



Global Data Centre Outlook 2026-50

Malaysia key findings



September 2026

Highlights



US\$287 billion opportunity for Malaysia

- Malaysia has a major opportunity to become a data centre hub, with projected cumulative investment of US\$287 billion through 2050
- Malaysia could rank second in ASEAN for data centre investment through 2050, supported by strong connectivity and government backing



Turning opportunity into investments

- Capturing this opportunity is not guaranteed. Investment will depend on five forces: power, latency and connectivity, security and trusted-region hosting, graphics processing unit (GPU) access, and policy certainty
- Power is the biggest constraint, while semiconductor restrictions and geopolitical fragmentation could significantly slow growth



AI is changing the nature of investment

- Spending will increasingly shift from buildings to servers, networking equipment, and GPUs
- Regular technology replacement will make investment increasingly recurring. ICT's share of total capital expenditure (capex) could rise from 70% in 2026 to 93% by 2050
- Sustained AI revenue growth is needed to support continued investment through the later stages of market development



AI is changing demand for data centres

- Demand is expanding beyond hyperscalers to AI providers, enterprises, and governments
- AI will drive diverse workloads, each demanding distinct locations and infrastructure strategies:
 - AI inference favours local markets because of latency, privacy, and sovereignty needs.
 - AI training favours locations with abundant power, GPUs, and technical talent.

What this means for Malaysia

Malaysia will need to accelerate power delivery, maintain predictable policies, expand low-carbon generation, and strengthen its technology ecosystem.

- Investors should diversify and assess technology obsolescence risks
- Operators should prioritise speed to power and flexible capacity
- Policymakers should treat data centres as strategic national infrastructure

Table of contents

Highlights	02
1. Introduction	04
2. Data centre investment outlook, 2026-50	05
3. Five forces shaping data centre investment	10
4. AI fragmenting data centre demand	13
5. Positioning data centre for the AI cycle	16
Contact	19

01

Introduction

Building Malaysia's compute capacity for the AI era

Railways. Highways. Electrification and digital connectivity. Each generation of infrastructure defined an era of Malaysia's economic transformation.

The AI era is set to be even more significant, with data centres emerging as the critical infrastructure powering the next wave of growth.

PwC's Global Data Centre Outlook 2026-50, developed in collaboration with Oxford Economics, forecasts US\$31.6 trillion of global data centre capital expenditure through 2050, with a plausible upside approaching US\$50 trillion as demand for AI compute accelerates.

Against this backdrop of unprecedented global investment, this publication examines the outlook for data centre investment in Malaysia, covering both physical infrastructure and ICT investment. While an enormous amount of funding is required, capital availability is unlikely to be the binding constraint. Power is another matter as ambition comes up against grids built for a pre-AI time. We also consider how AI adoption and geopolitical developments could shape future demand.

Beyond the forecasts, we explore what it will take to translate opportunity into investment and how investors, operators, and policymakers can position data centres for success in an AI-driven market that is increasingly distinct from the cloud era.

US\$32
trillion

Global data centre
capex, 2026-50



02

Data centre investment outlook, 2026-50

AI demand could drive US\$287 billion in investment

Malaysia is projected to attract US\$287 billion in data centre capital expenditure (capex) through 2050, under the central scenario, with total investment potentially ranging from US\$198 billion to US\$417 billion depending on AI adoption, technology developments, and market conditions. For details on the methodology, assumptions, and scenarios underpinning these forecasts, please refer to [PwC's Global Data Centre Outlook 2026-50](#).

