 Penyelidikan	0.9	7.5
 Profesional Lain	1.8	14.4

**GAJI &
UPAH
DIBAYAR**



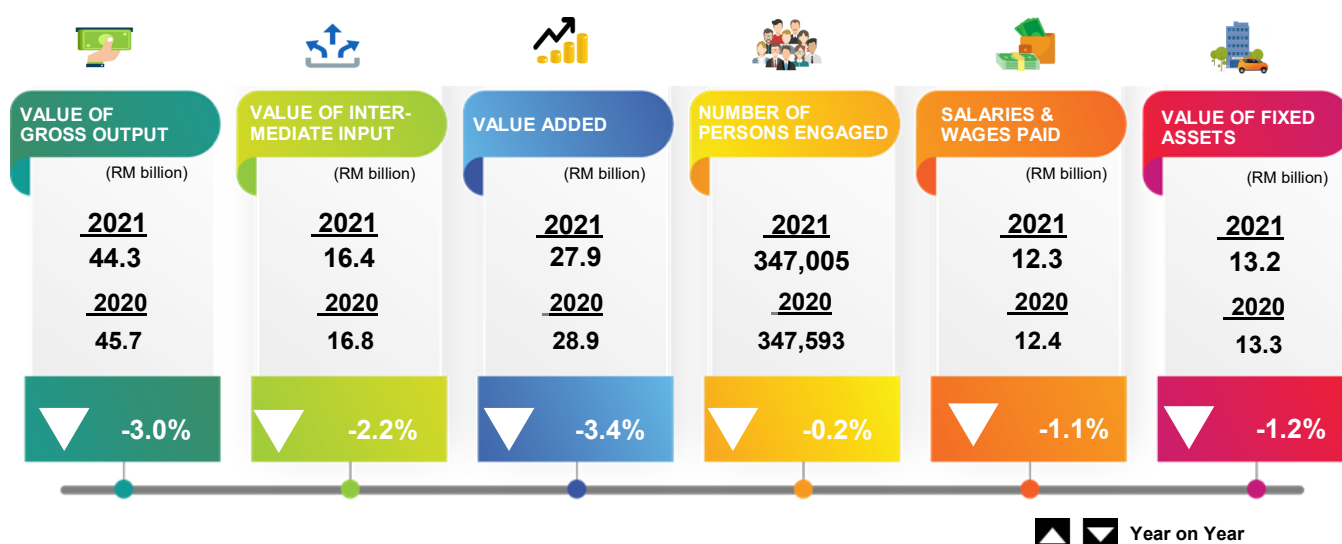
SUMMARY FINDINGS

1. INTRODUCTION

This publication presents statistics on the professional services which obtained from the Annual Economic Survey 2022 for reference year 2021. Professional services comprises activity of architectural; engineering; land & quantity surveying; accounting; legal; advertising; management consultancy and market research; veterinary; scientific research & development and technical testing & analysis; and other professional. 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 owned were also presented in this publication.

2. PERFORMANCE OF PROFESSIONAL SERVICES

Exhibit 1: Principle Statistics of Professional Services 2020 and 2021



The professional services recorded gross output value of RM44.3 billion in 2021 compared to RM45.7 billion in 2020 with growth of -3.0 per cent. The value of intermediate input also decreased RM0.4 billion to record RM16.4 billion with growth of -2.2 per cent, thus resulting a value added of RM27.9 billion for the year 2021. The number of persons engaged in this sector recorded a decrease of 0.2 per cent to 347,005 persons as compared to 347,593 persons in 2020. Meanwhile, the salaries & wages paid in 2021 amounted to RM12.3 billion compared to RM12.4 billion in 2020. The value of fixed assets also recorded a decrease of 1.2 percent to RM13.2 billion as shown in **Exhibit 1**.

SUMMARY FINDINGS

3. VALUE OF GROSS OUTPUT

The gross output value of professional services in 2021 recorded RM44.3 billion decreased 3.0 per cent compared to the previous year. Engineering activities was the largest contributor of gross output value with RM9.3 billion (21.0%). The second largest contributor was legal activities with RM5.9 billion (13.3%) followed by other professional activities with RM5.6 billion (12.6%) and advertising activities with RM5.4 billion (12.2%) as shown in **Exhibit 2**. These four activities contributed 59.1 per cent to the value of gross output in professional services.

Exhibit 2: Value of Gross Output for Professional Services by Activity, 2021

		RM billion	Percentage Share 2021 (%)
	Achitectural	3.2	7.1
	Engineering	9.3	21.0
	Land & quantity	1.2	2.6
	Accounting	5.3	11.9
	Legal	5.9	13.3
	Advertising	5.4	12.2
	Consulting	4.1	9.3
	Veterinary	0.2	0.4
	Scientific research	4.3	9.7
	Other professional	5.6	12.6

**VALUE OF
GROSS
OUTPUT**



SUMMARY FINDINGS

3.1 VALUE OF GROSS OUTPUT BY STATE

W.P. Kuala Lumpur was the main contributor to the gross output value for professional services in 2021, recorded RM19.8 billion with 44.7 per cent share. This was followed by Selangor and Pulau Pinang with the gross output value of RM14.1 billion (31.8%) and RM2.3 billion (5.2%) respectively. The total value of gross output for the three states amounted to RM36.2 billion (81.7%).

4. VALUE ADDED

The total value added recorded in professional services for 2021 was RM27.9 billion with year on year growth of -3.4 per cent. **Exhibit 3** shows that the engineering activities recorded the highest value added in 2021 which amounted to RM5.7 billion (20.6%). This was followed by the legal activities of RM4.3 billion (15.4%) and accounting activities of RM3.4 billion (12.2%).

Exhibit 3: Value Added for Professional Services by Activity, 2021

		RM billion	Percentage Share 2021 (%)
	Architectural	2.1	7.5
	Engineering	5.7	20.6
	Land & quantity	0.7	2.6
	Accounting	3.4	12.2
	Legal	4.3	15.4
	Advertising	2.1	7.6
	Consulting	3.0	10.6
	Veterinary	0.1	0.3
	Scientific research	3.1	11.0
	Other professional	3.4	12.2

**VALUE
ADDED**



SUMMARY FINDINGS

4.1 VALUE ADDED BY STATE

Performance of value added by state in 2021 indicated that three states which were W.P. Kuala Lumpur, Selangor and Pulau Pinang as the main contributors to the value added of professional services. W.P. Kuala Lumpur recorded the highest value added RM12.6 billion with a share of 45.0 per cent, followed by Selangor with RM8.5 billion (30.5%) and Pulau Pinang with RM1.5 billion (5.4%). The share value added to professional services for these three states were RM22.6 billion (80.8%).

5. NUMBER OF PERSONS ENGAGED AND CATEGORY OF WORKERS

Engineering activities registered the highest number of persons engaged of 64,516 persons or 18.6 per cent. The second highest contributor legal activities with 52,485 persons or 15.1 per cent, followed by other professional activities with 48,661 persons or 14.0 per cent as shown in **Exhibit 4**. These three activities contributed 47.7 per cent to the total number of persons engaged in the professional services in 2021.

