KPMG

The economic impact of data centres to the Malaysian economy

KPMG report commissioned by Asia-Pacific Data Centre Association (APDCA)

July 2025

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Contents

Glossary

A glossary of terms used throughout the report is included below.

$M (USD) – Millions of US dollars

$Bn (USD) – Billions of US dollars

AI – Artificial Intelligence

APAC – APAC

APDCA – APAC Data Centre Association

ASN – Autonomous System Number

ATC– Air Traffic Control

CAPEX – Capital Expenditure

CAGR – Compound Annual Growth Rate

DC – Data centre

ESG – Environmental, Social, and Governance

FDI – Foreign Direct Investment

FTE – Full-Time Equivalent

FX – Foreign Exchange

GDP – Gross Domestic Product

GVA – Gross Value Added

GW – Gigawatt

HCAC – Hot/Cold Aisle Containment

IBX – Internet Business Exchange

ICT – Information and Communication Technology

IoT – Internet of Things

kW – Kilowatt

LED – Light Emitting Diode

MDEC – Malaysia Digital Economy Corporation

MEP – Manufacturing Extension Partnership

MNC – Multinational Corporation

MW – Megawatt

OECD – Organisation for Economic Cooperation and Development

OPEX – Operating Expenditure

PPA – Purchase Power Agreement

PUE – Power Usage Efficiency

R&D – Research and Development

SDG – UN Sustainable Development Goal

SME – Small and Medium-Sized Enterprise

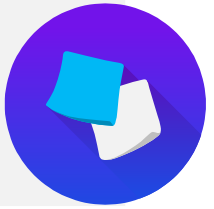
sq.ft – Square Feet

UN – United Nations

USB – Universal Serial Bus

WUE – Water Usage Efficiency

YoY – Year-on-Year



About this report

The overall context for this report and key sources are summarised below.

High-level scope

1. **Quantification of the contribution data centres make to the Malaysian economy.**
2. **Articulation of the role data centres play in supporting the growth of the Malaysian digital economy.**
3. **Overview of investment drivers, policy enablers and peer benchmarking.**
4. **Highlighting the role of data centres to critical infrastructure and sustainability.**

Key sources for the report

Information sources including:

- **Industry data**: Expert consultations, Department of Statistics Malaysia, Cushman & Wakefield Data Centre Update reports, Knight Frank data centre forecasts and CBRE data centre investment reports.

Our collective knowledge of the sector, enhanced with:

- Consultations with a range of data centre stakeholders in Malaysia.
- Discussions with contributing members of the APDCA.

01

Executive Summary

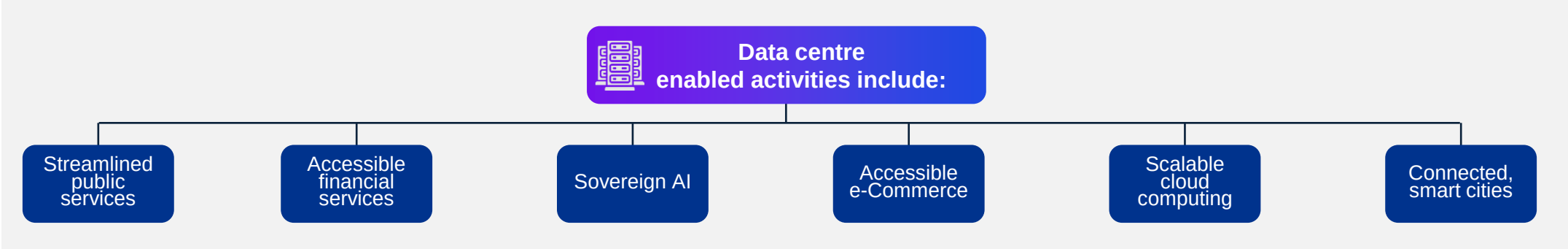
Malaysia's ambitions as a digital, AI-driven economy

Modern, digital economies that support high-paying onshore jobs are enabled by the physical infrastructure of data centres – in effect, data centres are the engine rooms of the digital economy.

1. **Data centres are fundamental to the wider information ecosystem and serve as core infrastructure for the digital economy:** Without them, countries have to rely on imported data centre services, raising sovereignty and latency challenges for their users (including banking, healthcare and transport). Those with the energy and water capacity to expand their data centre industry can also become net exporters of data where use cases are less sensitive to these concerns (such as AI Training facilities) – thereby also gaining long-term benefits over time for its national tax strategy, with onshore data activity protecting substance based exclusions under BEPS 2.0.[a]

2. **Data centres are critical enablers of high-paying onshore jobs:** Data centre clusters are vital for attracting tech FDI and driving digitalisation. They support indigenous cloud-native and AI-native start-ups, while also helping traditional sectors like healthcare, financial services, and education modernise.

3. **Data centres are drivers of national living standards:** By powering digital services – from smart cities and healthcare to education and sustainability, from e-commerce to improving road and air traffic control safety – data centres enhance national quality of life. They enable more efficient public services, rural access to information, and innovations that improve living standards.



Data centres are not an end goal in themselves – they are the physical clustering of computing power that enables digitalisation and the related efficiencies that power modern economies and improved quality of life.

Sources: **[a]** Base Erosion and Profit Shifting (BEPS) 2.0 Initiative KPMG Malaysia

Malaysia's digital vision and strategy

Data centres are essential to Malaysia's digital ambitions – powering AI, cloud computing, and tech innovation that drive national productivity and global competitiveness.

Vision

Malaysia's digital vision is set out in the national initiative MYDIGITAL – the Malaysian Digital Economy Blueprint – which outlines the Government's aspirations to transform the country into a digitally-driven, high-income nation and a regional leader in the digital economy.

MYDIGITAL is designed to complement national development policies such as the 'WKB 2030', which identifies the digital economy as a key economic growth area.

It provides the way forward to fully realise this potential in achieving inclusive, responsible and sustainable socioeconomic development. [a]

Strategy

Malaysia has identified six strategic thrusts as part of MYDIGITAL to develop Malaysia's digital economy: [a]

1. Drive digital transformation in the public sector
2. Boost economic competitiveness through digitalisation
3. Build enabling digital infrastructure (including data centres and cloud infrastructure)
4. Build agile and competent digital talent
5. Create an inclusive digital society
6. Build a trusted, secure and ethical digital environment

Sources: **[a]** Economic Planning Unit, Prime Minister's Department

Data centres as strategic infrastructure for Malaysia's digital economy

As strategic digital infrastructure, data centres generate investment, support highly-skilled jobs, and enable growth across Malaysia's most dynamic sectors.

Enabling the digital economy: Data centres are fundamental to Malaysia's digital infrastructure – powering AI, fintech, cloud computing, online retail, and public services. They make it possible for businesses, government and households to operate efficiently and securely, and compete globally. They are a key determinant of competitiveness and sovereignty.

Economic impacts: Malaysia's ambition to lead in the digital economy depends on critical infrastructure like data centres – not only for the significant number of jobs created during construction and operations, but also for the productivity gains they unlock across AI, cloud computing, and the broader technology ecosystem.

High-value job creation: Data centres help create and retain highly-skilled roles [1] – including network engineers, data specialists, cloud infrastructure specialists, and ICT security professionals. These are skilled, high-paying jobs that contribute to Malaysia's transition to a knowledge-based economy and help reduce talent outflow.

Sustainability: Data centre operators are actively reducing environmental impact and becoming increasingly resource efficient. Innovations include sourcing renewable energy, deploying advanced water reuse and cooling systems, and recovering waste heat – aligning with Malaysia's green growth ambitions.

Return on resource use: While data centres require land, energy and water, the value they generate is significant. By enabling productivity growth, digital transformation and high-value job creation, their economic and societal contribution far exceeds their resource footprint.

Strategic digital infrastructure

Like roads, ports, and the electricty grid, data centres have become critical infrastructure. They are the foundation of a country's computing power. They support the functioning of digital services across the public and private sectors, and enable economic activity, public services and national competitiveness.

Strong economic contribution

Data centres contribute directly to economic activity and the creation and retention of high-value jobs and exports – with resource use that is being actively managed. Operators are minimising environmental impact through energy efficient design, and using renewable energy sources.

Policy support

Malaysia is one of the fastest growing hubs for data centres – with current capacity of 505MW estimated to increase to 3.6GW by 2030. Malaysia can build on this progress to strengthen the data centre ecosystem in support of growing demand for digital services such as cloud computing and AI. International examples show that clear, sustainable policy can unlock investment, innovation, and long-term economic value.

Note: **[1]** These are known as 'Tier 3' roles. They are highly-skilled and include roles like system architects, network engineers, server administrators, cloud infrastructure specialists, and platform engineers.

Data centres deliver high-value returns to the Malaysian economy

Data centres are strategic assets – they deliver significant returns by enabling industry growth, supporting high-value jobs, and underpinning Malaysia's digital economy.

Inputs

Data centres in Malaysia rely on resources such as:

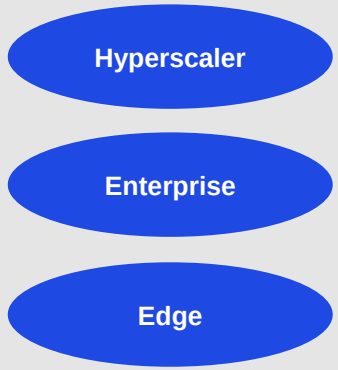
- **Land:** with appropriate planning permission, power and fibre infrastructure
- **Water:** for cooling systems
- **Energy:** where possible from sustainable sources

Skilled personnel are needed to construct and operate data centres. Based on current capacity, over 1,000 people are estimated to be employed in operating data centres in Malaysia.

Financial investment is needed to acquire land, construct the data centre and support ongoing operating expenditure.

Types of data centre

Data centres act as the **digital economy's core infrastructure** – storing, processing and distributing data. Each type of data centre serves a specific purpose and supports different service offerings. This can be simplified into three types:



54 data centres of various types are currently operational in Malaysia

Economic Impacts (2030)

- **$24bn** in **economic output per year** from construction, equivalent to **$7.6bn in GVA**
- **$10.2bn annual economic output** supported by the operation of data centres – equivalent to **$4.2bn in GVA**
- **~30,900 total jobs supported each year** through the operation of data centres – contributing $1.3bn in annual wages
- **~4,300 high-value knowledge jobs** supported each year (~14% of the total)

Enabled impacts:

- Productivity growth & a competitive economy
- Digital service delivery – critical infrastructure for high growth fintech, AI, e-commerce sectors and public services
- Facilitates exportable digital services

Data centres play an important role in **enabling high-value, knowledge-intensive employment**, both in their own operations and across the wider digital economy. These include roles in cloud engineering and software development, many of which are created by datacentre customers and ecosystem partners. Approximately 86% of supported jobs fall outside the 'knowledge job' definition, yet many require specialised expertise and offer competitive wages. As of Q3 2024, there were **more than 357,000 'digital talents' on LinkedIn in Malaysia**, underscoring the country's capacity to support and scale a digitally skilled workforce that sustains innovation, attracts investment, and drives productivity across the digital economy. [a][1]

Sources: **[a]** MDEC – Digital Talent Snapshot in Malaysia, Q3 2024
Note: **[1]** The term 'digital talent' in the MDEC report is defined as talents currently employed and having an active LinkedIn profile.

Data centres generate economic benefits throughout the value chain

Investment in data centre capacity is a catalyst for Malaysia's digital economy – enabling high-value jobs and innovation, while also delivering direct economic benefits through construction and operations.

Economic impacts supported by data centres in Malaysia (2030) (USD $2024m, baseline scenario) [a][1]

Potential economic output

$10.2bn economic output

- Equivalent to $4.2bn in GVA
- Supported by **ongoing operations** of data centres – not one-off investments

$24.0bn economic output

- Equivalent to $7.6bn in GVA
- Supported during **construction** in the baseline scenario

Jobs supported annually

~31,000 jobs supported

- $1.3bn in annual wages
- Attributable to **ongoing operations** of data centres

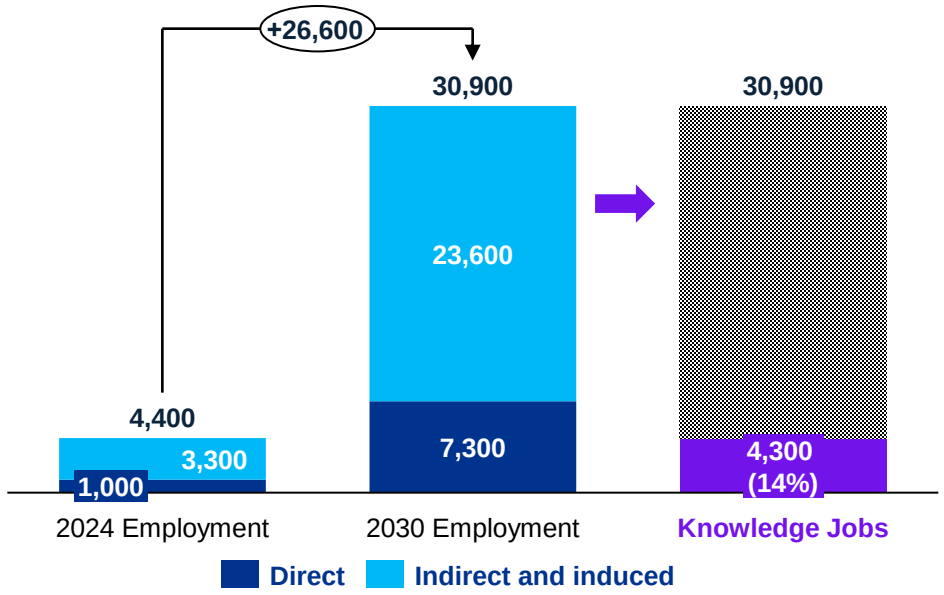
~20,000

- 20,000 direct jobs supported during construction
- With thousands more sustained across the wider supply chain

Operational jobs include IT system management, power and cooling maintenance, and security. Construction jobs include site preparation, engineering, electrical and mechanical installations. While the primary economic value of data centres lies in the high-value digital economy jobs they enable, both the construction and operation phases also deliver substantial job creation benefits in their own right.

Estimated growth in total operational employment, 2024-2030

Baseline Scenario



In line with Malaysian Government definitions, a knowledge worker is defined as a qualified person who holds a degree and has at least ten years' experience working in any of the qualified activities. It is estimated that 14% of the operational jobs supported by data centres would qualify as knowledge jobs.

Sources: **[a]** KPMG Impact Model
Note: **[1]** Gross Value Added (GVA) measures the value of goods and services produced minus the cost of inputs, whereas economic output reflects total turnover and includes intermediate consumption.