US\$287 billion

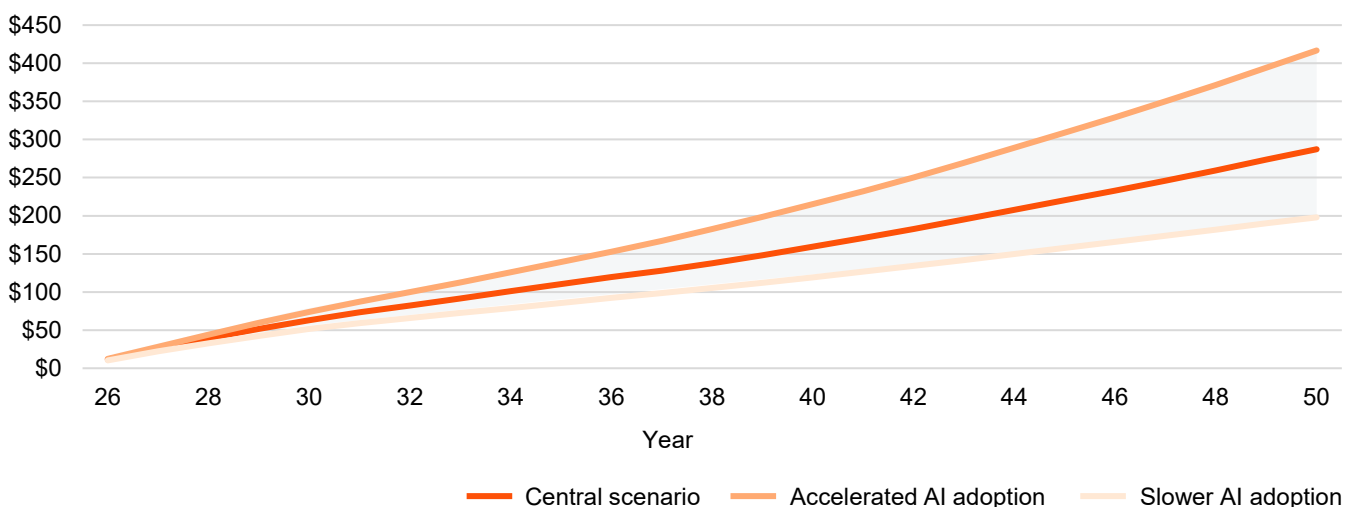
Malaysia data centre capex, 2026-50

On an annual basis, data centre investment is expected to grow significantly from approximately US\$7 billion in 2025 to US\$11 billion by 2030 and US\$14 billion by 2050, reflecting sustained demand supported by cloud migration, hyperscaler expansion, and emerging AI-native businesses.

Supporting this outlook, Malaysia's data centre capacity is expected to expand nearly four-fold from 522MW in Q1 2025 to 2,055MW by end-2026, underpinned by strong demand, with around 1.2GW in pre-leased capacity in 1H 2026, the second-highest level in Asia Pacific after Japan¹.

Figure 1: Cumulative Malaysia data centre capex, 2026-50

US\$ billion



Note: All spending figures are in 2025 US dollars

Source: PwC's Global Data Centre Outlook 2026-2050; forecast modelling by Oxford Economics,

¹ NST, [Malaysia's data centre capacity poised for four-fold surge](#), 28 September 2026

**70% -
93%**

ICT's share of
Malaysia's total data
centre capex, 2026-50

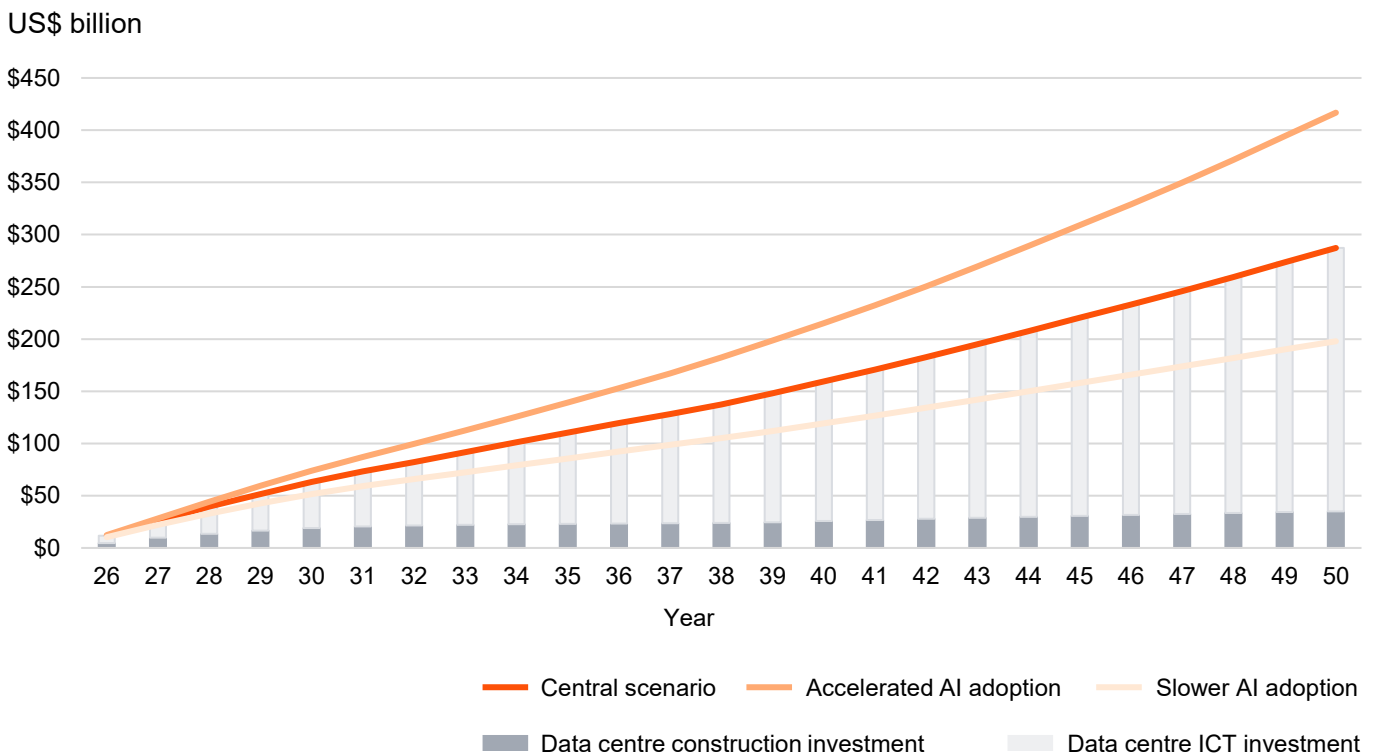
AI shifts investment from buildings to compute