Exhibit 4: Number of Persons Engaged for Professional Services by Activity, 2021

	<i>Persons</i>	<i>Percentage Share 2021 (%)</i>
 Architectural	28,859	8.3
 Engineering	64,516	18.6
 Land & quantity	11,680	3.4
 Accounting	39,035	11.2
 Legal	52,485	15.1
 Advertising	34,402	9.9
 Consulting	46,399	13.4
 Veterinary	1,578	0.5
 Scientific research	19,390	5.6
 Other professional	48,661	14.0

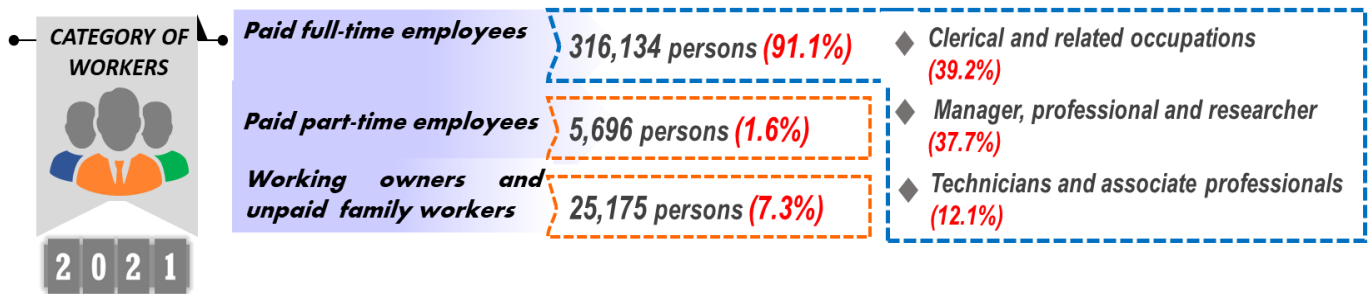
**NUMBER
OF
PERSONS
ENGAGED**



SUMMARY FINDINGS

Paid full-time employees recorded a total of 316,134 persons with percentage share of 91.1 per cent, as against to paid part-time employees (5,696 persons; 1.6%) and working owners & unpaid family workers (25,175 persons; 7.3%) as shown in **Exhibit 5**. Based on the category of full-time employees, clerical and related occupations recorded the highest number of persons engaged with (123,976 persons; 39.2%), followed by manager, professional and researcher (119,093 persons; 37.7%) and technicians and associate professionals (38,280 persons; 12.1%).

Exhibit 5: Number of Persons Engaged for Professional Services by Category of Workers, 2021



6. SALARIES & WAGES

The total salaries & wages paid in professional services for the year 2021 amounting to RM12.3 billion. Engineering activities recorded the highest salaries & wages of RM2.1 billion or 17.0 per cent of the salaries & wages paid. The second highest contributor was consultancy activities with RM1.8 billion or 14.6 per cent, followed by other professional activities with RM1.8 billion or 14.4 per cent as shown in **Exhibit 6**. The share of salaries & wages to professional services for all three activities were RM5.6 billion (46.0%). On average, salaries & wages received by employees in the professional services amounted to RM2,944 monthly.

SUMMARY FINDINGS

Exhibit 6: Salaries & Wages Professional Services by Activity, 2021

		RM billion	Percentage Share 2021 (%)
	Achitectural	0.8	6.9
	Engineering	2.1	17.0
	Land & quantity	0.3	2.6
	Accounting	1.6	12.9
	Legal	1.6	13.2
	Advertising	1.3	10.6
	Consulting	1.8	14.6
	Veterinary	0.04	0.4
	Scientific research	0.9	7.5
	Other professional	1.8	14.4

**SALARIES
& WAGES
PAID**



BAHAGIAN 2
PART 2

JADUAL
TABLES

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Jadual 1: Statistik Utama Perkhidmatan Profesional, 2015, 2017 - 2021*Table 1: Principal Statistics of Professional Services, 2015, 2017 - 2021*

Tahun <i>Year</i>	Nilai output kasar <i>Value of gross output</i>	Nilai input perantaraan <i>Value of intermediate input</i>	Nilai ditambah <i>Value added</i>	Jumlah pekerja <i>Total number of persons engaged</i>	Gaji & upah yang dibayar <i>Salaries & wages paid</i>	Nilai harta tetap <i>Value of fixed assets</i>
	(RM'000)	(RM'000)	(RM'000)		(RM'000)	(RM'000)
2021	44,314,105	16,399,734	27,914,371	347,005	12,259,097	13,178,308
2020	45,672,101	16,770,622	28,901,479	347,593	12,400,388	13,333,061
2019	50,818,754	19,636,509	31,182,245	349,765	12,723,962	13,798,775
2018	47,927,288	18,577,171	29,350,117	341,421	12,127,970	13,400,717
2017	45,090,158	17,734,793	27,355,365	333,139	11,529,485	12,999,570
2015*	40,452,277	16,106,485	24,345,792	314,292	10,073,211	12,472,313

Nota/ Note***Merujuk kepada tahun banci / refers to census year**

Jadual 1.1: Statistik Utama Perkhidmatan Profesional mengikut Aktiviti, 2021
Table 1.1: Principal Statistics of Professional Services by Activities, 2021

Aktiviti <i>Activities</i>	Nilai output kasar <i>Value of gross output</i>	Nilai input perantaraan <i>Value of intermediate input</i>	Nilai ditambah <i>Value added</i>	Jumlah pekerja <i>Total number of persons engaged</i>	Gaji & upah yang dibayar <i>Salaries & wages paid</i>	Nilai harta tetap <i>Value of fixed assets</i>
	(RM'000)	(RM'000)	(RM'000)		(RM'000)	(RM'000)
Jumlah <i>Total</i>	44,314,105	16,399,734	27,914,371	347,005	12,259,097	13,178,308
Arkitek <i>Architectural</i>	3,158,832	1,074,266	2,084,566	28,859	843,751	840,676
Kejuruteraan <i>Engineering</i>	9,304,483	3,565,610	5,738,873	64,516	2,086,255	2,316,371
Juru ukur tanah & bahan <i>Land & quantity surveying</i>	1,158,219	421,925	736,294	11,680	316,105	364,014
Perakaunan <i>Accounting</i>	5,256,859	1,837,848	3,419,011	39,035	1,575,779	1,025,064
Guaman <i>Legal</i>	5,911,328	1,616,796	4,294,532	52,485	1,617,702	545,976
Pengiklanan <i>Advertising</i>	5,423,602	3,311,662	2,111,940	34,402	1,304,316	1,321,943
Pakar runding pengurusan dan penyelidikan pasaran <i>Management consultancy and market research</i>	4,099,693	1,130,322	2,969,372	46,399	1,784,727	1,020,124
Veterinar <i>Veterinary</i>	156,215	78,883	77,332	1,578	44,078	67,425
Penyelidikan & pembangunan saintifik dan ujian teknikal & analisis <i>Scientific research & development and technical</i>	4,278,839	1,204,755	3,074,083	19,390	917,703	2,243,397
Profesional lain <i>Other professional</i>	5,566,035	2,157,666	3,408,369	48,661	1,768,681	3,433,316