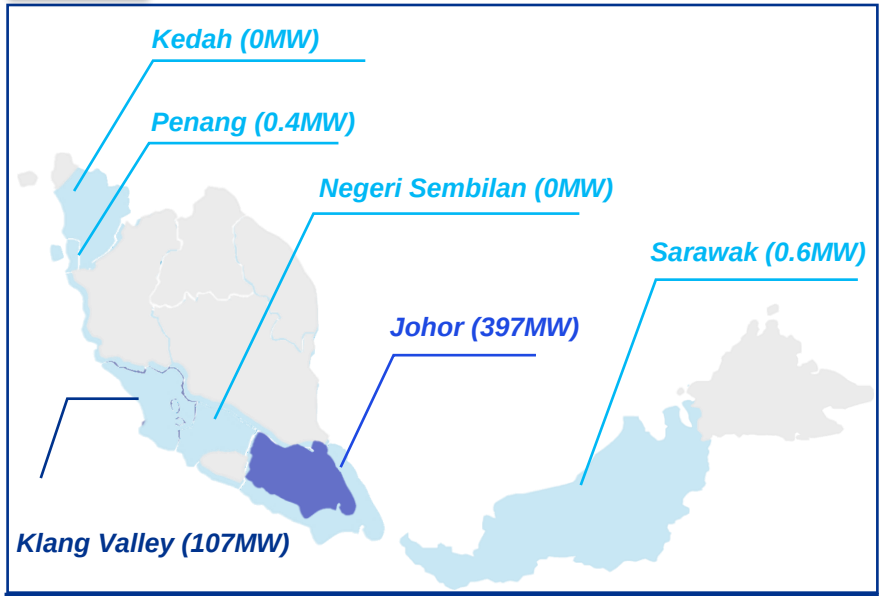
02

Context: data centres in Malaysia

Malaysian data centre landscape operational overview

Johor accounted for 79% (397MW) of Malaysia's data centre capacity in 2024, with investor interest now spreading across the country to regions in Northern Malaysia.

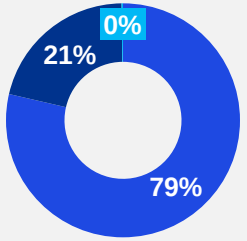
Malaysia's data centre landscape in 2024



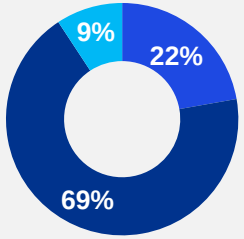
In 2024, a total of **54 operational data centres** were located across Malaysia, offering a **total live IT capacity of 505MW.[a] Around 79% (397MW) of the MW capacity across 12 data centres** was in the Johor region, followed by **20% (107MW) across 37 data centres** in the Klang Valley region. 5 data centres providing combined capacity of 1MW were in the Sarawak and Penang regions.

Distribution of data centres and MW capacity in Malaysia in 2024

1). MW IT Capacity



2). No. of data centres



Johor region | Klang Valley region | Other

While Johor and Klang Valley lead in MW capacity, investor interest is rising in Northern and Eastern Malaysia. Data centre developers are beginning to establish large-scale data centre campuses in regions like Kedah, underscoring the strategic importance of the North Kedah Special Economic Zone in diversifying and expanding Malaysia's digital infrastructure.

Although Kuala Lumpur, located in the Klang Valley, reports a lower MW capacity than emerging regions like Johor, its status as Malaysia's capital and primary economic centre reinforces its role as a prime base for cloud infrastructure and a catalyst for the nation's AI data centre ambitions.

Johor's **ample land, reliable power, government incentives and proximity to export data to Singapore** make it a prime location for large-scale data centres in Malaysia. With a focus on **AI-driven data centres and sustainability**, Johor is emerging as a digital hub in the APAC region, attracting major operators and developers looking to establish capacities of **100MW and above.**

Johor has established itself as a leading hyperscale, enterprise and built-to-suit hub, with a **1% colocation vacancy rate** – among the lowest in APAC.[b] Its strategic location in the Johor-Singapore Special Economic Zone (JS-SEZ), robust infrastructure, and land availability position it as a regional powerhouse.[c] This momentum helps to drive nationwide investment, with global tech firms committing upwards of $2bn to develop data centres in regions such as Selangor in the Klang Valley and to build out a comprehensive AI and cloud ecosystem across Malaysia. The increase in nationwide investments reflects growing confidence in Malaysia's digital infrastructure potential, enabling wider service offerings.

Sources: **[a]** Knight Frank **[b]** Cushman & Wakefield **[c]** Malaysian Investment Development Authority (MIDA)

The role of data centres as core national infrastructure in Malaysia

Data centres are essential infrastructure of a modern, digital economy – driving Malaysia's national growth and reinforcing its position as a first mover in AI.

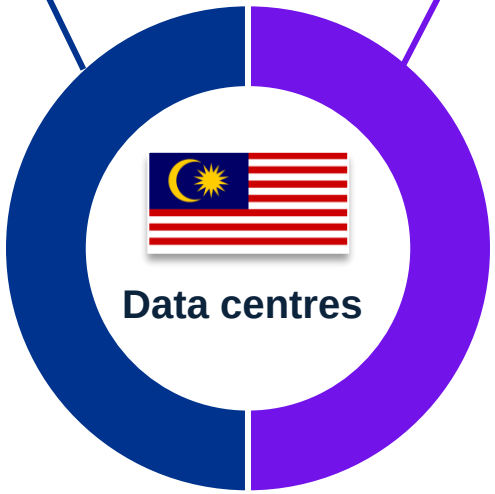
Critical Infrastructure

Data centres represent core digital infrastructure and strengthens **Malaysia's position as a strategic location and key hub for AI and IT services:**

Sector dependency: Data centres provide the infrastructure that lies behind **all digital aspects of social and work life**, including video calling, messaging and apps, retail, banking, travel and public services such as healthcare and welfare.

Enabling digital economies: Data centres host **critical software and data** that allows world leading companies to run their businesses, organise supply chains, and pay staff.

Integration into wider society: Data centres are not separate or optional infrastructure. They offer benefits across the supply chain through increased and well-paid employment, innovation, productivity and increased economic activity.



Global Context [1]

Malaysia hosts key clusters of data centres and technology companies; **the growth of the sector is part of a large-scale global digital transformation.** Data centres securely store and manage the data which forms much of the world's information, commerce, and interpersonal connection.

- Traditionally data centre hubs emerge around large metro economies, e.g. **Beijing, Tokyo, Shanghai, Sydney, Mumbai** and **Singapore**. These markets account for over half of APAC's total capacity today. [a].
- As initial hubs face capacity challenges, similar to trends in Europe and the Americas, new markets emerge that serve local demand and provide a net export of high-value services back into those initial hubs – **Johor** is an example of this.

Malaysia more generally has the opportunity to emerge as a **strong international hub**, supported by a positive policy environment.

Malaysia is emerging as a first mover in AI, **supported by a rapidly expanding data centre market.** With **streamlined approvals, competitive costs, and strong infrastructure,** Malaysia offers an attractive environment for global tech players. Kuala Lumpur and Johor are set to drive Malaysia's position as a global AI data centre hub, enhancing business services, attracting tech start-ups, and boosting high-skilled employment. This growth will boost Malaysia's digital economy and support broader economic development outside of the immediate data centre ecosystem. **As the backbone of AI and digital innovation, data centres will continue to provide critical infrastructure needed to power Malaysia's digital economy and enable growth across the wider economy.** Owning and operating local AI infrastructure can give Malaysia greater control over data governance, national security and provide opportunities to lead in fields like sustainable data centre design and renewable-powered AI infrastructure.

Sources: **[a]** Cushman & Wakefield
Note: **[1]** International benchmarking exercises can be found in **Appendix 1: International Benchmarking.**

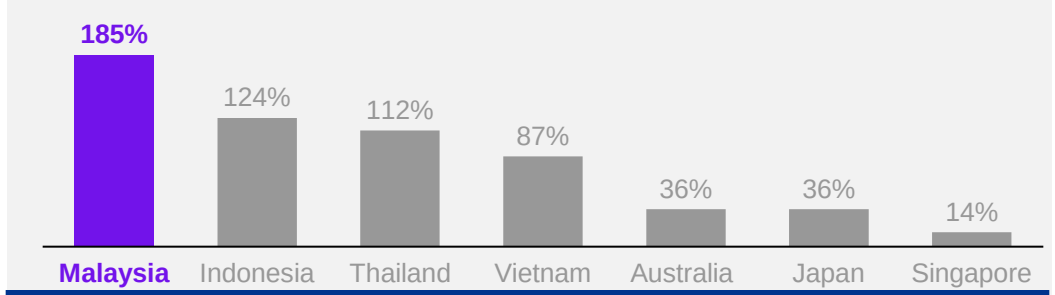
Investment in the Malaysian data centre ecosystem

Malaysia has attracted growing interest from data centre investors, owing to factors such as strong regional connectivity and a growing digital economy.

Increased investor interest in data centres (Southeast Asia)[a][1]

% growth in MW capacity from 2023 to 2026

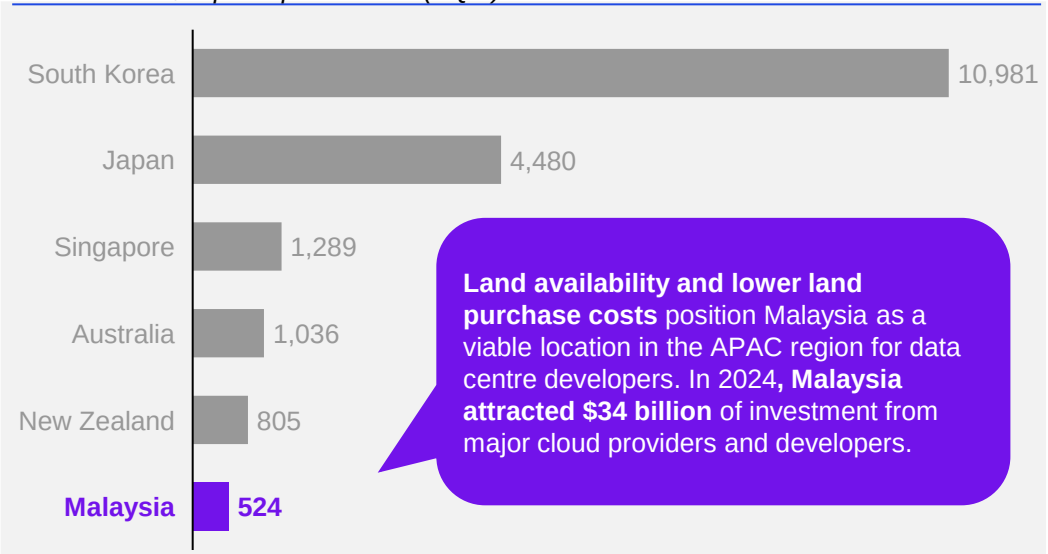
Malaysia has emerged as a hub for providers looking to expand their services and to meet the rising demand for AI data centres since ChatGPT's launch in 2022. AI is projected to contribute ~$115 billion to the Malaysian economy over a five-year period from 2025 to 2030.[b] Through the National AI Office (NAIO), the government aims to enhance sustainability while ensuring economic competitiveness through two key pillars: an inclusive sector-wide AI economy and digital infrastructure and talent development.



Malaysia is set to lead Southeast Asia in data centre investment growth – which is projected to rise 185% from 2023 to 2025. This will be driven by its expanding digital economy, land availability and regional connectivity. Continued AI investment is essential to sustaining this momentum, supporting economic growth, competitiveness, and resilience. Without it, Malaysia risks stagnation in key sectors such as healthcare, manufacturing, and agriculture, a widening skills gap, and missing out on over $100 billion in potential GDP gains due to reduced productivity and innovation.

Average land purchase costs in APAC (2025)[c][1]

Values are in $m per square metre (SQM)



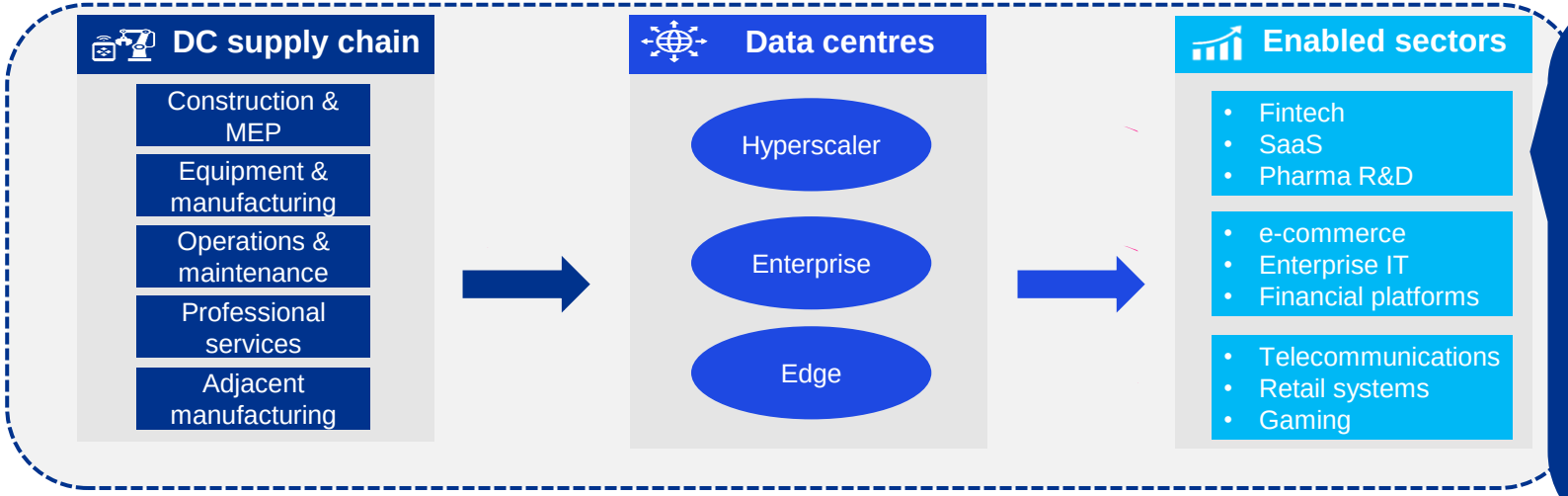
Land availability and lower land purchase costs position Malaysia as a viable location in the APAC region for data centre developers. In 2024**, Malaysia attracted $34 billion** of investment from major cloud providers and developers.

While the Malaysian government supports sustainable and increased data centre growth to expand its digital economy, changes to voltage-based power tariffs could raise electricity costs for operators, potentially weakening Malaysia's competitiveness as a regional AI data centre hub. Higher operational costs may delay or scale back the number of AI and cloud developments, slowing the rollout of AI-driven services in key sectors like healthcare and education. As data centres underpin fintech, e-commerce, and smart city infrastructure, rising costs could impact service quality and increase prices across the broader digital economy in Malaysia.

Sources: **[a]** CBRE **[b]** Ministry of Digital **[c]** Cushman & Wakefield
Note: **[1]** International benchmarking can be found in **Appendix 1: International Benchmarking.**

Data centre value chain

Data centres are a critical enabler of Malaysia's digital economy – supporting a specialised supply chain upstream and enabling growth across high-value digital sectors downstream.



