



# Beyond capacity

Building Indonesia's  
intelligent & sustainable  
data centers

March 2026

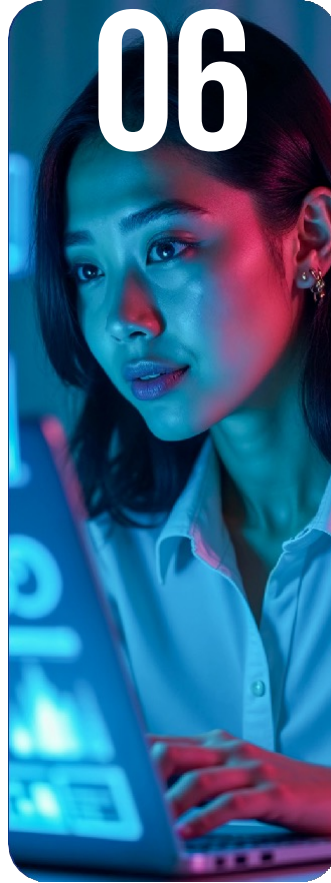
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PT KPMG Siddharta Advisory

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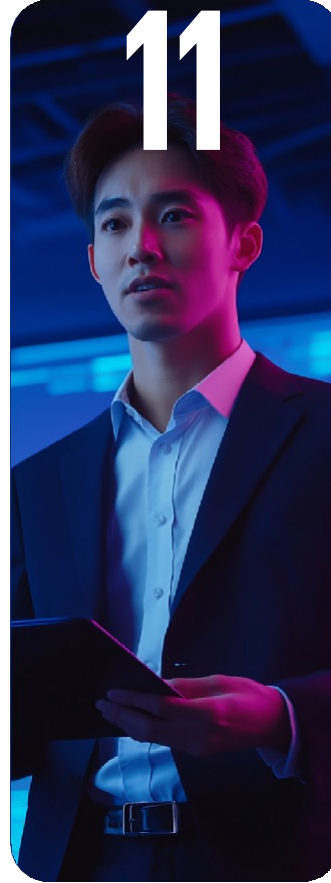


## Introduction



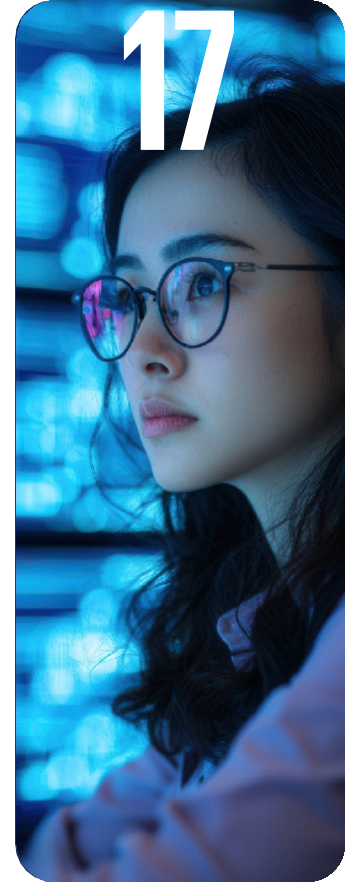
## The evolution of Indonesia's data center landscape:

From colocation to AI-ready infrastructure



## Designing for resilience and sustainability:

Power, cooling, and green data centers



## From infrastructure to value:

Monetizing digital services through cloud, edge, and AI



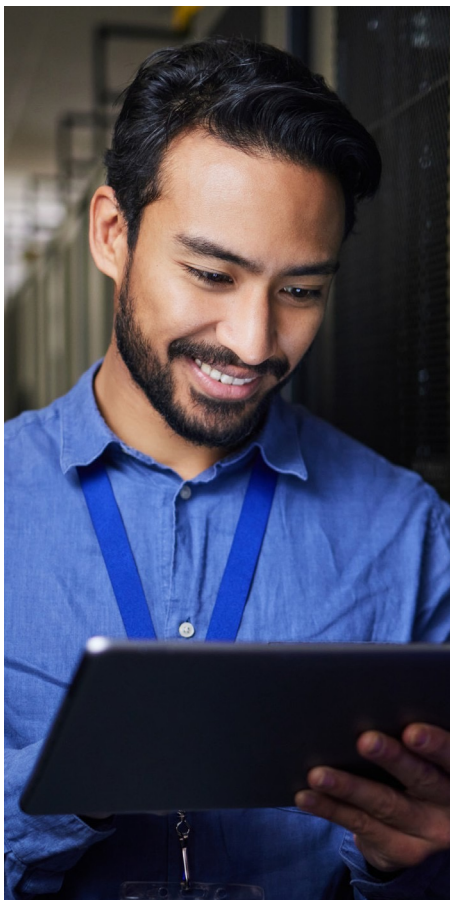
01

# Introduction

# The growth story is no longer about capacity...

Indonesia is at an inflection point in its digital transformation journey. The data center industry, once focused primarily on colocation and basic reliability, is now evolving into a strategic enabler of artificial intelligence (AI), cloud-native applications, and sustainable digital infrastructure. As the digital economy is projected to exceed USD 130 billion by 2030, the demand for intelligent, sustainable, and AI-ready data centers will define Indonesia's role in the global technology landscape.

This paper explores **three interlinked themes** critical to the future of the industry:



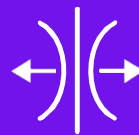
## 01. Capacity



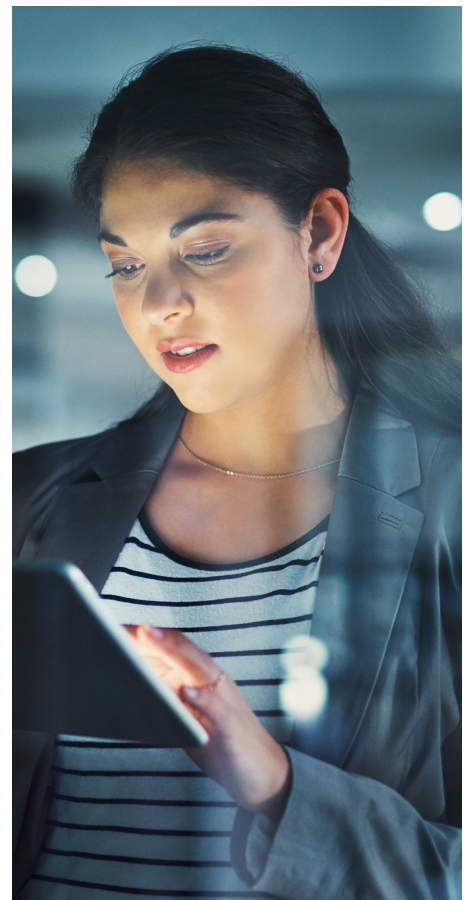
The Evolution of Indonesia's Data Center Landscape: From Colocation to AI-Ready Infrastructure



## 02. Resilience



Designing for Resilience and Sustainability: Power, Cooling, and Green Data Centers



## 03. Value



From Infrastructure to Value: Monetizing Digital Services through Cloud, Edge, and AI

Each section is structured to serve as a comprehensive talking point for extended dialogue and debate, offering both industry insights and a consultant's perspective on risks, opportunities, and strategic priorities.

# Indonesia's data center landscape today

## Top data center players in Indonesia

Operator	# of data centers	Capacity (MW)
PT Telkom Data Ekosistem ("NeutraDC")	35	~48 (up to 142)
PT DCI Indonesia Tbk ("DCI")	8	119
Princeton Digital Group ("PDG")	6	33
Biznet Data Center	7	n.i
PT Mora Telematika Indonesia Tbk ("Moratel")	6	n.i
BDx Data Centers Indonesia ("BDx")	6	15
NTT Data Indonesia ("NTT")	3	66.4
PT Metta DC	3	10 (up to 35)
Edge DC Indonesia ("Digital Edge")	2	40
Equinix, Inc. ("IBX Jakarta JK1")	1	32
IndoKeppel Data Centres ("IndoKeppel")	1	5

Source: Company website

## Market leaders by number of data centers

- **PT Telkom Data Ekosistem (NeutraDC)** is the largest operator by footprint, with **35 facilities** (30 in Indonesia and 5 overseas). However, its total capacity (**~48 MW, potentially up to 142 MW including announced expansions**) remains lower than several peers with fewer sites, indicating a strategy centered on wide geographic coverage rather than high-density builds
- **PT DCI Indonesia Tbk (DCI)** operates **8 data centers**, making it one of the largest providers by site count. Despite its smaller footprint relative to NeutraDC, DCI's installed IT load of **119 MW** reflects a focus on hyperscale, centralized, high-density infrastructure
- **Princeton Digital Group (PDG)** operates **6 facilities**, positioning it behind DCI in footprint but comparable in coverage to other regional players. Its total capacity of **33 MW** suggests mid-scale deployments relative to hyperscale operators
- **Biznet Data Center** and **Moratel** maintain broad national coverage with **7** and **6** data centers respectively, although their capacities are **not indicated (n.i.)**