Jadual 2: Statistik Utama Perkhidmatan Profesional mengikut Negeri, 2021

Table 2: Principal Statistics of Professional Services by State, 2021

Negeri <i>State</i>	Nilai output kasar <i>Value of gross output</i>	Nilai input perantaraan <i>Value of intermediate input</i>	Nilai ditambah <i>Value added</i>	Jumlah pekerja <i>Total number of persons engaged</i>	Gaji & upah yang dibayar <i>Salaries & wages paid</i>	Nilai harta tetap <i>Value of fixed assets</i>
	(RM'000)	(RM'000)	(RM'000)		(RM'000)	(RM'000)
Jumlah <i>Total</i>	44,314,105	16,399,734	27,914,371	347,005	12,259,097	13,178,308
Johor	2,125,713	738,165	1,387,547	24,927	725,353	1,324,384
Kedah	529,595	157,853	371,742	5,256	136,497	249,119
Kelantan	230,798	76,749	154,049	2,888	62,378	31,415
Melaka	504,758	124,347	380,411	5,856	152,268	113,991
Negeri Sembilan	472,135	173,377	298,757	5,635	144,246	134,094
Pahang	348,838	115,659	233,179	4,180	105,241	88,718
Pulau Pinang	2,318,472	818,662	1,499,810	19,557	550,285	540,499
Perak	651,382	235,719	415,663	9,186	235,345	150,386
Perlis	52,185	15,556	36,629	574	10,524	8,954
Selangor	14,081,635	5,578,512	8,503,123	117,557	4,433,136	5,202,148
Terengganu	350,202	157,841	192,361	3,448	89,777	65,852
Sabah	1,088,718	370,063	718,654	9,791	316,515	272,861
Sarawak	1,686,740	567,044	1,119,696	14,664	469,984	364,937
W.P Kuala Lumpur	19,796,842	7,245,978	12,550,864	122,620	4,804,368	4,610,030
W.P Labuan	43,458	16,958	26,500	307	8,129	15,695
W.P Putrajaya	32,635	7,248	25,387	559	15,054	5,225

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

Kategori pekerja <i>Category of workers</i>	Bilangan pekerja <i>Number of persons engaged</i>			Gaji & upah yang dibayar <i>Salaries & wages paid</i> (RM '000)
	Jumlah <i>Total</i>	Lelaki <i>Male</i>	Perempuan <i>Female</i>	
Jumlah <i>Total</i>	347,005	201,063	145,942	12,259,097
Jumlah pemilik yang bekerja dan pekerja keluarga tidak bergaji <i>Total working proprietors and unpaid family workers</i>	25,175	20,432	4,743	-
Jumlah pekerja (se penuh masa) <i>Total employees (full-time)</i>	316,134	177,665	138,469	12,188,763
Pengurus, profesional dan penyelidik <i>Manager, professional and researcher</i>	119,093	76,410	42,683	6,915,328
Juruteknik dan profesional bersekutu <i>Technicians and associate professionals</i>	38,280	27,189	11,091	1,616,367
Perkeranian dan pekerjaan yang berkaitan <i>Clerical and related occupations</i>	123,976	51,424	72,552	2,976,725
Pekerja asas <i>Elementary occupation</i>	34,785	22,642	12,143	680,343
Pekerja bergaji (sambilan) <i>Paid employees (part-time)</i>	5,696	2,966	2,730	70,335

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

Kategori kemahiran <i>Category of skills</i>	Bilangan pekerja <i>Number of persons engaged</i>			Gaji & upah yang dibayar <i>Salaries & wages paid</i> (RM '000)
	Jumlah <i>Total</i>	Lelaki <i>Male</i>	Perempuan <i>Female</i>	
Jumlah <i>Total</i>	316,134	177,665	138,469	12,188,763
* Mahir <i>High-skilled</i>	157,373	103,599	53,774	8,531,695
** Separuh mahir <i>Semi-skilled</i>	123,976	51,424	72,552	2,976,725
*** Berkemahiran rendah <i>Low-skilled</i>	34,785	22,642	12,143	680,343

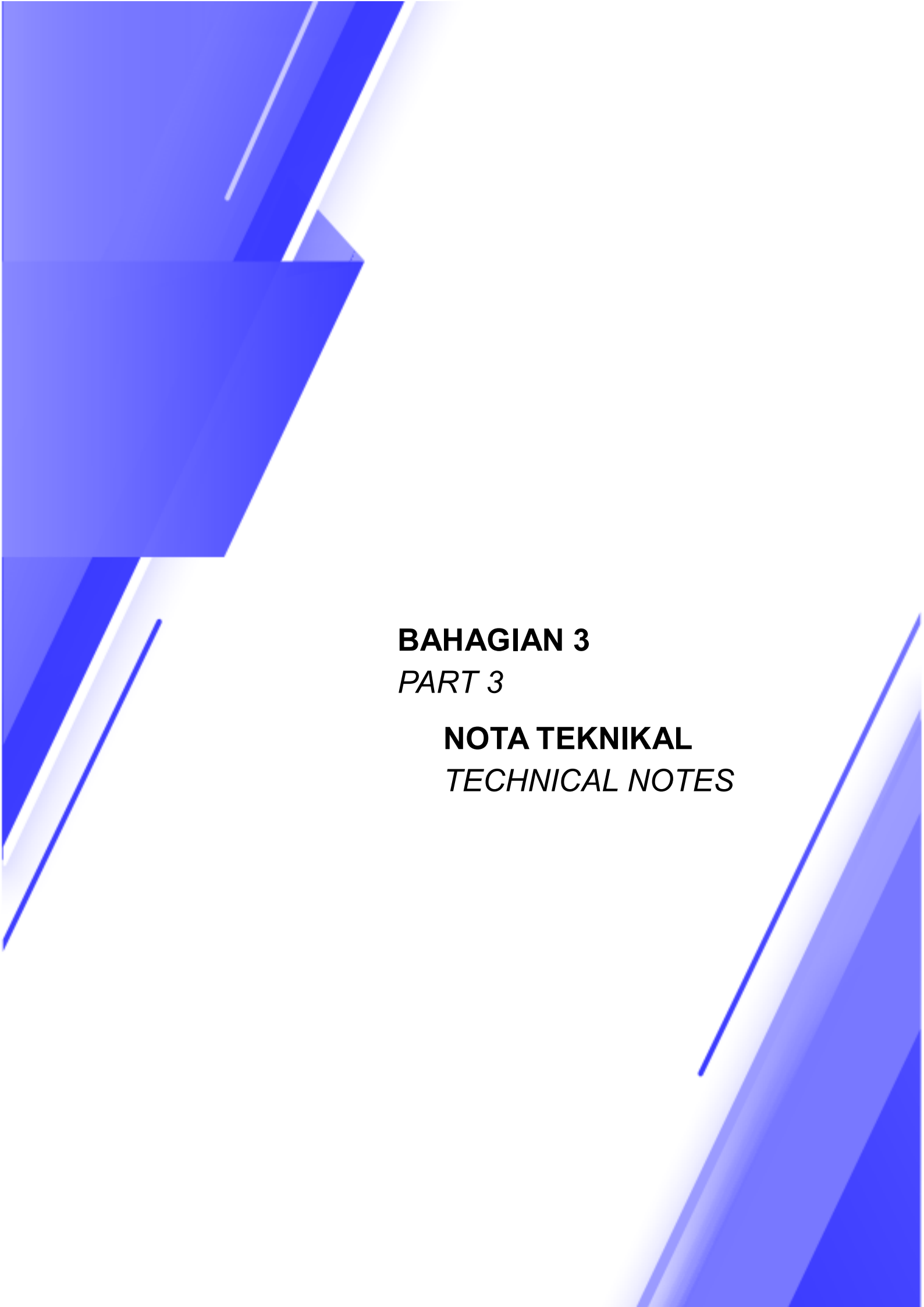
* Termasuk pengurusan & profesional dan juruteknik & profesional bersekutu
Includes managers & professionals and technicians & associate professionals