Data centres are key drivers of Malaysia's digital economy. Their growth expands supply chains, attracts high-value investments, and **creates highly-skilled jobs.** This growth also boosts demand in supporting industries – such as rack assembly, electronics recycling and light industrial services – enhancing employment and export capabilities. As foundational infrastructure, data centres drive digital transformation across Malaysia's most innovative sectors. Sectors like Fintech, SaaS, and Pharma R&D are increasingly leveraging advanced AI and cloud technologies to enhance their services.

Malaysia's data centre value chain is anchored by a network of **high-value support industries**. These firms are critical to enabling data centre construction, operation and growth, **driving demand for skilled local technicians and engineers** who carry out builds, installations, upgrades and maintenance. As demand accelerates, these industries benefit through job creation, skills development and long-term investment.

Data centres act as the **digital economy's core infrastructure** – storing, processing and distributing data. Malaysia's capacity is forecast to grow from ~505MW in 2024 to ~3,600MW by 2030. This capacity expansion is driven by strong hyperscale demand in Johor, alongside growing needs for colocation and edge computing across Malaysia.

The presence of reliable and scalable data centres unlocks innovation across high-growth sectors. These sectors rely on data infrastructure to scale efficiently, ensure uptime and meet growing digital demands. Data centres **underpin wider growth by driving investment, enabling high-value job creation, digital exports and enhancing productivity** in these enabled sectors.

For sectors like finance, telecoms and energy, data centres are critical.
Downtime can lead to:
- Lost revenue
- Operational disruption
- Recovery costs
- Reputational damage

Growing AI data centre investment can unlock diverse local supply chain and export opportunities, particularly in high-value, tech-driven sectors, while strengthening Malaysia's regional economic role. Key areas include expanding AI-as-a-service and cloud offerings to ASEAN markets, exporting renewable energy and data centre technologies (e.g. cooling systems technology), leading in circular economy practices such as e-waste management and IT assest recovery, and the development of data centre graphics processing units (GPUs). These opportunities support industrial diversification, high-value job creation, and development of exportable digital capabilities that advance Malaysia's digital offering.

Strategic role of data centres in Malaysia's digital economy

Data centres are critical national infrastructure – continued public support is essential to unlock their full economic impact.

Impact	Strategic role	Supporting evidence of scale
National economic growth & high-value investment [a]	Data centres are **key contributors** to Malaysia's digital economy, **underpinning high-value investment** inflows and driving long-term growth across sectors such as AI, cloud computing, fintech and platform services.	• **US$36.7b** digital investment secured by Malaysia in 2024 – up from **US$10.5bn** in 2023. • **25.5% of GDP** expected to come from Malaysia's digital economy in 2025. • Investments in **data centres and cloud infrastructure accounted for 76.8%** of total approved digital investments in 2024.
Critical infrastructure [b][c]	Data centres act as the **core infrastructure** for Malaysia's digital services sector, enabling the government's national cloud and AI strategy, secure financial systems and advanced cybersecurity capability.	• Malaysia's rising focus on **data sovereignty** can help it develop a strong data ecosystem, which could **attract FDI and create new job opportunities**. • One example is Google's planned **$2.2bn investment** in building new cloud & AI infrastructure, which is expected to add **$3.2bn** to the economy and create **26,500 jobs by 2030**.
Position as a rapidly emerging hub [d][e][1]	Malaysia offers a **scalable** and **cost-effective** complement to more mature hubs like Singapore, with the capacity to support growing regional demand thanks to its **land availability and competitive operating environment**.	• **Land costs**: USD **$2,000-4000/**$m^2$ (Malaysia) vs USD **$11,500/m² (Singapore).** • **Construction costs** for 10MW data centre: USD **$85m (Malaysia)** vs USD **$113m (Singapore).** • **Energy costs:** USD **$0.10/kWh (Malaysia)** vs USD **$0.27/kWh (Singapore).** • Malaysia **offers low-lag connectivity** and proximity to 20 international subsea cables with **<5ms latency** between Johor and Singapore.
Job creation and skills development [f][g][h]	The data centre sector in Malaysia supports **high-quality job creation** and enables **long-term digital skills growth in Malaysia** through training and hiring incentives.	• Digital investments in 2024 generated over **48,000 jobs in Malaysia.** • Malaysia has implemented the **Data Centre Certified Technician Programme**, offering **comprehensive training** in data centre management, hardware maintenance, networking and disaster recovery. • Malaysia has also introduced the **MD Workforce Place & Train programme** which focuses on **upskilling employees** through job-relevant training, ensuring they gain the necessary qualifications and skills to **thrive in the digital economy**.
Global competitiveness & investor confidence [g]	Data centres are **foundational to Malaysia's digital competitiveness.** They support high-value exports in fintech, AI and digital services while anchoring global investor interest.	• **USD $48.1bn** in digital exports in 2023 **(57% of total services exports).** • Strong policy foundation (MD status, GITA, BoGs). • Continued **support is essential to avoid investment leakage** into competing markets such as Indonesia, Vietnam and Thailand.

Sources: **[a]** MDEC via ET HR World Southeast Asia **[b]** Moxie Insights **[c]** Open Gov Asia **[d]** BCISM **[e]** Zenlaver **[f]** MIDA **[g]** MDEC **[h]** Custom Media Academy

Note: **[1]** In the context of data centres, Malaysia is considered a 'Tier 2' regional hub. This refers to a market that is rapidly emerging as a significant player in the data centre industry, but is not yet as matured as traditional 'Tier 1' hubs like Singapore.

03

Policy landscape

Policy and regulatory setting in Malaysia

The Malaysian Government has launched a range of policies and initiatives to position the country as a leading and sustainable data centre hub in the APAC region.

Three key strategies to support data centre growth and development in Malaysia.

Government strategy	Strategy overview	Benefits for the DC landscape
 **Johor-Singapore Special Economic Zone (JS-SEZ)**[a]	JS-SEZ was established to enhance economic integration and attract global investments. It encompasses **nine flagship zones** (e.g. Johor Bahru Waterfront) and targets **11 key economic sectors** (e.g. Digital Economy). It is designed to boost growth and development in both regions.	The JS-SEZ supports Malaysia's data centre growth by **streamlining regulations**, **improving connectivity, developing skilled talent** and **promoting sustainable digital infrastructure**.
TENAGA NASIONAL **Green Lane Pathway**[b]	Established by Tenaga Nasional Berhard (TNB), the Green Lane Pathway delivers efficient, environmentally responsible solutions for data centre operators by **streamlining onboarding and simplifying the setup of data centre operations to attract more data centre investments to Malaysia.**	The pathway provides fast-track supply offerings for electricity, allowing data centres to be **connected three times faster than normal**, reducing the implementation period from 36-48 months to around 12 months.
 **Digital Ecosystem Acceleration Scheme (DESAC)**[c]	Introduced under Budget 2022 by the Malaysian Government, the DESAC initiative aims to **strengthen Malaysia's digital ecosystem and attract high-quality digital infrastructure projects** to accelerate the nation's digital economy.	Since its introduction, the Malaysian Government has approved **21 data centre projects, worth $24bn – 90% of which is foreign direct investment** – boosting the country's digital infrastructure growth.

Since 2019, the Malaysian government has advanced its data centre sector through initiatives aligned with national strategies like the **Twelfth Malaysia Plan (2021-2025)** and the **National Energy Transition Roadmap (NETR).**[d] To address sustainability concerns and skills gaps, the Government introduced the **Guideline for Sustainable Development of Data Centre** in December 2024.[e] Additional guidelines, incorporating metrics like **Carbon Usage Effectiveness (CUE)**, **Power Usage Effectiveness (PUE)**, and **Water Usage Effectiveness (WUE)** to ensure that data centres meet sustainability requirements and to support goals of **70% renewable energy usage and net-zero emissions by 2050** are in development.[f] The Malaysian government has invested resource in adopting a coordinated approach, for example establishing the **Data Centre Task Force (DCTF)** which focuses on enhancing coordination and strategies for the growth of data centres and their ecosystems.[g] The **Corporate Renewable Energy Support Scheme (CRESS)** aims to enhance corporate access to green electricity, enabling third parties (such as data centres) to supply or purchase renewable energy via the grid, driving the energy transition. [b]

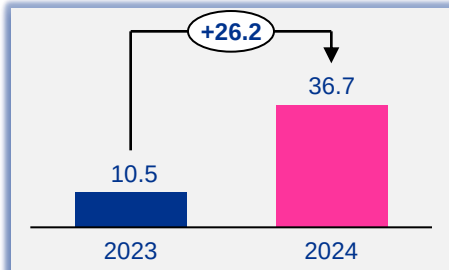
Sources: **[a]** MIDA **[b]** Tenaga Nasional Berhard (TNB) **[c]** MIDA **[d]** Ministry of Economy **[e]** MIDA **[f]** Forbes **[g]** Ministry of Investment, Trade and Industry

Malaysia's digital incentives

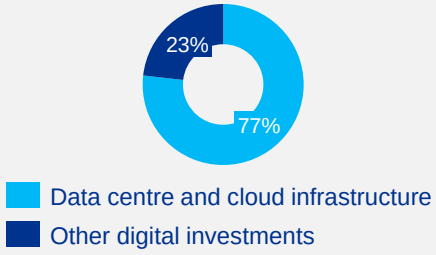
Malaysia's digital incentives are attracting high-value global investments and strengthening its ambitions of being a global tech hub.

Targeted incentives driving Malaysia's digital infrastructure [a,b,c,d]

Malaysia Digital (MD) Status	Companies **incorporated in Malaysia** with minimum $236 paid up capital and at **least 2 full-time Knowledge Workers** earning $1,182 monthly can apply for MD status. Grants access to **all MD-specific tax incentives and non-fiscal benefits.**
Investment Tax Allowance (ITA)	MD status companies can receive **50-100% ITA** on qualifying capital expenditure **(QCE),** deductible against up to 100% of statutory income for **5 years.**
Digital Ecosystem Acceleration Scheme	New digital infrastructure firms (e.g. data centres) may receive **0-10% tax rates for 10 years and 100% ITA on QCE**. Existing firms diversifying may qualify for a flat **10%** rate.
Green Investment Tax Allowance	Offers **100% ITA on QCE for green tech investments** over 3 years, offset against up to **70% of income.** Includes renewable energy, efficient cooling and energy-saving systems.
Bill of Guarantees	Includes **10 core guarantees** (e.g. no internet censorship, infrastructure access, **import duty exemptions, foreign worker quotas**, IP protection and capital sourcing freedoms) for all **MD status companies**.



The Malaysian Digital Economy Corporation **(MDEC)** announced that digital investments hit a record **US$36.7bn in 2024**, compared to **US$10.5bn in 2023**. The agency attributed the record investments down to a stable government with **pro-business policies** reinforcing the country's reputation as a global tech hub.[e]



Investments in **data centres and cloud infrastructure accounted for 76.8%** of total approved digital investments in 2024, a sharp rise from 55.5% in 2023.These facilities are **critical enablers** of AI, fintech, cloud services and smart manufacturing.[e]

40,000

The data centre boom has generated approximately 40,000 jobs in Malaysia, including roles in engineering, construction, operations and support services.[f] The sector has elevated demand **for high-skilled professionals and is fostering a knowledge-based workforce in Malaysia.**

1.2m

In 2023, **Malaysia's digital economy** employed more than **1.2 million** people and contributed to around **25% of its GDP**.[f] This workforce spans software engineering, cloud operations, cybersecurity etc. and reflects Malaysia's growing capacity to **support high-value digital sectors**.

Sources: **[a]** Crowe Malaysia – Malaysia's Digital Status: Tax Incentives **[b]** Skrine – Investment in Data Centres in Malaysia **[c]** Open Gov Asia – Malaysia: Tax Incentives to Boost Digital Economy **[d]** CCS & Co – The Malaysia Digital (MD) Bill of Guarantees **[e]** Digital News Asia **[f]** Rest of World – Malaysia's new data centres create thousands of jobs

Recommendations

With the right policy environment, the Malaysian government can encourage sustainable growth of data centres, generating local employment and economic impact across the value chain.

Local jobs

While data centres generate jobs during construction and operations, their greatest potential lies in enabling high-skilled, long-term careers in Malaysia's digital economy. To realise this, workforce policies must prioritise advanced digital, engineering and technical skills, helping to ensure that Malaysians are not just building data centres, but also running and innovating within them.

Sustainability

Investment in data centres should encourage sustainable growth and facilitate increased investment in renewable energy. Regulations or voluntary industry commitments on PUE and WUE, targets for use of renewable energy and wider investment in key infrastructure can help ensure growth in data centres does not have an adverse environmental impact.

Economy

Data centre operators are attracted to Malaysia due to the strategic location, competitive land costs and robust supporting infrastructure.

However, Malaysia's economic policy landscape can present challenges. The introduction of higher taxes, tariffs and service charges can hinder the country's appeal as a destination for AI-related investments with demand moving to other regions.

There is significant economic opportunity from establishing clear, supportive policy for investment in data centres in Malaysia, allowing the region to capitalise on the first mover advantage.

Stakeholder views on key challenges

Hyperscalers plan to overcome challenges which could constrain their capacity expansion in Malaysia.

	Challenges	Stakeholder actions	Stakeholder insights
Sustainability	Data centres face sustainability challenges due to constraints on key resources. Data centres run continuously to support digital services, driving the high energy and water usage. This puts a strain on the national electricity grid and water resources. Data centres require a large amount of water to facilitate cooling, fire suppression and maintenance. 18% of Malaysia's energy is from renewable sources. Strategic planning of data centres is essential to ensure grid connection and local connection stability.	To support cooling needs sustainably, operators including AirTrunk and Google are building dedicated water treatment plants, reducing strain on local water resources. New build data centre will be using 'closed loop' water systems, reducing dependence compared to older data centres. Data centre operators are generating renewable power onsite. The government is introducing an electricity hike in 2025 which will reduce the cost competitiveness of data centres in Malaysia.	*There's a growing need for coordinated policy to ensure grid resilience and to promote clean energy generation.* — Data centre operator and user *We're keen to invest more, but policy support around talent development and infrastructure will be key to scaling effectively.* — Data centre operator and user
Employment	Employment is required in both the construction and operation of data centres. When data centres become operational, they will need more skilled professionals. Recruiting has been somewhat challenging for data centres as there isn't currently the required skillset in Malaysia.	Stakeholders are working with education institutes and universities to offer training and courses to upskill the workforce. Companies are upskilling employees in Singapore while the data centres are under construction in Malaysia. Online training is also being used to upskill and train employees.	*We're partnering with universities to offer free digital training and certifications, building local cloud and data centre expertise.* — Data centre operator and user *We prioritise developing and hiring local talent in Malaysia because of their strong skills and deep sector expertise.* — Data centre operator and user

Government call to action

Continued engagement with data centre operators will help maintain a competitive environment.

01 Tariff structures

To maintain a competitive environment, it may be beneficial for the federal government to review tax and energy tariff structures to support national data centre ambitions. Recent changes could affect Malaysia's competitiveness, which may influence investor decisions and shift interest toward neighbouring markets such as Thailand or Vietnam, potentially undermining Malaysia's ambition to be a leading global hub for AI data centres. Consultation on proposed changes to tariff structures with data centre operators could help ensure objectives of the proposed intervention are understood by industry and can be implemented effectively.