Data centre investment is increasingly driven by ICT equipment rather than physical infrastructure. While buildings, power connections, and fibre networks have long asset lives, the servers, storage systems, networking equipment, and GPUs inside them require continual refresh and replacement.

As AI adoption accelerates, ICT's share of Malaysia's total capex is projected to increase from 70% in 2026 to 93% by 2050. Every US\$1 invested in construction is estimated to support roughly US\$12 of future ICT investment over the life of the asset.

Unlike previous infrastructure cycles, where capital expenditure was largely front-loaded, compute equipment will need replacing every four to six years. This makes ongoing technology refresh—not construction—the primary driver of long-term data centre investment growth. More importantly, it raises the question of who will service the demand it meets.

Figure 2: Cumulative Malaysia data centre capex by component, 2026-50



Note: All spending figures are in 2025 US dollars. ICT: Information and communications technology, e.g. GPUs, servers, and networking equipment.

Source: PwC's Global Data Centre Outlook 2026-50; Source: forecast modelling by Oxford Economics

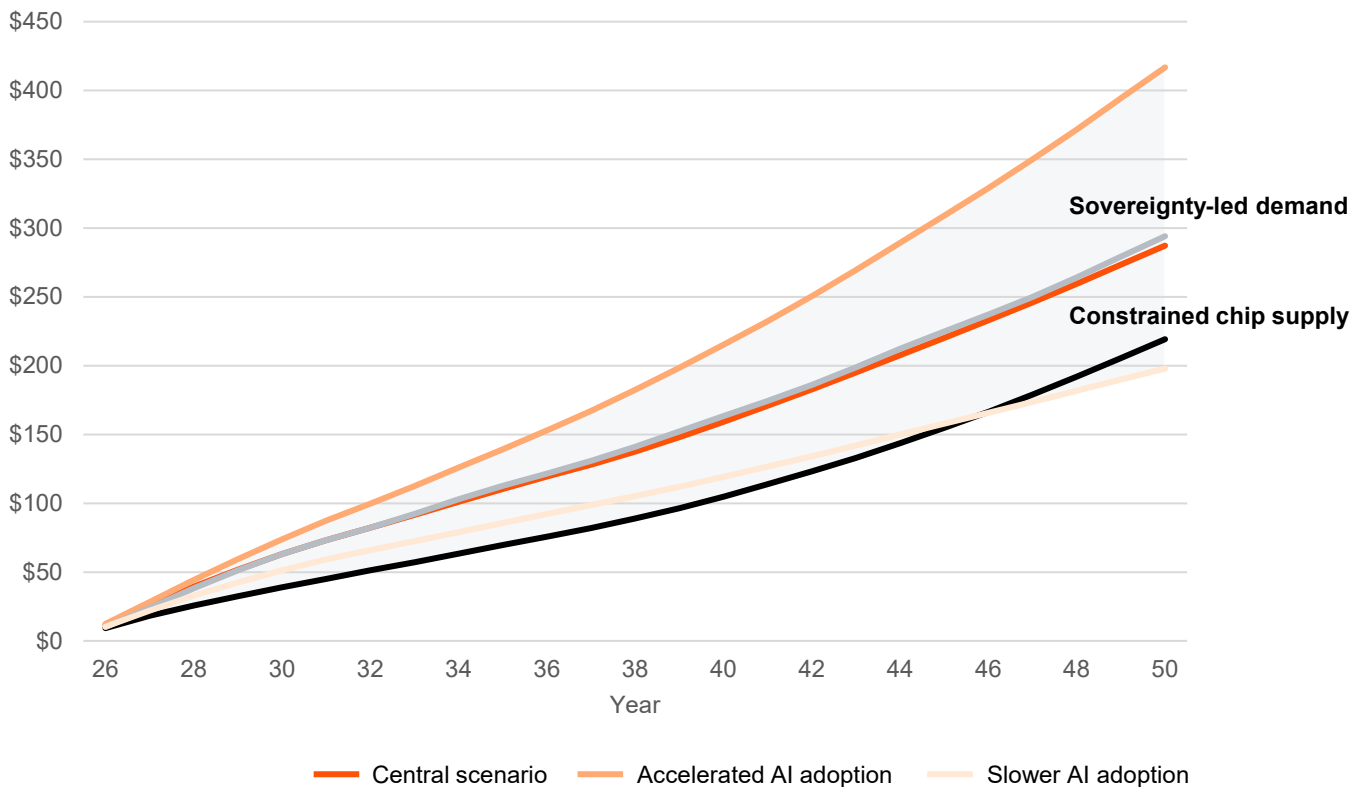
Two geopolitical scenarios could reshape investment pathways