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

*** Termasuk pekerja asas
Includes elementary occupations

Jadual 5: Perbelanjaan Modal dan Nilai Harta Tetap Perkhidmatan Profesional, 2021*Table 5: Capital Expenditure and Value of Fixed Assets of Professional Services, 2021*

Aktiviti <i>Activities</i>	Perbelanjaan modal <i>Capital expenditure</i>	Pelupusan <i>Disposal</i>	Susut nilai semasa <i>Current depreciation</i>	Nilai harta tetap <i>Value of fixed assets</i>
	(RM '000)	(RM '000)	(RM '000)	(RM '000)
Jumlah <i>Total</i>	1,274,018	50,306	1,707,254	13,178,308
Arkitek <i>Architectural</i>	41,831	1,669	93,984	840,676
Kejuruteraan <i>Engineering</i>	93,338	10,428	260,009	2,316,371
Juru ukur tanah & bahan <i>Land & quantity surveying</i>	9,802	799	39,054	364,014
Perakaunan <i>Accounting</i>	51,938	874	83,775	1,025,064
Guaman <i>Legal</i>	8,355	1,992	93,005	545,976
Pengiklanan <i>Advertising</i>	8,123	7,224	182,970	1,321,943
Pakar runding pengurusan dan penyelidikan pasaran <i>Management consultancy and market research</i>	471,788	4,123	409,223	1,020,124
Veterinar <i>Veterinary</i>	2,927	-	9,539	67,425
Penyelidikan & pembangunan saintifik dan ujian teknikal & analisis <i>Scientific research & development and technical testing & analysis</i>	524,747	9,830	221,543	2,243,397
Profesional lain <i>Other professional</i>	61,169	13,368	314,153	3,433,316



BAHAGIAN 3

PART 3

NOTA TEKNIKAL

TECHNICAL NOTES

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NOTA TEKNIKAL

1. Skop dan liputan

Survei ini meliputi pertubuhan berdaftar yang terlibat dalam perkhidmatan profesional berdasarkan Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Ver 1.0 yang selaras dengan *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4* yang merangkumi aktiviti utama berikut:

- i. Aktiviti arkitek;
- ii. Aktiviti kejuruteraan;
- iii. Aktiviti juru ukur & bahan;
- iv. Aktiviti perakaunan;
- v. Aktiviti guaman;
- vi. Aktiviti pengiklanan;
- vii. Aktiviti pakar runding pengurusan dan penyelidikan pasaran;
- viii. Aktiviti veterinar;
- ix. Aktiviti penyelidikan & pembangunan saintifik dan ujian teknikal & analisis;
- x. Aktiviti profesional lain.

Keseluruhan liputan survei bagi perkhidmatan profesional terdiri daripada 36 industri di peringkat 5-digit mengikut Piawaian Klasifikasi Industri Malaysia (MSIC), 2008. Senarai lengkap industri yang diliputi ditunjukkan di **Lampiran**.

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 (CCM) 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 (CCM). 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.



NOTA TEKNIKAL

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 menggunakan sebahagian besar daripada sumbernya atau yang memberikan sumbangan besar dari segi pendapatan. Aktiviti sekunder didefinisikan sebagai aktiviti sampingan kepada aktiviti utama. Klasifikasi industri bagi pertubuhan adalah mengikut aktiviti utamanya berdasarkan kepada Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Ver.1.0. MSIC 2008 Ver.1.0 adalah selaras dengan *International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4*.

4. Konsep dan definisi

Definisi perkhidmatan profesional, saintifik dan teknikal yang diguna pakai dalam penerbitan ini berasaskan kepada Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Ver 1.0:

Perkhidmatan profesional, saintifik dan teknikal termasuk aktiviti profesional khusus, saintifik dan teknikal di mana ianya memerlukan tahap latihan yang tinggi dan menjadikan pengetahuan dan kemahiran khusus tersedia kepada pengguna. Aktiviti yang dijalankan termasuk aktiviti guaman dan perakaunan, aktiviti ibu pejabat, aktiviti perundingan pengurusan, aktiviti arkitek dan kejuruteraan, ujian dan analisis teknikal, penyelidikan dan pembangunan saintifik, pengiklanan dan penyelidikan pasaran, profesional lain, aktiviti saintifik dan teknikal dan veterinar.

i. Aktiviti arkitek

Merujuk kepada perkhidmatan arkitek yang disediakan atas dasar bayaran atau kontrak. Perkhidmatan ini mesti diberi oleh pertubuhan yang dikendalikan oleh mereka yang berdaftar di bawah Seksyen (A)



NOTA TEKNIKAL

Daftar Arkitek dan Seksyen (B) Daftar pelukis Pelan Bangunan yang diselenggarakan oleh Lembaga Arkitek di bawah Akta Arkitek, 1967 (Disemak 1973). Termasuk juga aktiviti perundingan arkitek yang melibatkan reka bentuk dan draf bangunan dan pengawasan pembinaan, perancangan bandar dan bandar raya dan arkitek landskap.

ii. Aktiviti kejuruteraan

Merujuk kepada perkhidmatan kejuruteraan yang disediakan atas dasar bayaran atau kontrak. Termasuk dalam perkhidmatan ini adalah perkhidmatan penyelidikan, pembangunan dan uji kaji kejuruteraan. Perkhidmatan ini mesti diberi oleh pertubuhan yang dikendalikan oleh mereka yang berdaftar di bawah Seksyen 7(1) Akta Pendaftaran Jurutera, 1967 (Disemak 1987).

a) Termasuk perkhidmatan reka bentuk kejuruteraan (iaitu menggunakan undang-undang fizikal dan prinsip peralatan, struktur, proses dan sistem) dan aktiviti perundingan untuk:

- Jentera, proses perindustrian dan loji perindustrian;
- Projek melibatkan kejuruteraan awam, hidraulik dan trafik;
- Projek pengurusan air;
- Projek penghuraian dan realisasi relatif kepada kejuruteraan elektrik dan elektronik, perlombongan, kimia, mekanikal, perindustrian dan sistem dan keselamatan;
- Aktiviti pengurusan projek berkaitan dengan pembinaan.

b) Perkhidmatan kejuruteraan juga merujuk kepada huraian kepada projek yang menggunakan alat penyaman udara, penyejukan, kebersihan dan kejuruteraan mengawal pencemaran, kejuruteraan akustik, dll.

iii. Aktiviti juru ukur & bahan

Merujuk kepada perkhidmatan juru ukur yang diberi atas bayaran atau kontrak. Perkhidmatan ini mesti diberi oleh pertubuhan yang dikendalikan oleh mereka yang berdaftar di bawah Lembaga Juru ukur Tanah dan Lembaga Juru ukur Bahan yang masing-masingnya diselenggarakan di bawah Akta Juru ukur Tanah Berlesen 1958



NOTA TEKNIKAL

(Disemak 1991) dan Akta Pendaftaran Juru ukur Bahan 1967 (Disemak 1992).