02 Reliable regulatory framework

To support long-term planning and ensure greater operational continuity, enhanced policy certainty and the provision of timely, transparent guidance would help operators adapt more effectively to evolving conditions.

A more predictable and stable regulatory environment, underpinned by clear communication and consistent implementation, would contribute to stronger overall investor confidence and sustained sector growth.

03 Sustainable development

Addressing sustainability challenges-particularly in energy and water use-can help Malaysia remain competitive and attractive to investors. The introduction of energy efficiency standards by the federal government is a positive step toward reducing electricity and cooling demands in data centres. Effective collaboration between federal and local authorities will be important to ensure consistent and regionally appropriate implementation.

Land use is currently guided by the 2024 'Planning Guidelines for Data Centres', with additional guidance on responsible power and water use under development. Continued government support – through renewable energy incentives and well-defined market pathways – could help enable the development of sustainable data centre infrastructure.

04 Upskill workforce

Malaysia has taken steps to strengthen its digital workforce through initiatives like the Malaysia Digital Economy Blueprint and Malaysia Digital status, both of which prioritise skills development. However, the availability of skilled data centre professionals per capita remains lower than in more established markets such as Singapore, Hong Kong, Korea and Japan. Additionally, regional peers like Thailand and Vietnam report lower attrition rates, suggesting that enhanced talent retention strategies and greater collaboration between government and industry on workforce development could further support Malaysia's competitiveness in this sector.

Stronger collaboration between the federal government and local authorities could ensure data centre policies are effectively implemented and tailored to regional needs. Local governments can play a role in communicating specific requirements and constraints early, helping to minimise disruptions to data centre development and operations.

04

Economic impacts

Economic impacts generated by data centres

Data centres use resources to operate, in return generating direct economic impact and employment, and supporting industries which contribute to economic output.

Inputs

- **Land:** Data centres must have appropriate planning permission and be close to power and fibre infrastructure.
- **Energy:** Data centres require a reliable electricity supply, ideally sourced from renewable energy sources and with energy efficient design. A single hyperscale data centre can consume 20-50 MW, equivalent to powering up to 35,000 homes.[a]
- **People:** Skilled personnel are needed to construct and operate data centres (engineers, contractors, IT technicians etc.).
- **Water:** Access to reliable and sustainable water sources is required for the cooling systems. Large data centres can consume up to **19 million litres** of water per day.[b]
- **Financial investment**: Needed to acquire the land and construct the data centre, alongside ongoing operating expenditure.

Outputs

- **Employment:** Created during both construction and operations - supporting household incomes.
- **GVA:** Contribution to GVA by supporting digital services and enabling economic activity.
- **Data processing:** Large amounts of data handled, enabling productivity gains in services such as AI and cloud computing.
- **Data storage:** Provides scalable storage solutions beyond typical in-house capabilities.
- **Digital services:** Enables operation of services e.g. streaming, online banking and remote working.

Enabled

- **A digital economy**: Which supports innovation and an ecosystem of tech firms.
- **Improved productivity:** Enables digital tools and automation across sectors.
- **Improved local infrastructure:** Driving upgrades in power and fibre networks.
- **Education and training initiatives:** Leads to investment in digital skills and workforce development.
- **FDI and Export opportunities:** Enables a hub for digital services, attracting FDI and increasing exports.
- **Critical infrastructure:** Facilitates day to day activities such as e-commerce, online banking etc.

Data centres use physical and digital inputs, such as land, energy, skilled labour, and IT infrastructure. Using these inputs, data centres process, store, and transmit data. This activity generates **economic outputs** such as high-value jobs and increased economic activity. Beyond that, data centres **enable broader impacts** by powering the digital economy, improving productivity, supporting infrastructure development, and creating opportunities in education, exports, and innovation.

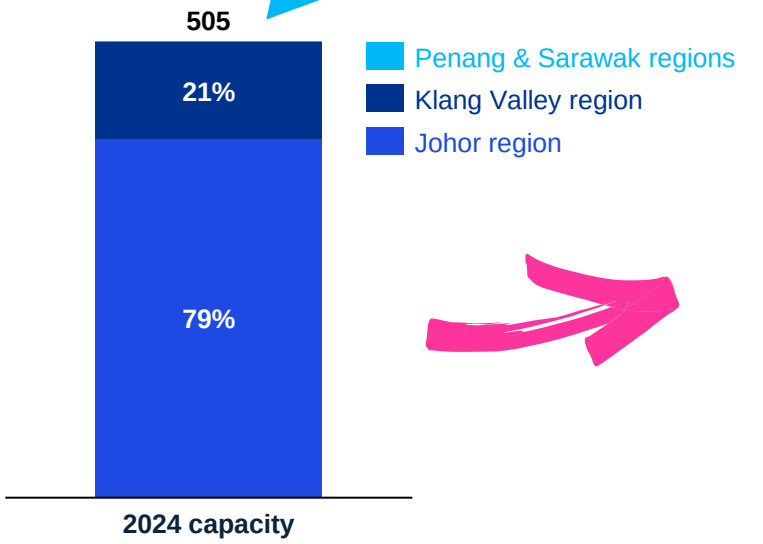
Sources: **[a]** Cundall – Controls and Instrumentation for Hyperscale Data Centres **[b]** Environmental and Energy Study Institute (EESI) – Data Centres and Water Consumption: Data Centers and Water Consumption | Article | EESI

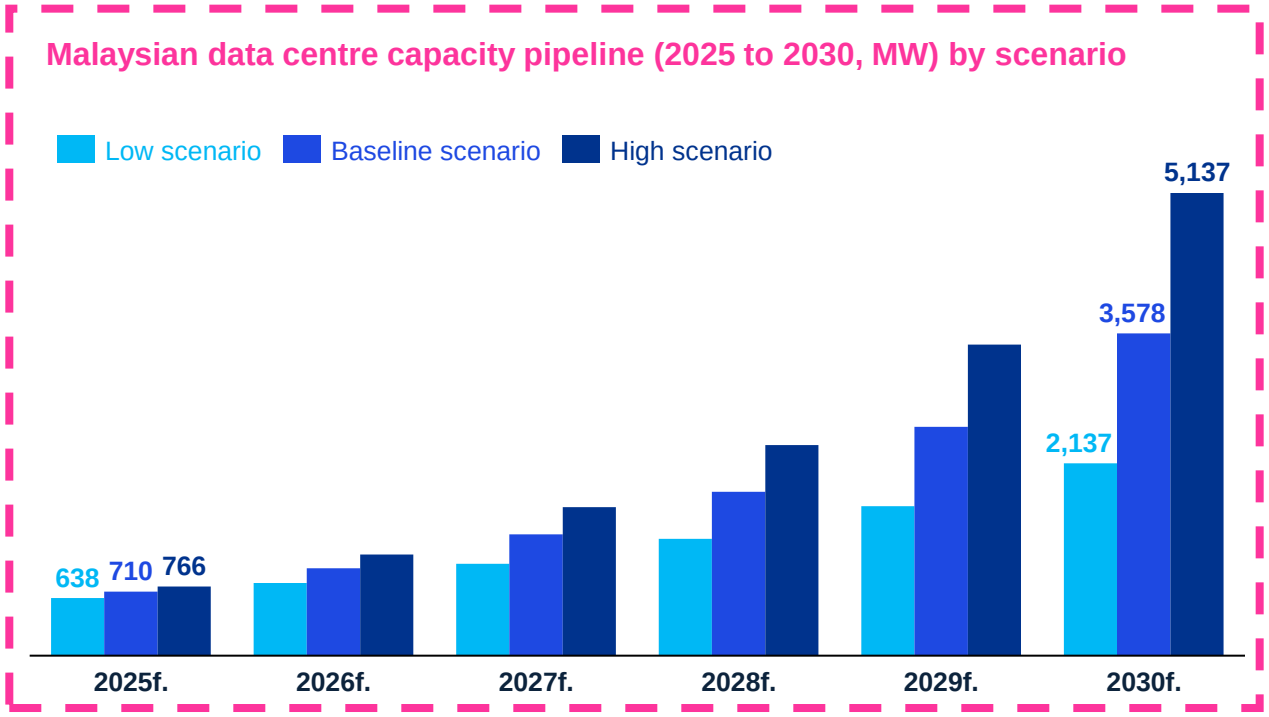
Estimated operational capacity and pipeline (2024 to 2030)

Malaysia's data centre capacity could grow from 505MW in 2024 to between 2.1GW and 5.1GW in 2030.

Malaysian data centre capacity estimate (2024, MW) and forecast development pipeline (2025 to 2030, MW)[1][2][a][b][c]

The Penang and Sarawak regions have a **combined operational capacity of 1MW** (or ~0.2% of total capacity) for 2024.





Under the baseline scenario, we estimate that Malaysia's operational capacity could grow from **505MW in 2024 to 3,578MW in 2030 at an average CAGR of 38%.** Around 70% of all data centre applications are assumed to be delivered in this scenario. An increase or decrease in the number of projects accepted could result in a higher or lower operational capacity by 2030. To reach the high scenario, the government could continue to streamline the application process to ensure more data centres are approved and developed resulting in a higher overall MW capacity in 2030. This can support Malaysia's ambition to become Southeast Asia's major AI data centre hub.

Sources: **[a]** KPMG analysis **[b]** Knight Frank Malaysia report: KFM_DC Whitepaper Report_2024.pdf **[c]** Knight Frank Global Data Centres report: data-centres-global-forecast-report-2025-11877.pdf

Note: **[1]** A detailed discussion of the scenario assumptions and rationale can be found on pg. 46, Appendix 3: Methodology.

[2] The 2024 estimate is informed by data on estimated operational MW capacity in Malaysia up to December 2024.

Economic benefits of high, baseline and low capacity

Investment to increase data centre capacity will generate broad-based economic value – from high-value job creation to national growth – with measurable impacts across the Malaysian economy.

Economic impacts supported by data centres in Malaysia (2030) (USD $2024bn)[1][2][a]

	Potential economic output supported during the **construction of each capacity scenario**	**Annual economic output** supported through the **operational activity of each capacity scenario**	**Jobs** supported each year through **operational activity of each capacity scenario**
High	**$39.0bn** Equivalent to $12.4bn in Gross Value Added (GVA). 45% CAGR 2025-2030	**$14.6bn** Equivalent to $6.0bn in GVA.	**~44,400** Contributing $1.9bn in annual wages.
Baseline	**$24.0bn** Equivalent to $7.6bn in GVA. 38% CAGR 2025-2030	**$10.2bn** Equivalent to $4.2bn in GVA.	**~30,900** Contributing $1.3bn in annual wages.
Low	**$11.0bn** Equivalent to $3.5bn in GVA. 29% CAGR 2025-2030	**$6.1bn** Equivalent to $2.5bn in GVA.	**~18,500** Contributing $790m in annual wages.

Values shown are a lower-bound estimate of the total economic contribution. The wider 'enabled' economic impact extends beyond what is readily quantifiable and is not included in the values here.

Sources: **[a]** KPMG Impact Model

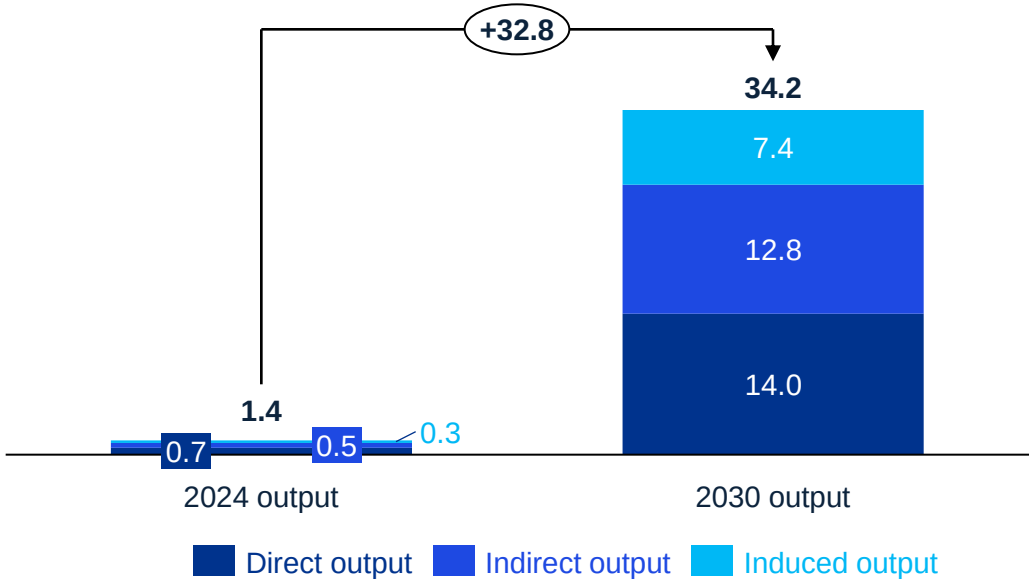
Note:
[1] Gross Value Added (GVA) measures the value of goods and services produced minus the costs of inputs, whereas economic output reflects total turnover and includes intermediate consumption**.**
[2] Our economic assessment is based on an input-output model, and captures the direct and wider measurable effects of data centre activity in Malaysia. This represents a lower-bound estimate of the total economic contribution. The wider 'enabled' impact – including productivity gains, ecosystem development, digitally enabled publics services – extends beyond what is readily quantifiable and is not reflected in the values provided here.