The central projection assumes a relatively open global digital economy, where chips, capital, and workloads move across borders according to cost, capability, and comparative advantage. However, geopolitical developments could alter investment patterns and influence where future compute capacity is deployed.

In a more fragmented global environment, constrained chip supply and greater workload localisation, reflected in sovereignty-led demand, may emerge as countries seek greater control over their digital infrastructure and data.

Figure 3: Cumulative Malaysia data centre capex and geopolitical scenarios, 2026-50

US\$ billion



Note: All spending figures are in 2025 US dollars

Source: PwC's Global Data Centre Outlook 2026-2050; forecast modelling by Oxford Economics

30% -
39%

Potential decline in
cumulative data
centre capex from
constrained
semiconductor supply

Under a **constrained chip supply scenario**, escalating trade tensions and restrictions on advanced semiconductors could limit access to critical AI hardware. Cumulative data centre capex could fall between 30% and 39% between 2027 and 2045. Even so, Malaysia's cumulative data centre capex is projected to reach approximately US\$220 billion by 2050, compared with US\$287 billion under the central scenario.

In a **sovereignty-led demand scenario**, where governments and regulated industries increasingly localise strategic cloud, data, and AI workloads, Malaysia's cumulative data centre capex reaches approximately US\$293 billion by 2050, around 2% above the central projection. This reflects the country's sizeable domestic demand base and lower reliance on international workloads than regional hubs such as Singapore and Hong Kong SAR.

Despite differing pathways, all scenarios point to continued growth in Malaysia's data centre sector, underscoring the structural and long-term demand for digital and AI infrastructure.



Regional comparison

Malaysia ranks among the ASEAN region's leading data centre markets. Under the central scenario, we are projected to be the second-largest destination for cumulative data centre investment in ASEAN by 2050, behind Singapore and ahead of Indonesia.

Relative to the size of our economy, Malaysia also stands out as one of the most data centre-intensive markets in Asia Pacific. Cumulative data centre capex is projected to account for approximately 1.6% of cumulative GDP over the forecast period, ranking third in the region, behind Hong Kong SAR (5.3%) and Singapore (1.8%).

Beyond attracting a large share of regional data centre investment, Malaysia is emerging as a critical node in ASEAN's digital infrastructure network, supporting the growth of cloud computing, AI adoption, and digital services across the region.

2nd

Malaysia's rank in cumulative ASEAN data centre investment by 2050

Figure 4: Cumulative ASEAN data centre capex by territories, 2026-50 (central scenario)

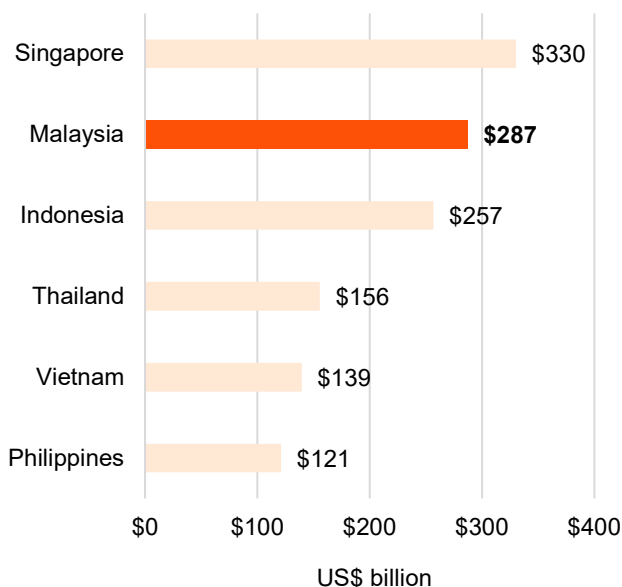


Figure 5: Asia Pacific territories' data centre capex share of GDP*

1	Hong Kong SAR	5.3%
2	Singapore	1.8%
3	Malaysia	1.6%
4	Australia	1.1%
5	New Zealand	1.1%
6	Taiwan Region	0.9%
7	South Korea	0.9%
8	Thailand	0.8%
9	Japan	0.7%
10	Vietnam	0.6%
11	India	0.5%
12	Philippines	0.5%
13	Indonesia	0.4%
14	Chinese Mainland	0.4%