## Market leaders by capacity

- Digital Edge (Edge DC) also stands out, with 40

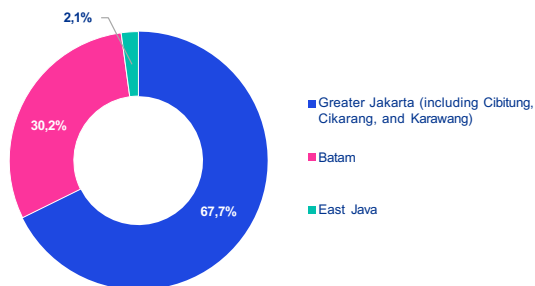
MW from only 2 facilities — another indicator of a hyperscale approach.

- Equinix JK1 is notable for 32 MW from just one facility, implying premium, high-density design.
- Smaller entrants like IndoKeppel operate at a more niche scale (5 MW, single facility).

## Capacity concentration

- Indonesia's data center remains concentrated within the Greater Jakarta area, which accounted for 67.7% against the total data center capacity in Greater Jakarta, Batam and East Java. While Batam has emerged as a secondary hub with significant hyperscale investment, development across other regions remains limited.

## Data center capacity in Greater Jakarta, Batam and East Java



Notes: Total capacity includes operating facilities and currently under construction  
 Source: Company website and latest public disclosure, might not reflect latest development plan



02

# The evolution of Indonesia's data center landscape:

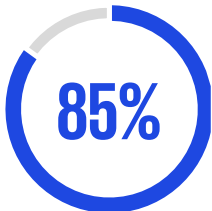
From colocation to AI-ready infrastructure

# Indonesia's data center race is shifting from physical expansion toward digital intelligence

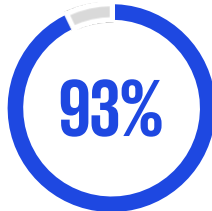
Indonesia's data center market is entering a new era, moving beyond traditional colocation toward AI-ready infrastructure at scale. Edgnex exemplifies this transformation, with advanced high-density designs that showcase what large-scale AI-ready investments look like in practice.

Meanwhile, Equinix's IBX JK1 highlights another critical dimension: interconnection. By enabling rich connectivity across networks and exchanges, JK1 illustrates how growing demand for ecosystem integration is reshaping market dynamics.

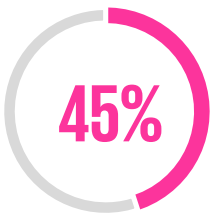
Yet infrastructure is only part of the equation. Many organizations see clear benefits from AI, but progress is often slowed by gaps in governance, ethics, and organizational readiness—highlighting that non-technical barriers can be just as challenging as the technology itself.



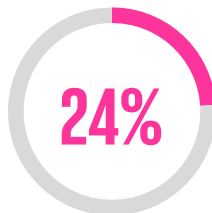
reporting significant operational gain



confident in deployment of AI



understand how to use AI ethically



having clear AI governance processes in place

Against this backdrop, Indonesia's AI-ready capacity is projected to grow 268% to ~743 MW, underscoring the urgency for both infrastructure build-out and responsible adoption practices to keep pace with regional AI demand.

A landmark investment by Edgnex bringing 144 MW of AI-ready, energy-efficient capacity to Jakarta



**USD2.3** billion

investment signals a transformative leap, positioning Jakarta as a hub for next-generation data centers

**1.32** PUE

reflects world-class efficiency, reducing overhead power use and boosting sustainability

Equinix IBX "JK1" investment illustrates not just capacity, but ecosystem connectivity



**50+** NSPs and IXPs

transform Equinix JK1 into a Critical Hub for AI and Cloud Connectivity in Indonesia"

**1.41** PUE

underscores commitment to more Efficient AI Infrastructure

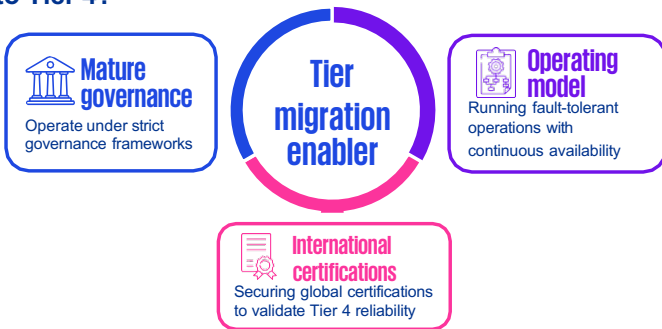
# Reliability has become the new currency of competitiveness in Indonesia's digital economy

## Tier Migration and Reliability as the New Baseline (1/2)

The Indonesian market has rapidly outgrown its early reliance on Tier 1 and Tier 2 data centers. Enterprises, banks, and governments can no longer tolerate downtime, particularly as digital services like online payments, ride-hailing, and streaming have become mission-critical. For example, a Tier 2 facility with 99.7% uptime translates to nearly 24 hours of downtime annually, unacceptable for fintech firms handling billions in daily transactions.