Economic output and GVA impacts: Baseline scenario

In 2030, data centres in Malaysia could support ~$34bn in total economic output and ~$12bn in GVA, approximately 4.1% and 3.5% of the national totals, respectively.[1][2]

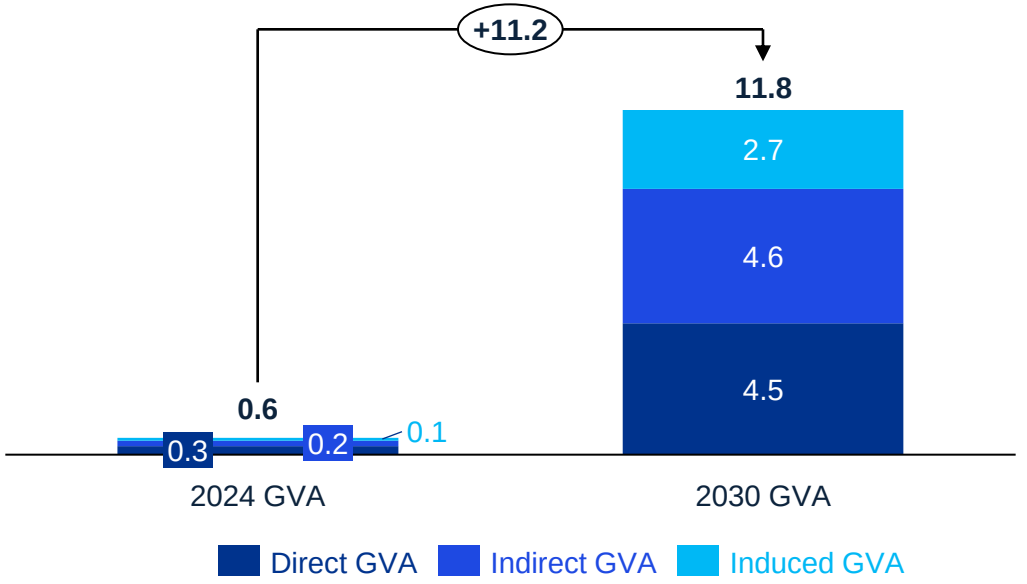
Economic output

Direct, indirect, and induced economic output, *$2024bn*



Gross Value Added (GVA)

Direct, indirect, and induced gross value added, *$2024bn*



Across **both construction and operation**, data centres in Malaysia could contribute ~4.1% of national economic output and ~3.5% of GVA by 2030, respectively.[a][b]

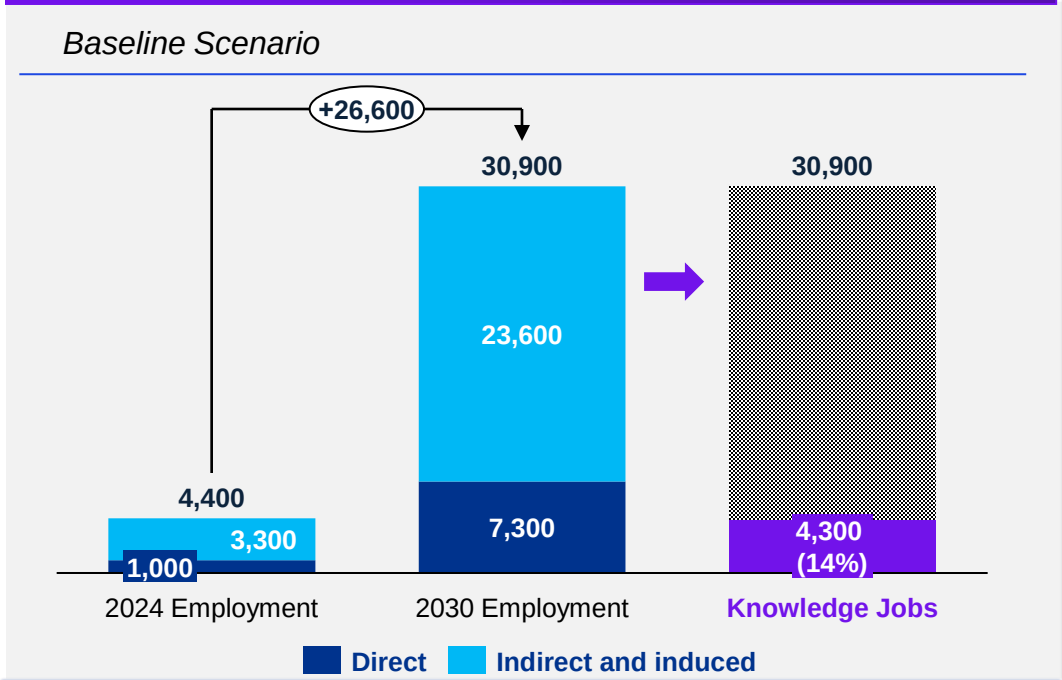
Sources: **[a]** KPMG Impact Model **[b]** KPMG analysis

Note:
[1] Gross Value Added (GVA) measures the value of goods and services produced minus the cost of inputs, whereas economic output reflects total turnover and includes intermediate consumption.
[2] The results reported relate to total economic output and GVA that could be supported by data centres under our baseline scenario. The results do not reflect values for the high and low scenarios.

Annual jobs and income

Total employment across the industry has the potential to grow significantly as capacity expands, with up to 30,900 jobs supported – including 4,300 high-value roles.

Estimated growth in total operational employment, 2024-2030



x4.2

multiplier effect

For every direct job in data centre operations, an **additional 3.2 jobs are supported** elsewhere in the Malaysian economy.

- Between 2024 and 2030, **total employment supported** by data centres in Malaysia is projected to grow by **approximately 26,600 jobs** from **4,400 in 2024 to 30,900 in 2030, including 4,300 high-value knowledge jobs**. Of these, around **23,600** will be indirect or induced, highlighting the sector's strong multiplier effect on the economy.
- Over the same period, **total annual wage income** supported by the sector is projected to increase **nearly eightfold – from $175m in 2024 to approximately $1.3bn by 2030**. Most of this income growth (~$1.1bn) will accrue from supply chain and wage induced impacts (~$0.97bn), highlighting data centres' broader economic influence.
- In 2024, data centres supported **~1,000 direct operational jobs** with an estimated **61% based onsite.** These roles typically include hardware and facilities technicians, security personnel, and cleaning staff. **Around 39% of jobs are based offsite,** including software engineers & developers, cloud architects, sales & marketing teams, and finance teams. By 2030, this number is estimated to reach up to **7,300 direct operational jobs.**
- While direct **operational employment** remains modest over the period, the broader economic contribution could be significant. Data centres could support over **4,000 high-skilled knowledge-based jobs** by 2030-driving income growth, enabling skilled employment and advancing Malaysia's transition to a high-value digital economy.
- A report by MDEC found that there was 2% growth in digital talents on LinkedIn between Q2 and Q3 in 2024. The report also found that 50% of industries with demand for digital talents are from non-tech sectors. [b].
- The data centre sector drives high-value, knowledge-intensive jobs – both within its own operations and across the broader digital economy, enabling roles in cloud engineering, AI, cybersecurity and software development. Data engineering holds the top position among the fastest growing job titles in Malaysia and Southeast Asia. [b].

Sources: **[a]** KPMG Impact Model **[b]** Malaysia Digital Economy Corporation (MDEC)
Note: **[1]** The above jobs represent value chain jobs as a result of expenditure by the industry, creating jobs in supplying industry. **[2]** Numbers may not add to total due to rounding**. [3]** In this case, a knowledge worker is a qualified person who holds a degree and has at least ten years' experience working in any of the qualified activities, as defined by the Malaysian government.

05

Enabling the value chain

Enabling the value chain

Supporting activity upstream

Malaysia's data centre supply chain is underpinned by a diverse and high-value ecosystem of industries.

Supporting activity	Role in DC ecosystem	Example Malaysian companies	Example international companies
Construction & MEP	Designs and delivers civil, mechanical and electrical infrastructure for data centres.	SUNWAY CONSTRUCTION; GAMUDA; IJM; YTL Construction YTL GROUP	TECO; ST Engineering; disco
Equipment manufacturing	Provides critical systems for power, cooling, connectivity and network resilience.	RIGHT POWER The Power Of Continuity; VST ECS; TENAGA NASIONAL	CSE Global; aggreko; ANIXTER; DELTA; legrand
Operations & maintenance	Ensures ongoing data centre uptime, thermal management and facility performance.	Inheritech; UNIQUE CENTRAL; GCM TECHNOLOGIES	sembcorp; MERALCO; NTT
Professional services	Delivers IT consulting, auditing, cybersecurity, legal and compliance expertise.	PWS Datacenter Specialists; IDCS; TM ONE	CLIFFORD CHANCE; EPI; CGI BUSINESS CONSULTING
Adjacent manufacturing	Manufactures semiconductors, servers, racks, fibre and other high-value infrastructure.	Inari Berhad; Genetec; SNS NETWORK	intel; NVIDIA; tsmc

The expansion of Malaysia's data centre footprint presents a major opportunity to grow a high-value domestic supply chain – attracting international firms, scaling local capability and unlocking wider economic benefits across engineering, technology and advanced manufacturing.

Enabled impacts (1/2)

Data centres enable the digital economy and create opportunities to export digital services.

Critical enabler of a digital economy

Data centres are a key part of building a strong digital economy. They **enable a wide range of services** including online banking, e-commerce, cloud services and digital public services. With data centres providing reliable connections, local businesses can adopt new technologies more easily, improve efficiency, and reach wider markets. Data centres attract **foreign direct investment (FDI)** to Malaysia by providing the digital infrastructure essential for global business operations.

Data centres often attract a **cluster of related businesses** such as cloud providers, cybersecurity firms and software developers. This creates **agglomeration benefits** (advantages firms gain from being located close to each other). Tech companies benefit from being close to data centres, as they can capitalise on proximity to **high-speed data processing facilities**. Being part of this ecosystem can lead to partnerships, innovation and shared resources. This ripple effect of tech companies locating close to data centres boosts local employment in high tech industries, contributing to the diversification and growth of the economy.

The Malaysian government has launched the **Digital Ecosystem Acceleration Scheme** and established a **Data Centre Task Force (DCTF)** to streamline development and attract more investors. These initiatives provide clarity, incentives, and a roadmap for transforming the country into a digital hub and making data centres a magnet for FDI in Malaysia. In 2021, foreign investors accounted for **90% of funding** in Malaysia's data centre projects, reflecting strong global confidence in the country's digital infrastructure and regulatory framework.[a] This positions Malaysia as a growing digital hub, attracting major tech firms.

Export opportunities

The growth of data centres in Malaysia presents significant export opportunities, particularly in **high-value digital services**. As these centres attract a cluster of tech firms, cloud service providers, and cybersecurity companies, they create a **digital ecosystem** that can export services such as data analytics, software development, and IT consulting.

International examples [1]

Free flow of data

The Japanese Government has adopted a policy position of promoting the free flow of data and does not provide data localisation regulations or require government access.

Increased investments in AI and cloud data centres enables more agile and scalable digital services for Japan's wider digital economy.

Infrastructure status for data centres

India has granted critical infrastructure status to data centres, making them eligible for easier financing and priority lending – something not commonly seen across the APAC region.[c]

This strengthens India's wider digital economy by enabling factors such as priority access to utilities, inclusion in national infrastructure planning and global competitiveness. The designation of data centres as critical infrastructure could also help unlock incentives and fast-track development pipelines.

Sources: **[a]** Invest KL Malaysia **[b]** KWM **[c]** CBRE India
Note: **[1]** International benchmarking exercises can be found in **Appendix 1: International Benchmarking.**

Enabled impacts (2/2)

The development of data centres can lead to significant investment in education and training initiatives, as well as improvements in local infrastructure to support the growing digital economy.

Education and training

Data centres can play a role in addressing the growing **demand for skilled workers** in the ICT sector, particularly in Malaysia, where the industry faces a shortage of qualified professionals due in part to gaps in education and training. By investing in **local talent development**, through partnerships with educational institutions, apprenticeships, and support for STEM programmes, data centre providers help bridge this skills gap. These initiatives not only build a more technologically capable and better-paid workforce but also support the wider digital economy.

These initiatives create **employment opportunities**, strengthen **community engagement**, and enhance the industry's reputation for **social responsibility**. Over time, such efforts contribute to greater economic resilience, foster innovation, and help establish a more sustainable and inclusive digital infrastructure. A report by MDEC found that the fastest growing skills in Malaysia include Manufacturing Automation and System Configuration emphasising a focus on automation and system optimisation. [a]

Example: Microsoft's Data Centre Academy in Singapore

Microsoft established its first **Asian data centre academy** (DCA) in Singapore's Institute of Technical Education (ITE) in 2022. The ITE has an annual intake of between 14,000 and 15,000 full-time students. [b] The DCA is a five-year commitment on the part of Microsoft to empower around 300 ITE students to acquire applied data centre skills. It will enable students to work in a growing ICT sector. Through ITE's **Work Study Diploma program**, Microsoft will offer scholarships to cover tuition costs for up to 20 ITE students who are interested in a future in the data centre industry. [c] Upon completion of their academic program, selected students will get an opportunity to interview for open data centre positions at Microsoft in Singapore.

Local infrastructure investment

Data centres drive major **upgrades to local infrastructure**, particularly in power supply and digital connectivity. To meet high energy demands of data centres, utility providers and data centre operators **strengthen the power grid** by upgrading substations, installing more robust transformers, and introducing smart grid technologies. These improvements ensure a stable supply for data centres and benefit nearby homes and businesses by reducing outages and boosting energy resilience.

The need for ultra-fast, low-latency internet leads to the expansion of **fibre-optic networks**, improving connectivity for the wider community. This investment helps bridge the digital divide, supports local businesses, and facilitates broader digital transformation and subsequent economic growth. Malaysia is already experiencing local infrastructure investment, e.g. a $390m investment in submarine cable network connectivity. [e]

Example: Local infrastructure upgrades in Indonesia

Indonesian's data centre development has led to infrastructure improvements. As major tech companies have established facilities in the country, there has been a concerted effort to **upgrade the national power grid** to ensure consistent and reliable energy supply. These enhancements have helped stabilise electricity access not just for data centres, but also for surrounding communities. The demand for high-speed, low-latency connectivity has driven significant investment in fibre-optic networks in Indonesia. In 2024, there was $3.2 bn in revenue in the fixed communication services, heavily driven by fibre-optic services.[e]

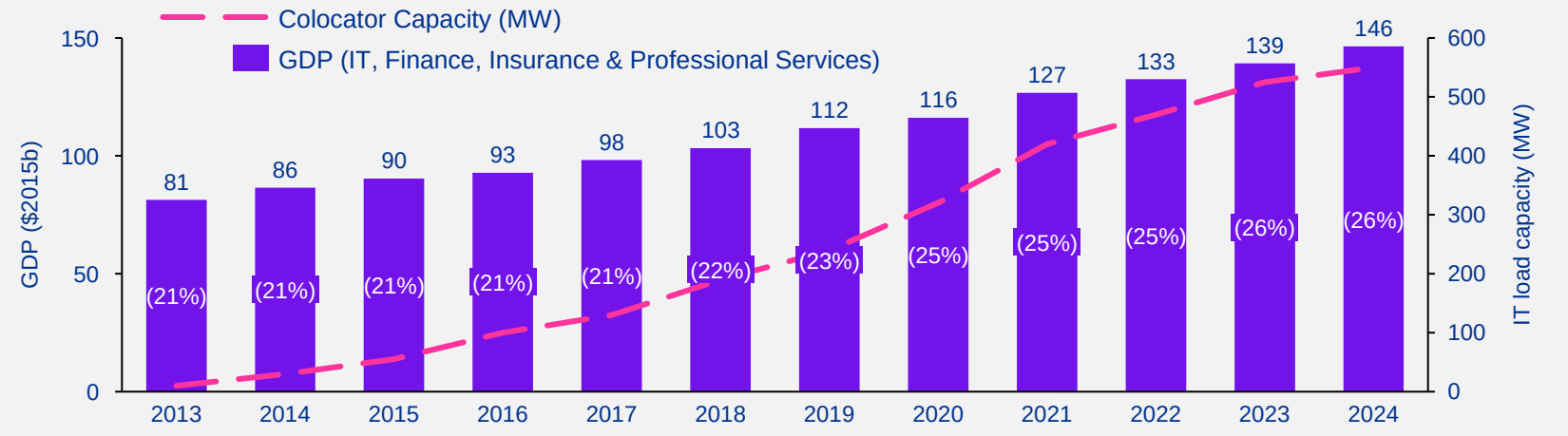
Sources: **[a]** Malaysia Digital Economy Corporation (MDEC) **[b]** Department of Statistics Singapore **[c]** IT News Asia **[d]** CBRE **[e]** GlobalData

Impacts beyond data centres – Singapore

Singapore's experience highlights the enabling role of data centre infrastructure in unlocking growth.