* Territory cumulative data centre capex (2026-50) / cumulative GDP (2026-50)

Note: All spending figures are in 2025 US dollars

Source: PwC's Global Data Centre Outlook 2026-2050; forecast modelling by Oxford Economics

Five forces shaping data centre investment

The capex forecasts presented in the outlook section represent the potential investment opportunity. Whether this investment is realised will depend on a different set of dynamics than those that shaped the cloud era. The direction of future investment will be shaped by five key forces.

Figure 6: Five forces are expected to determine where future data centre investment is deployed

Power

Among the five forces shaping capex flows, power sits at the top. It's the hardest requirement for many markets to deliver, with transmission capacity, substation availability, and transformer lead times becoming bottlenecks.

Force	What it is
Power	Affordable, reliable, low-carbon electricity at scale, with minimal grid-failure risk
Latency and connectivity	Low-latency links to users and dense interconnection with cloud and fibre ecosystems
Security and trusted-region hosting	Cybersecurity maturity, regulatory credibility, and data-protection regimes capable of hosting sensitive workloads
GPU access and ecosystem depth	Proximity to advanced semiconductor supply chains, AI ecosystems, and specialised engineering talent
Policy certainty and community consent	Coordinated planning, investment, and energy approvals delivered through a single front door and local community support

Source: PwC and Oxford Economics analysis

Sustainability is not modelled as a standalone variable in this analysis, but it is embedded across all five forces. Markets with abundant renewable energy, lower-carbon power systems, and credible decarbonisation pathways benefit from a structural advantage. Conversely, constraints related to grid capacity, land availability or permitting can limit future growth.

Together, these forces help explain why data centre investment is becoming increasingly decoupled from economic size. Markets that can successfully align power, connectivity, technology access, and policy settings are likely to attract a disproportionate share of future investment, while others risk falling behind despite strong underlying demand.

Malaysia well positioned to attract data centre investment

Malaysia approved a total of 143 data centre investment projects between 2021 and mid-2025¹, underscoring its emergence as one of Southeast Asia's fastest-growing data centre markets. The country's growth is driven by more than demand alone. The following assessment examines Malaysia's relative competitiveness across the five forces expected to shape future data centre investment decisions.



Power

The Malaysian Industrial Development Authority (MIDA) estimates Malaysia's data centre electricity demand could exceed 5 GW by 2035, equivalent to around 40% of Peninsular Malaysia's current power capacity.²

To support rising demand, Malaysia is expanding its pipeline of renewable and conventional power projects, including 1.2 GW of announced Corporate Renewable Energy Supply Scheme (CRESS) capacity, a further 4.2 GW under assessment, and upcoming tender awards for 6-8 GW of gas-fired generation and 2 GW of Large Scale Solar 6 (LSS6) solar capacity.³



Latency and connectivity

Malaysia provides some of the lowest regional latency outside of Singapore. Johor, in particular, offers ultra-low-latency connectivity to Singapore⁴, serving as a strategic gateway. The country hosts connectivity from numerous international carriers and is home to 10 internet exchanges, including prominent ecosystems such as the Malaysia Internet Exchange (MyIX) and the German Commercial Internet Exchange (DE-CIX).⁵ These factors position Malaysia as a competitive alternative location in Southeast Asia for hyperscale data centres, cloud services, AI applications, and other latency-sensitive workloads.



Security and trusted-region hosting

Leading data centre operators in Malaysia uphold internationally-recognised certifications, including Uptime Institute Tier III and IV for infrastructure resilience and availability, as well as ISO/IEC 27001 for information security management.⁶ This level of compliance enables Malaysia to support mission-critical enterprise, cloud, and AI workloads with established standards of security and reliability.