(Nota: Pada tahun 2010, data bagi aktiviti arkitek & kejuruteraan lain dan perundingan teknikal berkaitan (MSIC 71109) digabungkan bersama perkhidmatan profesional, saintifik dan teknikal lain).

iv. Aktiviti perakaunan

Merujuk kepada aktiviti merekod transaksi komersil untuk perniagaan atau lain-lain, penyediaan atau audit akaun kewangan, pemeriksaan akaun dan pengesahan ketepatannya dan penyediaan penyata cukai pendapatan perseorangan dan perniagaan. Termasuk juga aktiviti berkaitan khidmat nasihat dan perwakilan (selain daripada perwakilan undang-undang) bagi pihak pelanggan kepada pihak berkuasa cukai.

v. Aktiviti guaman

Merujuk kepada perwakilan guaman bagi kepentingan satu pihak menentang satu pihak lain, sama ada dalam atau luar mahkamah atau badan kehakiman lain, atau di bawah pengawasan, seseorang yang menjadi ahli badan peguam, khidmat nasihat dan perwakilan umum, penyediaan dokumen undang-undang dan aktiviti notari awam lain, notari undang-undang sivil, bailif, penimbangtara, pemeriksa dan pendamai.

vi. Aktiviti pengiklanan

Merujuk kepada penyediaan perkhidmatan pengiklanan secara keseluruhan melalui kemampuan secara dalaman atau di subkontrak. Pertubuhan ini menyediakan perkhidmatan pengiklanan seperti:

- Mencipta dan meletakkan iklan di dalam surat khabar, terbitan berkala, radio, televisyen, internet dan lain-lain media;
- Mencipta dan meletakkan iklan di luar, contoh: papan iklan, panel, buletin dan gambar, hiasan tingkap, peragaan bilik pameran, iklan di kereta dan bas dan lain-lain;
- Wakil media iaitu jualan ruang dan masa untuk pelbagai media bagi tujuan pengiklanan, peruntukan ruang di papan iklan, penyediaan tapak, tempat letak dan struktur pameran lain;



NOTA TEKNIKAL

Termasuk juga mengadakan kempen pemasaran dan perkhidmatan pengiklanan lain yang ditujukan untuk menarik perhatian dan kesetiaan pengguna (promosi produk; pemasaran di tempat jualan; pengiklanan pos secara terus; perundingan pemasaran).

vii. Aktiviti pakar runding pengurusan dan penyelidikan pasaran

Aktiviti pakar runding pengurusan adalah merujuk kepada perkhidmatan khidmat nasihat dan bantuan operasi kepada perniagaan dan organisasi lain berkenaan isu pengurusan, seperti perancangan dan pengurusan strategik; bidang keputusan berkaitan kewangan; objektif pemasaran dan polisi, polisi sumber manusia; amalan dan perancangan; penjadualan pengeluaran dan perancangan kawalan.

Aktiviti ini juga meliputi khidmat nasihat, bimbingan atau bantuan operasi kepada perniagaan dan perkhidmatan awam berhubung dengan hubungan awam dan komunikasi; perkhidmatan melobi; mereka kaedah atau prosedur perakaunan, program perakaunan kos, prosedur perancangan peruntukan dan khidmat nasihat dan bantuan kepada perniagaan dan perkhidmatan awam dalam perancangan, pengurusan, kecekapan dan kawalan, informasi pengurusan dan lain-lain.

Penyelidikan pasaran adalah merujuk kepada penyiasatan ke atas potensi pasaran, penerimaan dan kebiasaan kepada sesuatu produk dan tabiat membeli pengguna bagi tujuan promosi jualan dan pembangunan produk baru, termasuk juga keputusan daripada analisis statistik, penyiasatan ke atas pendapat kolektif umum berkenaan isu politik, ekonomi dan sosial serta analisis statistik yang berkaitan.

viii. Aktiviti veterinar

Merujuk kepada aktiviti penjagaan kesihatan dan pengawalan haiwan ternakan dan haiwan peliharaan. Aktiviti ini dijalankan oleh doktor veterinar yang berkelayakan semasa bekerja di hospital veterinar dan juga ketika melawat ladang, rumah anjing atau rumah, di bilik perundingan dan pembedahan sendiri atau di tempat lain. Ini termasuk juga aktiviti pembantu veterinar atau kakitangan veterinar tambahan lain, *clinic-pathological* dan perkhidmatan diagnostik lain berkaitan dengan haiwan serta perkhidmatan ambulan haiwan.



NOTA TEKNIKAL

ix. Aktiviti penyelidikan & pembangunan saintifik dan ujian teknikal & analisis

Aktiviti penyelidikan & pembangunan saintifik merujuk kepada perkhidmatan penyelidikan dan pembangunan sains semulajadi, kejuruteraan dan teknologi, sains perubatan, bioteknologi, sains pertanian, sains sosial, penyelidikan dan pembangunan ilmu kemanusiaan.

Ujian teknikal dan analisis termasuk pencapaian fizikal, ujian kimia dan analitikal lain bagi semua jenis bahan dan produk; perakuan produk, termasuk barang pengguna, kenderaan bermotor, pesawat, kontena bertekanan tinggi, loji nuklear dan lain-lain; ujian berkala keselamatan jalan raya ke atas kenderaan bermotor; ujian dengan menggunakan model atau replika (contoh: kapal terbang, kapal, empangan dan lain-lain); operasi di makmal polis.

x. Aktiviti profesional lain

Merujuk kepada aktiviti mereka bentuk perindustrian, iaitu: mencipta dan membangun spesifikasi dan reka bentuk bagi mengoptimumkan penggunaan, nilai dan penampilan produk, termasuk penentuan bahan, pembinaan, mekanisme, bentuk, warna dan gilapan akhir produk, dengan mengambil kira sifat dan keperluan manusia, keselamatan, tarikan pasaran dan kecekapan pengeluaran, pengedaran, penggunaan dan penyelenggaraan.

Bagi aktiviti fotografi termasuk pengeluaran fotografi komersial dan konsumer seperti fotografi potret untuk passport, sekolah, perkahwinan dan lain-lain; fotografi untuk tujuan komersial, penerbitan, fesyen, hartanah, pengiklanan atau pelancongan; fotografi dari udara; rakaman video untuk majlis seperti perkahwinan, mesyuarat, memproses filem seperti pencucian, percetakan dan pembesaran dari negatif yang diambil oleh pelanggan atau *cine-films*; pencucian filem dan makmal percetakan foto; kedai gambar satu jam (tidak termasuk kedai menjual kamera); pemasangan slaid, penyalinan dan pemulihan atau memperkemaskan semula transparensi berkaitan dengan gambar, aktiviti jurugambar wartawan dan memikrofilem dokumen.