Colocation capacity in Singapore vs growth in high-value digital sectors (2013-2024) [a][b]

IT load capacity (MW) and GDP ($2015bn)



Singapore has developed a mature and strategically important data centre landscape. Between 2013 and 2024, colocation data centre capacity grew from **10MW to 550MW**. Over the same period, GDP from IT, finance, insurance and professional services rose from **$81bn to $146bn**, with these digitally enabled sectors expanding from **21% to 26% of total GDP**. While Singapore's overall GDP contracted between 2019 and 2020, the IT, finance and professional services sector remained resilient by continuing to grow through the downturn.

The parallel growth in digital infrastructure and high-value services illustrates the critical enabling role data centres play in economic growth and resilience. While this data shows a strong correlation, causation cannot be directly inferred. However, international studies have consistently highlighted the role of digital infrastructure as a foundational enabler of innovation, productivity and economic diversification.[c][d] Modern data centres support latency-sensitive cloud services, scalable enterprise platforms, AI development and fintech exports. **As Malaysia's data centre sector grows, it has the potential to unlock significant economic value by enabling the expansion of high-productivity sectors such as cloud services, financial technology, advanced digital services and professional industries, helping to strengthen Malaysia's position in the digital economy.**

2013	2024	
10MW	550MW	Colocator capacity[a]
$396b	$562bn	GDP (economy total)[b][1]
$81b	$146bn	GDP (IT, finance etc)[b][2]
21%	26%	% GDP (IT, finance, etc.)

Sources: **[a]** DC Byte **[b]** Department of Statistics Singapore **[c]** OECD **[d]** World Bank Group

Note: **[1]** Refers to Singapore GDP

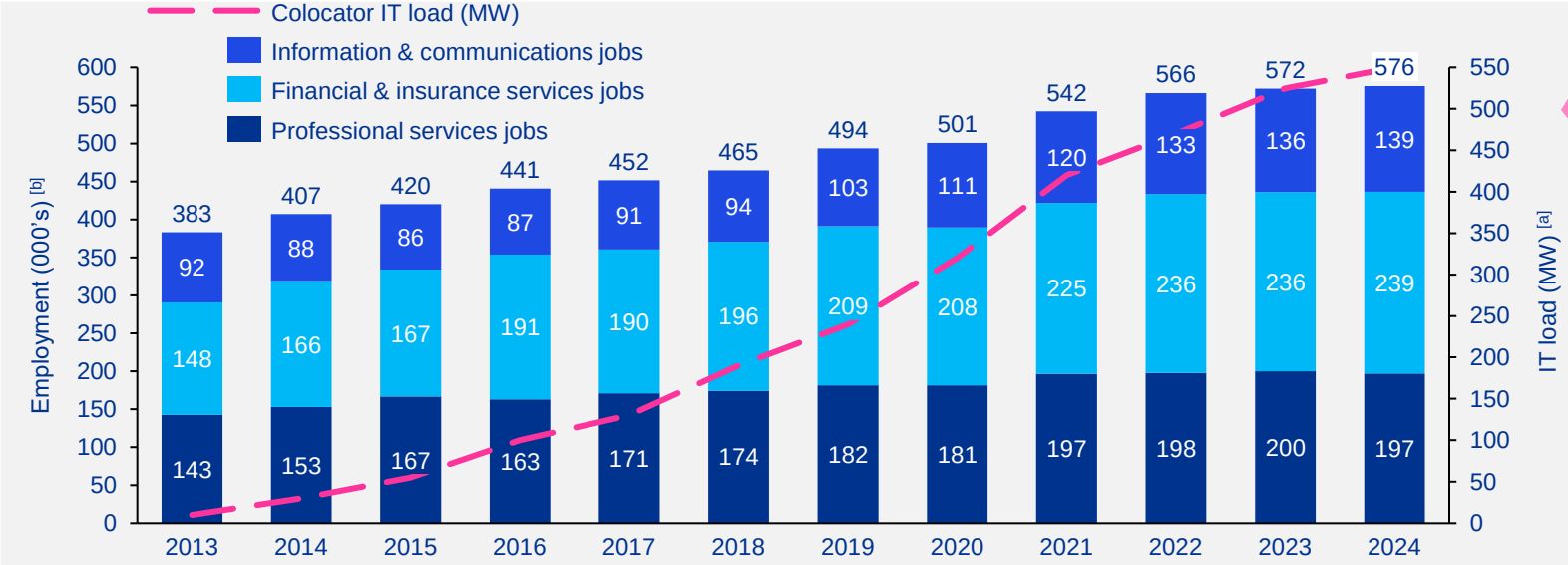
[2] Refers to GDP from IT, finance & professional services.

Impacts beyond data centres – Singapore

Singapore's experience highlights the enabling role of data centre infrastructure in unlocking high-value employment.

Colocation capacity in Singapore vs growth in high-value digital employment (2013-2024) [a][b]

IT load capacity (MW) and employment ('000s)



As Malaysia expands its data centre sector, it is well positioned to unlock similar employment benefits.

These gains ***extend beyond the direct and indirect jobs*** generated by data centre construction and operations. They will also include newly created roles in AI and data engineering as well as employment generated in server operations, logistics and fibre deployment. These jobs will be enabled by scalable digital infrastructure and will contribute to long-term growth in high-value, exportable digital services.

As colocation IT load has scaled from **10MW in 2013 to 550MW in 2024**, employment in digitally enabled sectors including **information & communications, financial & insurance services and professional services** has increased in parallel. Employment in these digitally enabled sectors has risen by **193,000 (+50%)** and has grown at an average rate of **~4% per year**. Data centre infrastructure has been a foundational enabler of this growth, supporting latency-sensitive cloud workloads, AI computing and digital platform services across Southeast Asia. While this data shows a strong correlation, causation cannot be directly inferred. However, international studies have consistently highlighted the role of digital infrastructure as a foundational enabler of innovation, productivity and economic diversification.[c][d]

This trend highlights a structural employment uplift enabled by reliable and scalable data centre infrastructure. Singapore illustrates how investing in data centre capacity can deliver long-term job creation, particularly in exportable digital services.

Sources: **[a]** DC Byte **[b]** Department of Statistics Singapore **[c]** OECD **[d]** World Bank Group

06

Appendices

Appendix 1: International benchmarking

Strategic insights from APAC data centre leaders: Japan & India

Japan and India seek to grow their digital economies through greater AI and cloud investment.

	Strategic role	Employment & skills	Supply chain	Challenges	Policy & governance
Japan	• DCs are treated as **critical infrastructure** as Japan advances digitalisation through cloud, AI, 5G, and e-government services. • Japan's Digital Agency and METI are jointly promoting a national strategy to build secure **interoperable digital infrastructure**.[a]	• IT talent gaps exist in Japan with over **70% of organisations understaffed** in key areas such as cloud and AI.[b] • Japan is **boosting data centre training** to meet the rising demand for digital skills, focusing on upskilling and new talent pathways.[c]	• Japan's share of global semiconductor market share has **fallen from 50% to 10%**, limiting domestic access to advanced chips for AI and data centres.[d] • To meet rising investor demand, local firms are **converting offices into colocation data centres**.[e]	• **High construction costs:** Japan leads in APAC in regional construction costs per MW for data centres.[f] • **Land & power constraints:** Urban areas (e.g. Tokyo) face land shortages and constrained power – especially for AI workloads.[g]	• In December 2024, the **Seventh Strategic Energy Plan** draft was released, supporting data centres in becoming carbon neutral.[h] • In 2024, Japan expanded its **data centre subsidy** programme to decentralise development beyond Tokyo and Osaka.[i]
India	• Some data centres are designated as **Critical Information Infrastructure (CII)** due to their role in digital and economic growth.[j] • India's data centres are vital to its digital economy developments, driven by rising cloud demand.[k]	• India's tech industry employs over **5.4m people**, with digital services making up around 37% of the workforce.[l] • India's talent gap - currently the lowest among global peers at 25% - is projected to **reach 29% by 2028** as demand surpasses 6m.[1]	• India's data centres **depend on imported hardware**, making them vulnerable to global supply disruptions.[m] • India's **global connectivity** via submarine cables and **location to global markets** makes it attractive to investors.	• **Energy sources:** India depends on coal and imported gas, with domestic supply meeting only half of DC demand. • **Grid strain:** Clustering of data centres in cities like Mumbai and Chennai puts localised pressure on power grids.	• **India's Draft Data Centre Policy** aims to position the country as a global hub through fiscal incentives, local manufacturing and renewable energy support. • Several Indian states introduced data centre policies to attract investment.[n]

Malaysia can learn from Japan and India by designating data centres as critical infrastructure. Targeted workforce training - like Japan's initiatives - can help bridge skills gaps, while Japan's success in promoting de-centralised data centre growth highlights the value of nationwide investment to advance the digital economy. Both countries also underscore the importance of sustainability standards and policies that support data centre operations and development to enhance their respective digital economies.

Sources: **[a]** METI **[b]** The Linux Foundation **[c]** METI **[d]** CETAS **[e]** Savills **[f]** Cushman & Wakefield **[g]** CBRE **[h]** Agency of Natural Resources and Energy **[i]** JETRO Invest Japan Report **[j]** Department of Financial Services India **[k]** JLL: India's Data Centres **[l]** NASSCOM **[m]** Economic Times India **[n]** Ministry of Information and Broadcasting Government of India

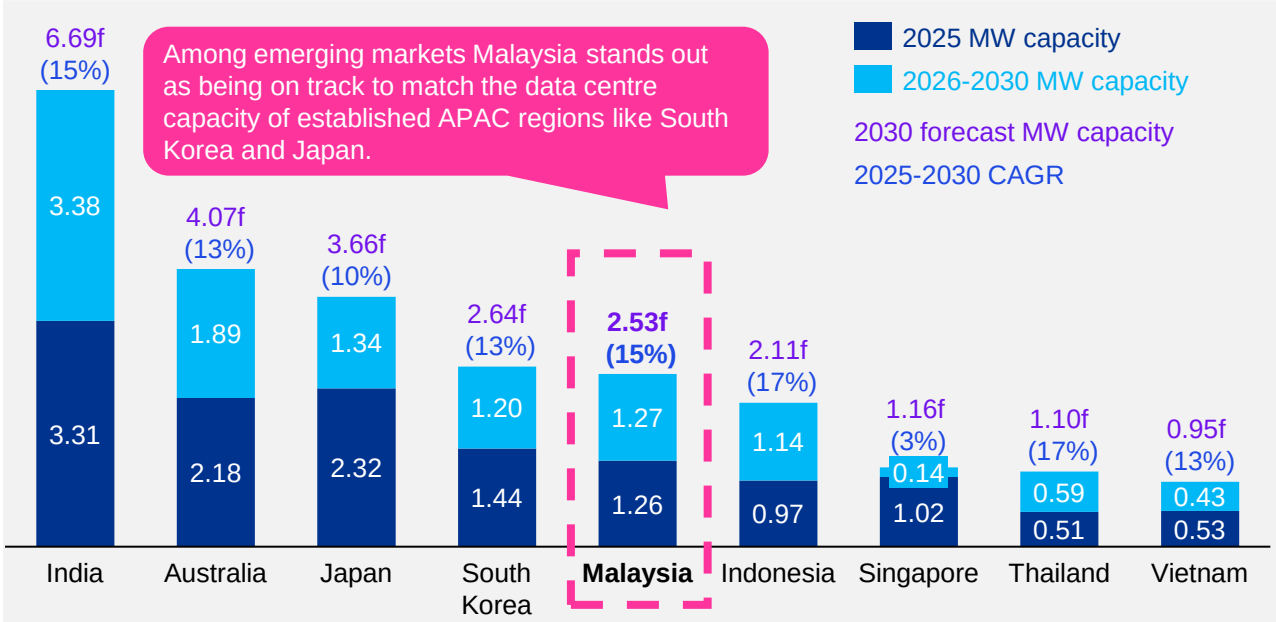
Note: **[1]** 'Talent gap' refers to the difference in demand for data centre tech talent and the available supply in the workforce.

Benchmarking APAC data centre markets (1/2)

Malaysia combines fast capacity expansion, strong government support and rising hyperscale interest with lower cost and execution risk than neighbouring hubs.

APAC data centre capacity growth (2025-2030)[a]

Forecast installed capacity (GW) and CAGR by country



APAC colocation revenue (2025-2030) ($2024b) and CAGR (%) [a]

Country	2025 revenue	2030 revenue (f)	CAGR
India	2.33	4.93	16%
Australia	2.50	5.32	16%
Japan	2.51	4.98	15%
South Korea	1.16	2.02	21%
Malaysia	**0.71**	**1.87**	**21%**
Indonesia	0.68	1.89	23%
Singapore	1.07	1.60	8%
Thailand	0.51	1.21	19%
Vietnam	0.59	1.40	19%

Malaysia is one of the fastest growing data centre markets in APAC, with total capacity forecast to double **from 1.26GW to 2.53GW** and colocation revenue rising from **$0.71bn to $1.87bn** between 2025 and 2030 – representing CAGRs of **15%** and **21%** respectively. This growth trajectory reflects increasing hyperscale and enterprise demand, supportive government policy (e.g. Malaysia Digital and GITA incentives), and Malaysia's positioning as a hub in Southeast Asia**.** While Singapore remains a high-value, mature hub, its future growth is constrained by land and energy limitations. In contrast, Malaysia combines **strong policy support, land availability and competitive costs** positioning it as an attractive location for colocation providers in Southeast Asia.

Sources: **[a]** Mordor Intelligence – Data Centre Market Size & Share Analysis – Growth Trends & Forecasts up to 2030

Benchmarking APAC data centre markets (2/2)

Malaysia is emerging as APAC's most balanced data centre market – scalable infrastructure, rising demand and low execution risk.