¹ Bernama, [Malaysia's tech sector rides AI, data centre wave this year and into 2026](#), 9 December 2025

² New Straits Times, [Malaysia's data centre boom powers a RM126bil construction supercycle](#), 13 November 2025

³ RHB Investment Bank Bhd, [Energy staying powered up in 2026](#), 12 January 2026

⁴ Open DC, [Malaysia-Singapore Connectivity: Ultra-Low-Latency Interconnection Matters](#), 2 July 2026

⁵ Newby Venture, [Malaysia IX Data](#), 2026

⁶ Data Center Catalog, [Malaysia](#), 2026



GPU access and ecosystem depth

In July 2026, the tightening of U.S. export controls on advanced AI chips has raised compliance hurdles and eligibility requirements for countries in Asia including Malaysia, Singapore, and Japan, potentially limiting access to leading-edge AI hardware. While these measures do not constitute a blanket restriction, they may lead to longer procurement timelines, additional due diligence, and higher compliance costs for affected companies.⁷

Malaysia remains classified as a Tier 2 country under the US AI Diffusion Framework, alongside Singapore and most ASEAN markets.



Policy certainty and community consent

Malaysia offers a relatively high degree of policy certainty for data centre investors, bolstered by strong government support, a centralised approval process through MIDA, strategic oversight and coordination by the Data Centre Task Force (DCTF), and planning requirements under the Planning Guideline for Data Centres (GPP).^{8,9}

This foundation is further strengthened by long-term digital and AI initiatives, including the establishment of AI Malaysia Berhad to lead and coordinate the nation's AI agenda, as well as the National AI Action Plan 2026-2030, which supports continued investment in digital infrastructure and future demand for data centre capacity.¹⁰

Reflecting this supportive policy environment, MIDA has approved RM144.4 billion in data centre and cloud computing investments between 2021 and mid-2025.¹¹

As the industry evolves, regulatory priorities are shifting beyond investment facilitation towards managing large-scale and AI-driven developments, strengthening local ecosystem participation, and advancing sustainability through improved energy efficiency, carbon reduction, and water conservation.^{8,11}



⁷ New Straits Times, [Malaysia AI ambitions resilient despite tighter US chip curbs](#), 17 Jul 2026

⁸ Shearn Delamore & Co, [Data centre development in Malaysia](#), 2026

⁹ Conventus Law, [Navigating the new era: A guide to setting up data centers in Malaysia](#), 20 August 2026

¹⁰ The Edge, [AI Malaysia replaces NAI0 to drive country towards AI Nation by 2030](#), 28 July 2026

¹¹ MIDA, [Building resilience through localisation: Malaysia's next chapter](#), 2025

AI fragmenting data centre demand

For most of the past decade, data centre demand could be understood largely through cloud growth, with hyperscalers at the centre of gravity. However, the AI era is expanding the market to include neoclouds, model developers, inference platforms, enterprises, and governments and operators must cater to a wider variety of infrastructure requirements, deployment timelines, and strategic objectives.

Demand is also becoming more fragmented at the workload level. Some workloads prioritise low latency, security, and data sovereignty, while others compete for power, GPUs, connectivity, and talent. How these requirements align will increasingly determine where capacity is built and where investment flows.

Different buyers, different demand and risk profiles

AI is expanding the customer base and creating new sources of demand, each with a different risk-return profile:

- **Hyperscalers** anchor large-scale demand but remain highly sensitive to deployment speed
- **Neoclouds, model developers, and inference platforms** drive intensive GPU demand but face greater exposure to chip availability and AI monetisation risks
- **Enterprises** create more durable demand, supported by long-term digital transformation and AI adoption, but often require greater integration, security, and governance capabilities
- **Governments** support sovereign and strategic digital infrastructure objectives, although demand typically develops at the pace of policy and public sector procurement

Unlike past infrastructure waves, where spending fell once the network was built, this one requires capex to keep rising for decades (refer to Figure 2). Sustaining this investment depends on continued growth in AI-generated revenue. If adoption slows or pricing weakens, the economics of later-stage expansion become harder to fund, and each buyer in this list is exposed to that risk.

Different workloads, different geographic requirements

Traditional cloud capacity has typically aligned with factors such as population, GDP, enterprise density, and the presence of established digital services markets. However, the nature of the workload is increasingly becoming as important as the buyer profile in influencing where capacity is deployed.



AI inference workloads are generally more location-sensitive, particularly for enterprise, government, and regulated use cases where latency, data privacy, security, and sovereignty requirements matter. These workloads often favour local or regional deployment.



AI training workloads sit at the opposite end of the spectrum. Their primary requirements are large-scale power availability, advanced GPUs, technical talent, connectivity, and speed to market. As a result, capacity can be concentrated in locations offering the strongest supply-side advantages, regardless of proximity to end users.

As AI adoption grows, data centre demand is becoming increasingly fragmented across buyers, workloads, and geographies, creating a more uneven demand landscape.