NOTA TEKNIKAL

Aktiviti ibu pejabat pula merujuk kepada pengawasan dan pengurusan unit-unit lain di dalam syarikat atau enterpris; menjalankan perancangan atau pengurusan strategik dan berperanan membuat keputusan bagi syarikat atau enterpris; menggunakan perancangan operasi dan mengurus operasi harian unit-unit yang berkaitan.

- 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 dengan menggunakan tiga (3) kaedah iaitu:
- Kaedah atas talian melalui portal e-aes: Kaedah ini mensasarkan responden yang telah menggunakan kaedah ini bagi survei rutin terdahulu.
 - 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 boring soal selidik tersebut kepada Jabatan.
 - 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 persampelan** Reka bentuk pensampelan bagi survei ini adalah pensampelan rawak strata satu peringkat. Kategori industri lima (5), empat (4) dan tiga (3) 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 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).



NOTA TEKNIKAL

9. Saiz sampel dan prosedur pengangguran

Statistik utama yang digunakan untuk pengangguran saiz sampel adalah jumlah hasil. Formula yang digunakan dalam pengangguran 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^2	=	Varian bagi strata i
V	=	Varian sasaran

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

di mana,

$\hat{Y}_i$	=	Jumlah hasil bagi strata i
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

NOTA TEKNIKAL

Saiz sampel optimum bagi survei ini adalah 4,802 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 persampelan dan wajaran tiada respon.

Wajaran reka bentuk persampelan 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 respon pada substrata h adalah seperti berikut:

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

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



NOTA TEKNIKAL

11. Unit melapor

Unit pelapor bagi survei ini ialah **pertubuhan**. Sesebuah pertubuhan secara ideal ditakrifkan sebagai “satu unit ekonomi yang terlibat satu aktiviti, di bawah satu entiti yang sah dan beroperasi di satu 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 ditakrifkan dengan memasukkan perkara berikut:

- + Pendapatan daripada perkhidmatan yang diberikan
- + Pendapatan daripada yuran keahlian
- + Pendapatan sewa yang diterima kecuali tanah
- + Pendapatan daripada perkhidmatan pengurusan
- + Komisen dan brokeraj yang diperoleh
- + Perbelanjaan penyelidikan dan pembangunan (dalaman)
- + Pendapatan operasi lain
- + Nilai jualan barangan yang dibeli untuk dijual semula
- + Nilai barang yang dibeli untuk dijual semula dalam keadaan sama seperti dibeli

13. Nilai input perantaraan

Nilai input perantaraan ditakrifkan dengan memasukkan perkara berikut:

- Pembelian barangan, bahan dan perkhidmatan
- + Bayaran pembaikan dan penyelenggaraan
- + Perbelanjaan alat tulis, bekalan pejabat dan bekalan lain
- + Pembelian perkhidmatan pengangkutan
- + Perbelanjaan perjalanan dan hiburan
- + Perbelanjaan elektrik, air, bahan pembakar, pelincir dan gas



NOTA TEKNIKAL

- + Bayaran perakaunan, kesetiausahaan dan audit
- + Bayaran guaman dan perkhidmatan profesional lain
- + Bayaran pengurusan
- + Komisen dan bayaran agensi
- + Bayaran telekomunikasi, pos dan percetakan
- + Pengiklanan, pemasaran dan promosi
- + Premium insurans kecuali insurans pampasan kerja
- + Bayaran bagi perkhidmatan keselamatan
- + Bayaran sewa tidak termasuk sewa penggunaan tanah
- + CBP pada pembelian bersih yang tidak boleh dituntut sebagai cukai input
- + Perbelanjaan operasi lain
- + Stok akhir
- Stok awal

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 meliputi orang yang diambil bekerja pada bulan Disember atau pada tempoh pembayaran gaji terakhir pada 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 pertubuhan. Justeru itu, ia tidak termasuk rakan niaga yang tidak aktif.

ii. Pekerja keluarga tidak bergaji

Kategori ini meliputi semua ahli isi rumah 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 'regular' sama ada dalam bentuk wang tunai atau mata benda bagi kerja yang dilakukan. Biasanya pekerja berkenaan mendapat makanan, tempat tinggal dan bantuan lain sebagai sebahagian daripada ahli isi rumah pemilik dan terus mendapatnya sama ada mereka bekerja atau tidak di pertubuhan tersebut.



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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 sekurang-kurangnya 6 jam sehari dan/atau kurang daripada 20 hari sebulan.

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. Perbelanjaan penyelidikan dan pembangunan turut diambil kira sebagai perbelanjaan harta selaras dengan System of National Accounts (SNA) 2008. Nilai harta tetap awal dan akhir bagi tahun rujukan 2017 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.

18. Pembundaran

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

NOTA TEKNIKAL

19. Perubahan peratusan tahun ke tahun

Pengiraan adalah berdasarkan formula berikut;

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

Di mana r,

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

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
RM	:	Ringgit Malaysia
dll.	:	dan lain-lain
t.t.t.l.	:	tidak terkelas di tempat lain
W.P.	:	Wilayah Persekutuan



TECHNICAL NOTES

- 1. Scope and coverage** *The survey comprised registered establishments engaged in professional services based on Malaysia Standard Industrial Classification (MSIC) 2008 Ver. 1.0, in accordance with the International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4 which included main activities as follows:*
- i. Architecture activities;*
 - ii. Engineering activities;*
 - iii. Land & quantity surveying activities;*
 - iv. Accounting activities;*
 - v. Legal activities;*
 - vi. Advertising activities;*
 - vii. Management consultancy and market research activities;*
 - viii. Veterinary activities;*
 - ix. Scientific research & development and technical testing & analysis activities;*
 - x. Other professional activities.*

*Overall, coverage of the survey for professional services was 36 industries at 5-digit level under the Malaysia Standard Industrial Classification (MSIC), 2008. The complete lists of industries are shown in **Appendix**.*

2. Source of establishment

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.



TECHNICAL NOTES

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 (ISIC), Revision 4.

4. Concepts and definitions

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

Professional, scientific and technical includes specialized professional, scientific and technical activities which require a high degree of expertise and training, and specialized knowledge and skills available to users. Activities performed include legal and accounting activities, activities of head offices, management consultancy activities, architecture and engineering activities, technical testing and analysis scientific research and development, advertising and market research, other professional, scientific and technical activities, veterinary activities.

i. Architectural activities

Refers to the provision of architectural services on a fee or contract basis. These services must be provided by establishments operated by persons registered under Section (A) of the Register of Architects and Section (B) of the Register of Building Draughtsman maintained by the Board of Architects under the provisions of the Architects under the provisions of the Architects Act, 1967 (Revised 1973). Architectural consulting activities which concerns building design and draftign and often suoervision of construction, town and city planning and landscape architecture.