	Infrastructure profile	Demand drivers	Sustainability & regulation	Investment landscape
Malaysia [a]	• Malaysia's infrastructure is scaling rapidly, with high availability and redundancy facilities **comprising 81%** of the market. • New developments increasingly integrate energy efficiency and scalability, with operators targeting hyperscale readiness.	• Malaysia's demand is underpinned by **97% smartphone penetration,** strong cloud adoption and 5G deployment. • Malaysia benefits from both domestic demand and **spillover from constrained neighbours.**	• The **GITA scheme incentivises DC builds** and developers are incorporating advanced cooling and design efficiencies. • Regulatory frameworks are **investment friendly** and evolving to **support green certifications** and carbon reporting.	• Malaysia is seen as a **cost-effective**, stable rapidly emerging hub with **strong government support**. • Land, labour and energy costs are significantly **lower than Singapore's** while offering **stronger reliability and infrastructure readiness** than Indonesia.
Singapore [b]	• Singapore maintains the most advanced infrastructure in APAC. Enterprise-grade remains standard, with **fault-tolerant infrastructure adoption accelerating for high-security workloads.** • Singapore is **space constrained.** Expansion is tightly managed under government planning quotas**.**	• Singapore's digitally mature market is driven by **enterprise AI, fintech and smart manufacturing.** • 5G rollout and latency-sensitive applications **maintain demand for premium infrastructure**.	• Singapore enforces **strict sustainability standards**: all new DCs must meet best in class efficiency targets. • Operators **use PPAs, district cooling and smart energy systems.**	• Singapore remains APAC's **premium DC destination**, ideal for regulated and latency-critical workloads. • However, rising land prices, moratorium legacies and ESG limits are **pushing operators to explore nearby markets for scalable builds.**
Thailand [c]	• Thailand is experiencing **increased digital infrastructure development**. • Substantial **growth in hyperscale developments** due to supportive government policies**.** • Bangkok has a concentration of digital businesses with **increasing demand for cloud service data centres.**	• Thailand has a **high penetration rate of 5G (9.2%)** in the ASEAN region, driving growth in investments by DC operators. • **Increased number of digital consumers** particularly across the e-commerce sector boosting data centre demand.	• Thailand's **ESG landscape is evolving.** Operators are focusing more on environmental sustainability in line with the government's renewable energy ambitions for 2021 and 2050. • However, developers and operators must **adapt to evolving regulations** while maintaining essential services.	• Thailand offers strong upside potential for hyperscale players, **with abundant land, VAT exemptions and a vast digital market.** • However, execution risk remains high due to **grid constraints** as the country works to expand its renewable energy capacity.

Sources: **[a]** Mordor Intelligence – Malaysia Data Centre Size & Share Analysis – Growth Trends & Forecasts up to 2030 **[b]** Mordor Intelligence – Singapore Data Centre Size & Share Analysis – Growth Trends & Forecasts up to 2030 **[c]** Mordor Intelligence – Thailand Data Centre Size & Share Analysis – Growth Trends & Forecasts up to 2030

Appendix 2: Enabled impact case studies

Case study: Cloud computing

Data centres are a critical part of cloud computing, providing the infrastructure needed to process transactions quickly and reliably.

Overview of data centres role in enabling cloud computing

Cloud computing is the delivery of computing services, such as storage, processing power, databases, networking, software, and analytics over the internet (the cloud) instead of using local servers or personal devices. Data centres enable cloud computing by hosting the physical infrastructure such as servers, storage, and networking that powers virtual services accessed over the internet. They allow users and businesses to run applications, store data, and scale resources without needing to manage hardware themselves. Data centres are strategically located worldwide to ensure minimal latency (time it takes for the data to travel from the user's device to the data centre and back) and optimal accessibility for users in different regions.

Benefits of data centres to cloud computing

Reliable infrastructure
Data centres provide the physical infrastructure, servers storage and networking that cloud computing depends on. This ensures consistent performance and uptime.

Scalability and cost efficiency
Data centres allow cloud providers to scale resources up and down quickly, which enables users to handle varying workloads without investing in their own hardware, minimising costs.

Security and compliance
Data centres are equipped with advanced security systems and adhere to strict regulatory standards, helping cloud services protect sensitive data.

> ***Our cloud computing services support critical sectors like government, banking, healthcare, and transportation—enabling faster decision-making and digital transformation across the economy.***

SME

> ***In order to obey data protection rules and laws government data needs to be stored locally.***

Data centre operator and user

Case study: Air traffic control

Data centres play a critical role in ATC by providing the computing infrastructure needed to process real time flight data, support predictive analysis and ensure seamless communication to aircrafts.

Overview of data centres role in enabling air traffic control

Air traffic control (ATC) is a system that directs aircraft on the ground and in the air to ensure safe distances between them and efficient flight paths. It helps to prevent collisions, manages air traffic flow and supports pilots with navigation and communication. As global air traffic continues to increase, the complexity of managing air space grows more challenging. To address these complexities ATC systems are using emerging technologies such as AI, cloud computing and cybersecurity to maintain safety and efficiency. As air traffic management becomes increasingly AI-driven, traditional systems can't keep up with the scale and speed of data required. Modern AI needs cloud-based, geo-redundant data centres to process real-time, global data for accurate, efficient decision-making.

Benefits of data centres to air traffic control

Real-time data processing

Data centres allow for the instant analysis of radar, satellite and aircraft data. This supports quick decision-making for safe and efficient flight management.

Improved reliability and communication

Data centres keep air traffic control systems running smoothly. They have backup systems, so communication and monitoring continue without interruption which is essential for flight safety.

Advanced decision-making

Data centres support advanced predictive analytics and AI tools for traffic prediction and anomaly detection. This helps optimise flight paths and reduce congestion and delays.

Case study: E-commerce and online banking

Data centres are a critical part of modern e-commerce and online banking, providing the infrastructure needed to process transactions quickly and reliably.

Overview of data centres' role in enabling e-commerce and online banking

E-commerce and online banking are digital services that allow people to shop, pay and manage their finances over the internet, offering convenience, speed and 24/7 access to goods and financial tools. Data centres are a critical part of modern e-commerce and online banking. They provide the infrastructure needed to process transactions quickly and reliably. They ensure that websites and apps remain accessible at all times, even during periods of high demand. Data centres have advanced security systems and are compliant with strict regulations to protect sensitive customer information and financial data. Data centres' ability to scale computing power, storage and network capacity and adapt in real-time allows businesses and banks to deliver uninterrupted digital experiences to users worldwide.

Benefits of data centres to e-commerce and online banking

Optimising transaction processing
Data centres provide the infrastructure that generates data and allows transactions to take place. This processing of transactions enables seamless online purchases and banking, ensuring services are always accessible.

Enhanced data security
Data centres safeguard sensitive data with robust cybersecurity measures and adhere to strict regulatory standards to ensure protection against fraud for customer or payment information.

Elastic scalability for peak demand
During peak demand, such as sales events or end of month banking activity, data centres automatically scale resources to keep websites and banking apps running smoothly without interruption.

> ***Data centres will play a pivotal role in enabling Malaysia's digital economy, supporting sectors like banking and finance and national infrastructure.***

Data centre operator and user

> ***Data centres ensure that confidential information remains secure.***

SME

Appendix 3: Methodology

Economic analysis approach

We used KPMG's bespoke input-output (IO) model to estimate the economic impacts of investment.

01 Inputs

Project specific inputs required for the analysis are:

1. Information on costs and current spend by organisations across sectors
2. Understanding of how this spend flows through different sectors
3. Growth forecasts for organisations for future spend

This information has been sourced from publicly available sources and sense checked with APDCA.

As company financials are unavailable, "Opex per MW" and "Capex per MW" are used as inputs. Detail on assumptions used is provided.

02 Modelling

- We used KPMG's bespoke input-output model. It draws on project specific inputs and industry defined multipliers to estimate economic impact across industrial sectors.
- Data is collected from a range of sources including the Malaysian Department of Statistics and the Malaysian Investment Development Authority and includes metrics such as employment contributions and impact multipliers per sector.
- Analysis is framed around different pipeline growth scenarios to demonstrate outcomes under different circumstances.

03 Outputs

Economic impacts are categorised as:

a) **Direct impact**: the economic activity that the data centre sector itself generates in Malaysia. This is shown in economic output, GVA, labour income and jobs.

b) **Indirect impact**: the supply chain impact that occurs as the data centre sector buys inputs of goods and services from other sectors of the economy. This is shown in economic output, GVA, labour income and jobs.

c) **Induced impact:** the wage-financed impact generated by the expenditure of wages of data centre sector employees, and employees in its supply chain. This is shown in terms of economic output, GVA, labour income and jobs.

04 Reporting

- Findings from the economic analysis are discussed and reported under different scenarios.
- The analysis is carried out at a national level.

The input-output model captures the impacts of the data centre supply chain: Construction & MEP, equipment and manufacturing, operations and maintenance, professional services and adjacent manufacturing.

These industries will benefit through job creation, skills investment and long-term investment.

Model inputs: Data centre pipeline estimates and scenarios

In our baseline scenario, we estimate Malaysia's data centre capacity to increase from 505MW in 2024 to 3,578MW by 2030.

Table: Data centre operational capacity and pipeline by scenario in MW (2024 to 2030)

Scenarios	2024	2025	2026	2027	2028	2029	2030
High	505	766	1,123	1,650	2,338	3,454	**5,137**
Baseline	505	710	970	1,345	1,818	2,542	**3,578**
Low	505	638	806	1,021	1,299	1,660	**2,137**

Baseline scenario estimate:

- The baseline scenario is informed by **Knight Frank's Malaysia and Global Data Centre reports.** [a][b].
- The Malaysia report provides **2024 regional operating capacity and total pipeline estimates** (no timeline provided).
- Using capacity estimates from the global report, we calculated **Johor's CAGR from 2024 to 2026 and extended it to 2030.**
- By 2028, the projection reaches the **combined 2024 capacity and pipeline estimate for Johor.** We assume the pipeline will be **fully delivered by 2028.**
- **We estimated different CAGRs for other regions using this method.** The CAGRs vary due to different 2024 operational capacities and pipeline size.
- Using this approach, we estimate that Malaysia's MW **capacity could reach 3.6GW by 2030.**

High and low scenario rationale:

- The high and low scenarios are based on estimated **rejection rates for data centre proposals in Malaysia.**
- With **~30% of Johor projects reportedly denied in 2024** and little data for other regions, we apply a similar rate nationwide.
- The baseline scenario assumes **70% of the 2024 proposals are completed**, while the **high and low scenarios assume 90% and 50% acceptance**, respectively.
- Drawing on 2024 regional operational data from Knight Frank's Malaysia report, we estimated **the average MW per data centre by region**.
- Applying our 2028 pipeline delivery assumption, we projected the number of data centres and average MW per project.
- We then **calculated regional CAGRs (2024 to 2028) and extended them to 2030** to estimate capacity under each scenario.
- Using this approach, we estimate that Malaysia's data centre capacity **could reach 5.1GW by 2030 under the high scenario and 2.1GW under the low scenario.**

Applying these pipeline assumptions to our model provides the best estimate of Malaysia's data centre landscape under different scenarios. The baseline reflects a continuation of current and past trends, while high and low scenarios capture potential variations in growth. This enables us to estimate impacts on economic indicators such as economic output and employment per scenario using our bespoke input-output model.

Sources: **[a]** Malaysia Data Centre Research Report - 2024 | Knight Frank Research **[b]** data-centres-global-forecast-report-2025-11877.pdf

Model inputs: Capital and operating costs

Our model incorporates a CAPEX cost of $8.8m per MW and an OPEX cost of $1.4m per MW.

Table: Capital Costs (CAPEX)

Source	Value ($m/MW)
Cushman and Wakefield - APAC data construction cost guide[a]	8.8

Our key capital cost assumption, expressed in $ million per MW, is drawn from Cushman & Wakefield's 2025 Data Centre Construction Cost Guide. The report offers a detailed regional breakdown of construction costs for data centres in locations such as Johor Bahru, Kuala Lumpur, and Selangor. It accounts for factors like construction cost inflation, local FX rates and provides cost scenarios by data centre type (e.g. hyperscale, retail colocation), capacity (MW), and site size (acres). Overall, it delivers a reliable average construction cost per MW for data centres in Malaysia.

Table: Operating Costs (OPEX)

Source	Type of cost	Total cost ($m)	Cost per MW ($m/MW)*
Maybank ASEAN Data Centre Report[b] *Notes 2028 data centre capacity in the ASEAN region is expected to reach **3,923MW**	Annual utility spend	1,859	0.50
	Annual utility spend as a % of total OPEX	35%	35%
	Annual OPEX	**5,311**	**1.4**

Drawing on Maybank's estimates for annual OPEX in the ASEAN region, we estimate that approximately 35% of OPEX in the Malaysian context is attributable to utilities. Based on this, we estimate total annual OPEX to be around $1.4m per MW. To illustrate, a 50MW data centre in Malaysia could incur annual operating costs of approximately $70 million.

Sources: **[a]** APAC Data Construction Cost Guide 2025 **[b]** Maybank

Model inputs: Capital and operating jobs

Our model assumes 18 capital jobs per MW and 2 operational jobs per MW.

Table: Capital jobs (per MW)[a][b]

Source	Jobs per MW
Turner Construction / Cushman & Wakefield	18

Our estimate of capital jobs per MW is informed by data from Meta's hyperscale data centre investment in Indiana in the US., which involved approximately **$800 million and supported around 1,250 construction jobs** during the build phase. Using an average US capital expenditure cost of **$11.7 million per MW**, we infer a **facility size of 68 MW.[b]** This translates to around **18 direct construction jobs per MW of installed capacity.**

Table: Operating jobs (per MW)[1][2][c]

Metrics	Assumptions	
Data centre campus (MW)	500	
Collecive Workforce (operations)	726	1,023
Of which knowledge workers	198	330
Collective jobs per MW (Collective workforce/MW)	**1.5**	**2.0**
Knowledge workers per MW (Of which knowledge workers/MW)	0.4	0.7
Non high-value operational jobs per MW	1.1	1.4

Based on estimates for operational employment in a 500MW data centre in Malaysia, we estimate that an average of 2 employees per MW once a data centre becomes operational, with approximately 0.7 of these considered knowledge workers. Knowledge workers in this context refer to IT operations roles such as server managers, network engineers, cybersecurity analysts and similar positions. Using these assumptions, we can estimate the total number of operational jobs supported by Malaysia's data capacity, including the share of knowledge workers, both currently and over the 2025-2030 period.

Notes **[1]** The definition of a knowledge worker provided by the Malaysian government: Microsoft Word - PU_A_344 of 2010 - English.doc **[2]** Drawing on US based CAPEX and OPEX job multipliers in the literature, we applied job constraints to refine our employment assumptions and estimates. Based on the capital intensity of data centres, Malaysian spending patterns do not accurately reflect the employment intensity of annual data centre operations. Applying constraints provides more realistic projections of total and knowledge worker job creation associated with data centres in Malaysia for 2024 to 2030. This allows us to more accurately estimate the level of job creation by scenario.

Sources: **[a]** Turner Construction: Turner Construction Company to Build Hyperscale Data Center for Meta in Indiana | Insights | Turner Construction Company **[b]** Cushman & Wakefield: Data Center Development Cost Guide 2025 **[c]** The Edge Malaysia: My Say: Data centres: Strategic trade-offs and the promise of high-value jobs

Model inputs: Knowledge jobs sector allocation

We estimate that ~53% of high-value workers operating within the data centre ecosystem qualify as knowledge workers.