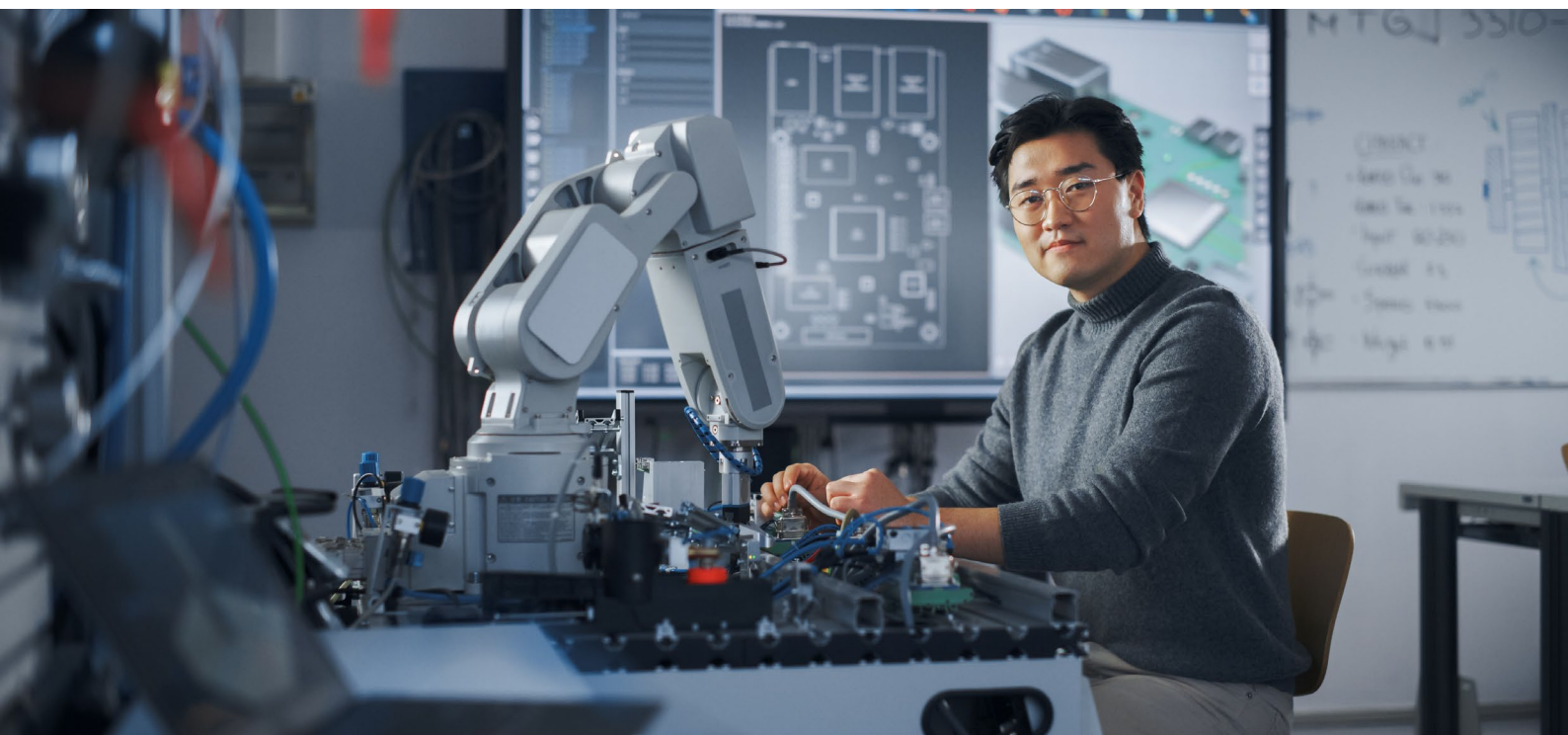
Where capacity is deployed will increasingly be determined by three of the five forces discussed earlier: **latency and connectivity, security and trusted-region hosting, and GPU access and ecosystem depth**. Together, these forces will shape which markets are best positioned to support different workloads, from consumer inference and regulated data to frontier model training.

Figure 7: AI demand is fragmenting by buyer, workload, and location

The next wave of data centre demand will depend on how buyer needs align with workload requirements and local infrastructure constraints.

Workload type	Example workloads	Main buyers	Geography of demand	What wins demand
Traditional cloud	Enterprise applications, storage, productivity tools, digital services	Hyperscalers, enterprises, colocation providers	Follows population, GDP, enterprise density, and existing digital-services markets	Connectivity, resilience, cost efficiency, proximity to enterprise demand
Location-sensitive AI/inference	Sovereign workloads, personal or regulated data, customer service, finance, healthcare, public services, low-latency AI	Hyperscalers, enterprises, governments, regulated industries, inference platforms	More local or regional; pulled toward users, data and regulation, and sovereignty requirements	Latency, data access, security, governance, trusted-region hosting
Mobile AI/training	Model training, fine-tuning, public-data workloads, large GPU clusters	AI-native cloud providers, model developers, hyperscalers	More mobile; can move toward markets with the strongest supply conditions	GPU availability, scalable sites, power, total cost of ownership, connectivity, technical talent

Source: PwC's Global Data Centre Outlook 2026-2050



Positioning data centre for the AI cycle

Data centre investment is set to remain a large, structural, and recurring opportunity, although growth is unlikely to be linear.