TECHNICAL NOTES

ii. Engineering activities

Refers to the provision of engineering services for others on a fee or contract basis. Included are engineering research, development and testing services. These services must be provided by establishments operated by persons registered under Section 7(1) of the Registration of Engineers Act, 1967 (Revised 1987).

a) Include engineering design (i.e. applying physical laws and principles of engineering in the design of machines, materials, instruments, structures, processes and systems) and consulting activities for:

- Machinery, industrial processes and industrial plant;*
- Projects involving civil engineering, hydraulic engineering, traffic engineering;*
- Water management projects;*
- Projects elaboration and realization relative to electrical and electronic engineering, mining engineering, chemical engineering, mechanical, industrial and systems engineering, safety engineering;*
- Projects management activities related to construction.*

b) Engineering services refers to elaboration of projects using air conditioning, refrigeration, sanitary and pollution control engineering, acoustical engineering, etc.

iii. Land & quantity surveying activities

Refers to the provision of surveying services for others on a fee or contract basis. These services must be provided by establishments operated by persons registered under the Board of Land Surveyor and Board of Quantity Surveyors maintained under the Licensed Land Surveyors Act, 1958 (Revised 1991) and the registration of Quantity Surveyors Act, 1967 (Revised 1992).

(Note: in 2010, other architectural and engineering activities and related technical consultancy (MSIC 71109) data are combined with other professional, scientific and technical services).



TECHNICAL NOTES

iv. Accounting services

Refers to services involving the recording of commercial transactions from businesses or others, preparation or auditing of financial accounts, examination of accounts and certification of their accuracy and preparation of personal and business income tax returns. Included are related advisory activities and representation (other than legal representation) on behalf of clients before tax authorities.

v. Legal activities

Refers to legal representation of one party's interest against other party, whether or not before courts or other judicial bodies by, or under supervision of, persons who are members of the bar; general counselling and advising, preparation of legal documents and other activities or notaries public, civil law notaries, bailiffs, arbitrators and examiners and referees.

vi. Advertising activities

Refers to provision of a full range of advertising services through in-house capabilities or subcontracting. Advertising agency activities encompasses:

- Creating and placing advertising in newspaper, periodicals, radio, television, the internet and other media;*
- Creating and placing of outdoor advertising, example: billboards, panels, bulletins and frame, window dressing, showroom design, car and bus carding, and others;*
- Media representation i.e. Sale of time and space for various media soliciting advertising, aerial advertising; distribution or delivery of advertising material or samples, provision of advertising space on billboards, creation of stands and other display structures and sites;*

Include conducting marketing campaigns and other advertising services aimed at attracting and retaining customers (promotion of products; point-of-sale marketing; direct mail advertising; marketing consulting).



TECHNICAL NOTES

vii. Management consultancy and market research activities

This activities includes the provision of advice, guidance and operational assistance to business and other organizations on management issues, such as strategic and organizational planning; decision areas that are financial in nature; marketing objectives and policies; human resources policies, practices and planning; production scheduling and control planning.

This service may include advice, guidance or operational assistance to businesses and the public service regarding public relations and communication; lobbying activities; design of accounting methods or procedures, cost accounting programmed, budgetary control procedures and advice and help to businesses and public services in planning, organization, efficiency and control, management information, etc.

Market research services refers to investigation into market potential, acceptance and familiarity of products and buying habits of consumers for the purpose of sales promotion and development of new products, including statistical analyses of the results; investigation into collective opinions of the public about political, economic and social issues and statistical analysis thereof.

viii. Veterinary activities

Refers to animal health care and control activities for farm animals and animal health care and control activities for pet animals. These activities are carried out by qualified veterinarians when working in veterinary hospitals as well as when visiting farms, kennels or homes, in own consulting and surgery rooms or elsewhere. It also includes activities of veterinary personnel, clinic-pathological and other diagnostic activities pertaining to animals and animal ambulance activities.

ix. Scientific research & development and technical testing & analysis activities

This activity refers to research and development of natural sciences, engineering and technology, medical sciences, biotechnology, agricultural sciences, social sciences, humanities research and development.



TECHNICAL NOTES

Technical testing and analysis includes the performance of physical, chemical testing and analytical for all types of materials and products; certification of products, including consumer goods, motor vehicles, aircraft, pressurized containers, nuclear plants and others; periodic road-safety testing of motor vehicles; testing with use of model or replica (e.g. aircraft, ships, dams etc.); operation of police laboratories.

x. Other professional activities

Refers to the activities of their industrial design, namely: creating and developing the specifications and design in order to optimize the use, value and appearance of products, including the determination of the materials, construction, mechanisms, shape, color and polished final product, taking into account the nature and efficiency of production, distribution, use and maintenance.

For photographic activities include commercial and consumer photograph production such as portrait photography for passports, schools, weddings and other; photography for commercials, publishers, fashion, real estate or tourism purposes, aerial photography and videotaping of events: weddings, meetings, etc.; film processing such as developing, printing and enlarging from client-taken negatives or cine-films, film developing and photo printing laboratories, one hour photo shops (not part of camera stores), mounting of slides and copying and restoring or transparency retouching in connection with photographs; activities of photojournalists; microfilming of documents.

Activities of head offices refers to the overseeing and managing of other units of the company or enterprise; undertaking the strategic or organizational planning and decision making role of the company or enterprise; exercising operational control and manage the day-to-day operations of their related units.

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.



TECHNICAL NOTES

- 7. Method of 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. Category of industries five (5), four (4) and three (3) digits MSIC at states level have been classified as stratum and the establishment as the sampling unit.

Each stratum (industry) has been set up into four sub stratum to ensure the sample is distributed taking into account the economy characteristics of the industry. The main sub stratum is heterogeneous, was fully covered while other sub stratum that is homogeneous were sampled.

Main sub stratum comprise large establishments that have significant total revenue in the industry while for the second to fourth sub stratum were formed based on micro, small, and medium enterprises (MSME) category.

9. Sampel 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 i
S_i^2	=	Variance for stratum i
V	=	Desired variance

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

where,

$\hat{Y}_i$	=	Total revenues 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:

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

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

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

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

The optimum sample size for this survey is 4,802 establishments. Establishments of the large categories were fully covered while establishments of the second to the 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



TECHNICAL NOTES

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

The method of calculating the sampling design weight after the survey (adjusted weight) on sub stratum 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

11. Reporting unit

The reporting unit for this survey is the **establishment**. An establishment ideally 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 to that of its parent company.