Table: Percentage split of knowledge workers by role[1][a]

Type of knowledge worker	% with degree qualification	% aged 35 and over [a]	% of knowledge workers	Average % of knowledge workers
Managers	80%	76%	61%	53%
Professionals		64%	51%	
Technicians and associate professionals		58%	46%	

Using our inputs for capital and operational jobs per MW (as detailed on pg. 48), we estimate the total employment of the data centre ecosystem in Malaysia-including direct, indirect, and induced jobs. From this, we estimate the share of total employment attributable to jobs in high-value sectors such as IT, fintech and engineering. We assume that these sectors are primarily made up of skilled workers including managers, professionals, technicians and associate professionals. Drawing on data from the Department of Statistics Malaysia, we estimate that **approximately 80% of workers in these roles hold a college, university or equivalent qualification**. Within this group, we further estimate that around **53% qualify as knowledge workers**, based on the Malaysian government's classification.[1]

In our model, these knowledge workers are distributed across a range of sectors, including – but not limited **to-information technology and services, telecommunications, financial and insurance activities, and professional, scientific, and technical services**.

As Malaysia's data centre capacity continues to expand, the sector is expected to play a key role in **enabling broader industries such as finance and healthcare.** This growth will likely drive an increase in the number of knowledge workers across the wider value chain, both directly and indirectly linked to the data centre ecosystem. The above values enable us to project the potential growth of knowledge workers under various growth scenarios, while also highlighting opportunities for growth across both and emerging and established sectors across the data centre ecosystem.

Sources: **[a]** Department of Statistics Malaysia (DOSM)

Note: **[1]** A knowledge worker is defined as a qualified person who (1) holds a degree in any professional or technical field from a college, institution or university recognised by the Government of Malaysia and has at least ten years experience in any of the qualified activities; or (2) holds a doctoral degree and has at least five years working experience in any of the qualified activity: Microsoft Word - PU_A_344 of 2010 - English.doc.

Appendix 4: Sources

Sources used in report (1/4)

Sources directly used in this report are listed below.

Sources

- Agency of Natural Resources and Energy India: 7th_outline.pdf
- AP News: Ireland embraced data centers that the AI boom needs. Now they're consuming too much of its energy | AP News
- CBRE Investment opportunities in APAC: Navigating Data Centres: Seizing investment opportunities in APAC | CBRE
- CBRE Japan: CBRE Strengthens Data Center Real Estate Services | CBRE CMS Japan
- CCS & Co Malaysia Digital Bill of Guarantees: Microsoft Word - MD BOG Explanatory Notes based on approved MSC BOG in 2014_clean.doc
- CETAS: Japan's Chip Challenge: Semiconductor Policy for the Data Centre Era | Centre for Emerging Technology and Security
- Cushman & Wakefield APAC Data Centre report**:** APAC Data Centre Update: H2 2024 | SG | Cushman & Wakefield
- Cushman & Wakefield Data Centre Construction Cost Guide: APAC Data Centre Construction Cost Guide | Cushman & Wakefield
- Crowe Malaysia Malaysia's Digital Status: Malaysia Digital Status: Tax Incentives | Crowe Malaysia PLT
- Data Centres Ireland: Data Centres: A Cornerstone of Ireland's Foreign Direct Investment and Economic Growth - A view from Jason O'Conaill, Industry Expert - DataCentres Ireland 2025
- DataCentre Magazine Microsoft Data Centre Hub in Johor: Microsoft to Expand Data Centre hub in Johor, Malaysia | Data Centre Magazine
- DC Byte**:** DC Byte: Data Centre Market Overview
- Department of Financial Services India: Critical Information Infrastructure (CII) | Department of Financial Services | Ministry of Finance | Government of India
- Department of Statistics Singapore: Number Of Full-Time ITE Students Intake By Sex, Annual | SINGSTAT | data.gov.sg
- Department of Statistics Singapore: Singapore Department of Statistics (DOS) | SingStat Table Builder
- Digital News Asia: Shaping the future of data centers in Malaysia | Digital News Asia
- Economic Times India – various reports
- Enterprise Ireland: Helping Irish Business Go Global | Enterprise Ireland
- Environmental and Energy Study Institute (EESI): Data Centers and Water Consumption | Article | EESI

Sources used in report (2/4)

Sources directly used in this report are listed below.

Sources

- Government of Ireland Department of Business: government-statement-data-centres-enterprise-strategy.pdf
- Hanley Energy: Global turnkey data center solution providers | Hanley Energy
- Infocomm Media Development Authority (IMDA): Advisory Guidelines for Cloud Services and Data Centres | IMDA
- International Trade Administration: Ireland - Digital Economy
- Invest KL Malaysia: Malaysia attracts UDS 24.1 bn in data centre investment since 2021 –Malaysia Attracts USD 24.1 Billion in Data Centre Investments Since 2021 - Relevant News | InvestKL
- Irish Times: Data centres could use 70% of Ireland's electricity by 2030, committee to hear – The Irish Times
- IT News ASIA: Microsoft sets up its first Asian data centre academy with ITE – Microsoft sets up its first Asian data centre academy with ITE - Data Centres - Software - iTnews Asia
- JETRO: Section6. Subsidy for Development of Regional Data Centers | Chapter3. Recent Government Measures - JETRO Invest Japan Report 2023 - Reports - Why Invest - Investing in Japan - Japan External Trade Organization – JETRO
- JLL: India's Data Centres: 77% Growth to 1.8 GW by 2027
- KPMG Malaysia Base Erosion and Profit Shifting (BEPS): - KPMG Malaysia
- Knight Frank Global Data Centre report: data-centres-global-forecast-report-2025-11877.pdf
- Knight Frank Malaysia Data Centre report: KFM_DC Whitepaper Report_2024.pdf
- Linux Foundation: lfr_techtalent_jp2025_052325.pdf
- Mason Hayes & Curran: Data Centres in Ireland – Energy Concerns | Mason Hayes Curran
- Maybank ASEAN Data Centre report: ASEAN Data Centre report
- Mayer Brown: Singapore's Green Data Centre Roadmap
- METI: Japan's Initiatives for Interoperable Data Infrastructures Officially Named "Ouranos Ecosystem"

Sources used in report (3/4)

Sources directly used in this report are listed below.

Sources

- METI: Publicizing the Report by the Study Group on the Development of Digitally Skilled Workforce for the Era of Society 5.0: For Skills-Based Workforce Development
- Microsoft AI-powered data centres in Malaysia: Why Malaysia needs datacenters for an AI-powered future - Source Asia
- MIDA: Riding the data centre wave - MIDA | Malaysian Investment Development Authority
- MIDA JS-SEZ: Iskandar Malaysia: The Cornerstone of The Johor-Singapore Special Economic Zone - MIDA | Malaysian Investment Development Authority
- MIDA Green incentives: HORIZONTAL of Green Incentives Budget 2024
- Ministry of Economy National Energy Transition Roadmap: National Energy Transition Roadmap_0.pdf
- Ministry of Housing and Local Government Data Centre planning guidelines: – Ministry of Housing and Local Government Presentation
- Ministry of Information and Broadcasting Government of India: doc2022128141601.pdf
- Mordor Intelligence: Indonesia Data Centre Size & Share Analysis – Growth Trends & Forecasts up to 2030: Indonesia Data Center Market Size & Share Analysis - Industry Research Report - Growth Trends
- Mordor Intelligence: Singapore Data Centre Size & Share Analysis – Growth Trends & Forecasts up to 2030: Singapore Data Center Market Size & Share Analysis - Industry Research Report - Growth Trends
- Mordor Intelligence: Malaysia Data Centre Size & Share Analysis – Growth Trends & Forecasts up to 2030: Malaysia Data Center Market Size & Share Analysis - Industry Research Report - Growth Trends
- OECD: Digital | OECD
- Open Gov Asia Malaysia Tax incentives to Boost Digital Economy: Malaysia: Tax Incentives to Boost Digital Economy – OpenGov Asia
- Reuters Google Data Centre investment: Google to invest $2 bln in data centre and cloud services in Malaysia | Reuters
- Research and Markets APAC Data Centre report (2025 - 2030): APAC Data Center Colocation Market - Forecasts from 2025 to 2030
- Rest of World Malaysia's new data centres create thousands of jobs: Malaysia's data center boom fuels jobs and environmental concerns - Rest of World
- Savills: acr---jp-data-ctr-1h-2023.pdf

Sources used in report (4/4)

Sources directly used in this report are listed below.

Sources

- Singapore Business Review: Data centre operators turn West amidst Tai Seng space crunch | Singapore Business Review
- Skrine Investment in Data Centres in Malaysia: Skrine - Advocates & Solicitors
- Tenaga Nasional Green Lane Pathway: tnb.com.my/announcements/tnb-establishes-exclusive-green-lane-pathway
- The Times: How Irish companies built the cloud — and billions rained down
- World Bank Group: Digital: Development news, research, data | World Bank
- YTL Data Centers Data Centre locations Malaysia: Malaysia - YTL Data Center Holdings Pte. Ltd.

Additional sources used to inform the report (1/3)

Sources consulted to inform messaging in this report are listed below.

Sources

- Access Partnership Economic Impact of Generative AI: The Economic Impact of Generative AI: The future of work in Malaysia - Access Partnership
- Amazon Data Centre Investment: Amazon data center investment: local jobs, education, sustainability
- ARC Group ASEAN's Data Center Boom: Harnessing ASEAN's Data Center Boom- ARC Group
- Bain & Company Southeast Asia's Green Economy 2025 Report: Southeast Asia's Green Economy 2025 Report | Bain & Company
- Bernama Google Data Centre investment in Malaysia: BERNAMA - Google To Invest Rm9.4 Bln In Malaysia, Support Over Rm15.04 Bln In Positive Economic Impact
- BloombergNEF Malaysia Power Generation: BNEF
- Customedia Academy JS-SEZ: JS-SEZ Explained: A Potent Catalyst for Digital Infrastructure – Custommedia Academy
- DCByte 2024 Global Data Centre Index: 2024 Global Data Centre Index | DC Byte
- Department of Statistics Malaysia (DOSM) Latest Data: DOS | SingStat Website - Latest Data
- Department of Statistics Malaysia (DOSM) Population: Population Table: Malaysia | OpenDOSM
- Department of Statistics Malaysia (DOSM) Water Consumption: Water Consumption by State and Sector | data.gov.my
- Digital Infra Network: Google Malaysia data centre power and water efficiency: Google's Malaysia data centre redefines power and water efficiency | Digital Infra Network
- Economist Intelligence Unit (EIU) Economic Growth Malaysia: Economic growth | Country Report | EIU
- Edge DC Fibre-Optic: Fiber Optic: The Key to High-Speed Connectivity for Indonesian Data Centers
- Energy Information Administration (EIA) Country Analysis Malaysia: Country Analysis Brief: Malaysia
- Emir Research Malaysia Data Centre Boom: Malaysia's Emerging Data Centre Boom: Seizing Opportunities and Powering a Sustainable Future
- Fast Company Risks for data centre boom in Malaysia: Why Malaysia's bets on data centers is risky - Fast Company
- Forbes Google Gamuda data centre development: Google Doubles Down On Malaysia With $236 Million Data Center Deal Awarded To Gamuda
- Halim Hong & Quek (HHQ) Corporate Investments in Malaysia's Data Center Sector: The Ultimate Guide to Corporate Investments in Malaysia's Data Center Sector: Strategies and Opportunities Explained – HHQ

Additional sources used to inform the report (2/3)

Sources consulted to inform messaging in this report are listed below.

Sources

- Infocomm Media Development Authority Singapore Digital Economy Reports: Singapore Digital Economy Reports | IMDA
- International Energy Agency (IEA) Electricity 2024: Electricity 2024 - Analysis and forecast to 2026
- International Trade Administration (ITA) Malaysia Digital Economy: Malaysia - Digital Economy
- IPM Due Dilligence study for data centre development in Malaysia: Due-Diligence-Study-for-Data-Centre-Development-in-Malaysia.pdf
- IRENA Malaysia Energy Transition Outlook: Malaysia energy transition outlook
- Iskandar Regional Development Authority JS-SEZ: Iskandar Regional Development Authority
- JLL 2025 Global Data Center Outlook: 2025 Global Data Center Outlook
- JLL Growth of AI data centers: Growth of AI creates unprecedented demand for global data centers
- Kearney Analysis How data center operators can win in Southeast Asia: How data center operators can win in Southeast Asia | Kearney
- Khazanah Research Institute Energy and Ecological Impacts of Data Centres: Views
- LowCarbonPower Electricity in Malaysia in 2024: Malaysia Electricity Generation Mix 2024 | Low-Carbon Power Data
- Mandala Empowering Australia's Digital Future: Empowering Australia's Digital Future
- MDEC Malaysia Digital: Malaysia Digital | MDEC
- MIDA JS-SEZ data centre opportunities: JS-SEZ offers data centre opportunities by the bucketful - MIDA | Malaysian Investment Development Authority
- MIDA Malaysia data centre growth in 2025: Malaysia set for booming data centre growth in 2025 - MIDA | Malaysian Investment Development Authority
- MIDA Data centre players pour in investments: Data centre players pour in investments - MIDA | Malaysian Investment Development Authority
- MIDA Digital Ecosystem Acceleration Scheme (DESAC): DESAC-Guideline_MIDA.pdf
- MIDA Google's Malaysia data centre sets new standard for power and water usage: Google's Malaysia data centre sets new standard for power, water usage efficiency - MIDA | Malaysian Investment Development Authority

Additional sources used to inform the report (3/3)

Sources consulted to inform messaging in this report are listed below.

Sources

- MIDA Green Lane Pathway: Malaysia launches green lane pathway to propel digital, manufacturing powerhouse ambitions - MIDA | Malaysian Investment Development Authority
- MIDA Malaysia Investment Performance Report 2024: MIDA_IPR-2024_SP_Screen.pdf
- MIDA Sustainable Infrastructure, Local impact: Sustainable Infrastructure, Local Impact - MIDA | Malaysian Investment Development Authority
- Ministry of Investment, Trade and Industry Cabotage Policy: Ministry of Investment, Trade and Industry
- Ministry of Investment, Trade and Industry GIS Summary: PowerPoint Presentation
- Ministry of Investment, Trade and Industry New Industrial Master Plan 2030: FA-Summary NIMP 2030_v2
- Ministry of Economy MyDigital Malaysia Digital Economy Blueprint: Malaysia Digital Economy Blueprint
- Savills Annual Report and Accounts 2024: SAVILLS AR24 Suruhanjaya Tenaga Guidelines for Corporate Renewable Energy Supply Scheme (CRESS): Guideline for CRESS (First Edition Sept 2024)_.pdf
- Techerati Data Centres: Enables of the Digital Economy: Data centres: Enablers of the Digital Economy – Techerati
- The Straits Times ASEAN trade: Asean has reached ‘consensus’ on trade, US tariffs and power grid ahead of summit: Anwar | The Straits Times
- The Straits Times Johor rejects data centre applications: Johor rejects nearly 30% of data centre applications to protect local resources | The Straits Times
- Uptime Institute Global Data Center Survey 2024: Uptime Institute Global Data Center Survey 2024 | Uptime Intelligence
- Vantage Data Centres Data Centre Campus Cyberjaya: Vantage Data Centers Breaks Ground on 256MW Cyberjaya Campus - Vantage Data Centers
- W.media Kedah the next data centre hub in Malaysia: Kedah Poised to Become the Next Data Center Hub in Malaysia? – W.Media

kpmg.com/socialmedia

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