For investors, operators and policymakers, the challenge lies in how to position for a range of possible outcomes. The recommendations that follow are designed to remain relevant across the full investment demand spectrum and under different geopolitical scenarios.

For investors

- **Underwrite data centres as a hybrid asset**

Data centres consist of three layers: property, power infrastructure and technology.

Of the three, the technology component often carries the greatest hidden risk of obsolescence, as computing hardware can become outdated far more quickly than the underlying property or power infrastructure.

- **Understand where risks and value are created.**

As demand expands beyond hyperscalers to AI cloud providers, sovereign entities, regulated industries and large enterprises, customer segments will differ significantly in their infrastructure needs, risk profiles, and growth prospects.

Treating data centres as a single asset class risks overlooking important differences in risk and return across customer segments.

- **Diversify beyond established locations**

Established data centre hubs capture the most upside if AI acceleration plays out, but are also the most exposed to slower growth, chip-access fragmentation, and sovereignty-driven redistribution.

Emerging locations can help strengthen portfolio resilience while providing access to new sources of growth.

For operators

- **Decide which market you are competing in**

The two geopolitical scenarios in this analysis point to two distinct opportunities. Operators must decide whether to compete for global AI and hyperscale workloads or for domestic and regional demand driven by data sovereignty and critical digital infrastructure. Success factors differ across each market.

- **Compete on speed to power**

Across all scenarios, power remains the most important constraint on growth, even where overall demand is lower. Operators that can secure and deliver power capacity faster than competitors will be best positioned to capture demand.

- **Design for optionality (flexibility)**

Build flexibility into data centres. Modular designs, phased development and adaptable operations can help operators respond to changing technology, customer requirements, and regulatory expectations. For instance, changing compliance obligations for advanced chip procurement and rising expectations around energy and water usage. This allows operators to remain agile when demand rises or growth slows.

- **Sign long-dated leases that transfer obsolescence risk**

Long-dated leases with hyperscalers, governments and regulated industries can provide greater revenue certainty and reduce exposure to market volatility, protecting returns at the asset level.

For policymakers

- **Treat data centres as national strategic infrastructure**

The most successful markets coordinate energy, capital, planning, and approvals through a clear and integrated policy framework rather than relying on fragmented initiatives or leaving them to parallel private actors.

While incentives and support can help attract investment, what matters most is a predictable and investable operating environment. Markets that provide clear regulations, quick approval and execution, and coordinated infrastructure planning across federal and state authorities are best positioned to attract long-term capital.

- **Build the capability to pre-procure long-lead power and grid components**

Transmission equipment, substations and transformers increasingly face multi-year lead times, which may delay projects.

Strategic pre-procurement can help alleviate these bottlenecks, but it should be calibrated to visible demand forecasts. Otherwise, premature investment risks creating underutilised grid infrastructure.

- **Plan for a low-carbon buildout from the start**

The markets best positioned for long-term success are those that scale renewable and reliable low-carbon power alongside data centre development, rather than after it.

Examples such as Ireland's Large Energy Users Connection Policy and the approaches taken in Nordic markets, Chile, and Canada demonstrate how clean, competitively priced power can become a source of competitive advantage rather than a constraint.



Conclusion

Malaysia's US\$287 billion data centre opportunity is significant, but capturing it is far from guaranteed. The next phase of growth will be determined not just by capital availability or demand, but by how effectively the country competes for AI workloads, power capacity, talent, and digital infrastructure investment.

The winners will be those that recognise data centres are no longer simply property assets, but strategic infrastructure underpinning the AI economy. For Malaysia, maintaining policy certainty, ensuring timely power delivery, and strengthening the broader technology ecosystem will be critical.

As global compute capacity is reshaped by AI, geopolitics and data sovereignty requirements, the map of digital infrastructure in 2050 may look very different from today. Malaysia has the opportunity to be one of the beneficiaries of that redistribution, provided it continues to build on its current advantages.

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Data centres have evolved from a real estate story into a strategic investment theme at the intersection of technology, infrastructure, and national competitiveness.

The race to build AI infrastructure is ultimately about orchestrating an ecosystem, from chips, power, customers, and capital to policy. Charting Malaysia's path forward will require continued focus on execution, agility, and risk management as the market scales.

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