Each branch of the multiple organisation has branches in different locations of conceptually treated as the different organisation. 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. The 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 is defined to include the following items:

- Revenue from services provided
- + Income from membership fees
- + Rental income received except land
- + Income from management services
- + Commissions and brokerage earned
- + Research and development expenditure (in-house)



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- + *Other operating income*
- + *Value of goods sold in the same condition as purchased*
- + *Value of goods purchased for resale in the same condition as purchased*

13. Value of intermediate input

The value of intermediate input is defined to include the following elements:

- Purchase of goods, materials and services*
- + *Payment for repairs and maintenance*
- + *Expenditure for stationery, office supplies and others*
- + *Purchases of transport services*
- + *Travel and entertainment services*
- + *Expenditure for electricity, water, fuel, lubricants and gas*
- + *Accounting, secretarial and audit*
- + *Legal and other professional services fees*
- + *Management fees*
- + *Commissions and agency fees*
- + *Telecommunication, postage and printing cost*
- + *Advertising, marketing and promotion*
- + *Insurance premiums except workers' compensation work*
- + *Payment for security services*
- + *Rental payments excludes rent for use of hand*
- + *Other operating expenditure*
- + *GST on net purchases are non-claimable as input tax*
- + *Closing stock*
- *Opening stock*

14. Value added

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

15. Number of persons engaged

Number of persons engaged 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. It therefore, excludes silent and inactive partners.



TECHNICAL NOTES

ii. Unpaid family workers

This category encompass all persons in the household of any of the owners of the establishment who perform a specified job (full-time or part-time) and work for a minimum of one third of the normal working time of 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 a part of the household of an owner but this would continue whether they workers in the establishment or not.

iii. Paid full-time employees

It refers to all paid workers who work for at least 6 hours a day and 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. The research and development expenditure is also treated as capital asset in line with the recommendation of System of National Accounts (SNA) 2008. Value of assets as at the beginning and end of 2017 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.

TECHNICAL NOTES

18. Rounding

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

19. Percentage change year-on-year

The calculation is based on the following formula:

$$Y_t = Y_0 (1+r)^t$$

Where r ,

$$r = \left[e^{\frac{1}{t} \ln \left(\frac{Y_t}{Y_0} \right)} - 1 \right] \times 100$$

Where,

Y_t = Value at current year

Y_0 = Value at previous year

t = Number of years, $Y_t - Y_0$

r = Annual growth rate

20. Symbols and abbreviations

-	: nil
%	: per cent
&	: and
RM	: Ringgit Malaysia
etc.	: et cetera
n.e.c	: not elsewhere classified
W.P.	: Federal Territory

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Lampiran

Appendix

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LAMPIRAN APPENDIX

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

PERKHIDMATAN PROFESIONAL, SAINTIFIK DAN TEKNIKAL PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES

MSIC 2008	Keterangan Description
69	Aktiviti guaman dan perakaunan <i>Legal and accounting activities</i>
69100	Aktiviti guaman <i>Legal activities</i>
69200	Aktiviti perakaunan, simpan kira dan audit; perundingan percukaian <i>Accounting, bookkeeping and auditing activities; tax consultancy</i>
70	Aktiviti ibu pejabat; aktiviti perundingan pengurusan <i>Activities of head offices; management consultancy activities</i>
70100	Aktiviti ibu pejabat <i>Activities of head offices</i>
70201	Perkhidmatan perundingan pengurusan perniagaan <i>Business management consultancy services</i>
70202	Perkhidmatan perundingan sumber manusia <i>Human resources consultancy services</i>
70203	Perkhidmatan perundingan perhubungan awam dan komunikasi <i>Consultancy services in public relation and communications</i>
70209	Aktiviti perundingan pengurusan lain t.t.t.l <i>Other management consultancy activities n.e.c</i>
71	Aktiviti arkitek dan kejuruteraan; ujian teknikal dan analisis <i>Architectural and engineering activities; technical testing and analysis</i>
71101	Perkhidmatan arkitek <i>Architectural services</i>
71102	Perkhidmatan kejuruteraan <i>Engineering services</i>
71103	Perkhidmatan juru ukur tanah <i>Land surveying services</i>
71109	Aktiviti arkitek dan kejuruteraan lain dan perundingan teknikal berkaitan t.t.t.l. <i>Other architectural and engineering activities and related technical consultancy n.e.c</i>
71200	Ujian teknikal dan analisis <i>Technical testing and analysis</i>
72	Penyelidikan dan pembangunan saintifik <i>Scientific research and development</i>
72101	Penyelidikan dan pembangunan sains semulajadi <i>Research and development on natural sciences</i>
72102	Penyelidikan dan pembangunan kejuruteraan dan teknologi <i>Research and development on engineering and technology</i>
72103	Penyelidikan dan pembangunan sains perubatan <i>Research and development on medical sciences</i>
72104	Penyelidikan dan pembangunan bioteknologi <i>Research and development on biotechnology</i>
72105	Penyelidikan dan pembangunan sains pertanian <i>Research and development on agricultural sciences</i>

LAMPIRAN APPENDIX

PIAWAIAAN KLASIFIKASI INDUSTRI MALAYSIA (MSIC) 2008 Ver. 1.0
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PERKHIDMATAN PROFESIONAL, SAINTIFIK DAN TEKNIKAL PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES

MSIC 2008	Keterangan <i>Description</i>
72106	Penyelidikan dan pembangunan teknologi maklumat dan komunikasi <i>Research and development on Information Communication Technology (ICT)</i>
72109	Penyelidikan dan pembangunan sains semulajadi dan kejuruteraan lain t.t.t.l. <i>Research and development on other natural sciences and engineering n.e.c.</i>
72201	Penyelidikan dan pembangunan sains sosial <i>Research and development on social sciences</i>
72202	Penyelidikan dan pembangunan kemanusiaan <i>Research and development on humanities</i>
72209	Penyelidikan dan pembangunan sosial sains dan kemanusiaan lain, t.t.t.l. <i>Research and development of other social sciences and humanities n.e.c.</i>
73	Pengiklanan dan penyelidikan pasaran <i>Advertising and market research</i>
73100	Pengiklanan <i>Advertising</i>
73200	Penyelidikan pasaran dan tinjauan pendapat umum <i>Market research and public opinion polling</i>
74	Perkhidmatan profesional, saintifik dan teknikal lain <i>Other professional, scientific and technical activities</i>
74101	Aktiviti hiasan dalaman <i>Activity of interior decorators</i>
74102	Perkhidmatan pereka grafik <i>Services of graphic designers</i>
74103	Perkhidmatan rekaan fesyen <i>Fashion design services</i>
74109	Aktiviti reka bentuk khusus t.t.t.l. <i>Specialized design activities n.e.c.</i>
74200	Aktiviti fotografi <i>Photographic activities</i>
74901	Aktiviti penterjemahan dan penafsiran <i>Translation and interpretation activities</i>
74902	Aktiviti broker perniagaan <i>Business brokerage activities</i>
74903	Perunding keselamatan <i>Security consulting</i>
74904	Aktiviti juru ukur bahan <i>Activity of quantity surveyor</i>
74905	Aktiviti perunding selain daripada perunding arkitek, kejuruteraan dan pengurusan <i>Activities of consultants other than architecture, engineering and management consultants</i>

**LAMPIRAN
APPENDIX**

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PERKHIDMATAN PROFESIONAL, SAINTIFIK DAN TEKNIKAL
PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES

MSIC 2008	Keterangan Description
74909	Aktiviti profesional, saintifik dan teknikal lain t.t.t.l. <i>Any other professional, scientific and technical activities n.e.c.</i>
75	Aktiviti veterinar <i>Veterinary activities</i>
75000	Aktiviti veterinar <i>Veterinary activities</i>

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