As Tier 3 facilities mature, the market is preparing for a step-change toward Tier 4, with more than 26% CAGR projected. Tier migration is therefore not simply about upgrading equipment it requires embedding reliability into every layer, from governance to operational processes.

### What does it take for a Tier 3 operator to “graduate” to Tier 4?



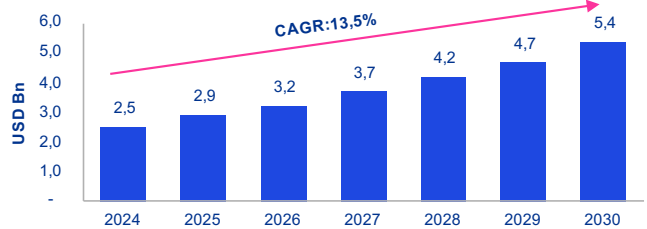
Indonesia data center market is expected to grow in the upcoming years, with a strong focus on Tier 3 and Tier 4 following the AI-ready demand. In early 2024, Indonesia had 202 MW of AI-ready data center capacity, and is expected to increase by 268%, approximately 743 MW in the coming years.

Complementing these international investments, domestic conglomerates are also entering the AI-ready arena. Sinar Mas, through its upcoming SMX01 data center in Jakarta (target completion 2026), is building one of Indonesia's first large-scale, AI-optimized facilities designed to support high-density workloads and next-generation cloud applications.

This development underscores the accelerating participation of local enterprises in shaping the nation's intelligent infrastructure ecosystem.

## Tier Migration and Reliability as the New Baseline (2/2)

### Indonesia's data center market value 2024-2030F



Source: samuelsekuritas

## Hyperscale as a Double-Edged Sword

Indonesia has become a focal point for global data center investment, with players like Equinix, Digital Realty, and NTT announcing major commitments in recent years. This validates Indonesia's strong demand fundamentals but also brings structural risks. Hyperscale competition on efficiency and scale may erode local pricing power, as seen in Singapore where rapid capacity growth led to oversupply and a government moratorium due to power constraints. The key challenge for Indonesia is not attracting investment—it already has—but ensuring capacity expansion aligns with demand absorption.

### Lesson learned: capacity growth must align with demand absorption

Singapore's data center market experienced rapid capacity growth, surpassing 1 GW by the late 2010s. This expansion strained land availability and electricity supply, with data centers consuming over 7% of national power. In 2019, the government imposed a moratorium on new builds to reassess environmental and sustainability impacts. The pause was lifted in 2022 under strict conditions, allowing only 80 MW of new capacity for projects meeting efficiency and green standards such as PUE <1.3 and renewable integration. By 2023–2024, an additional 300 MW was approved selectively. The Singapore case highlights that unchecked hyperscale growth can create oversupply and grid bottlenecks lessons highly relevant for Indonesia as it navigates its own wave of hyperscale investment.

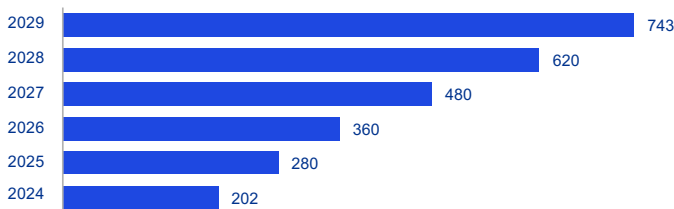
# Reliability has become the new currency of competitiveness in Indonesia's digital economy

## AI-ready infrastructure as differentiator

Artificial intelligence workloads are reshaping the fundamentals of data center infrastructure. Traditional racks with power densities of 5-10 kW are being supplanted by AI-optimized racks requiring 30-50 kW or more. Supporting such demand necessitates advanced cooling and power distribution systems, which most existing facilities are not equipped to provide.

Global benchmarks illustrate this shift: for example, Equinix's AI-ready facility in Tokyo employs liquid cooling and ultra high-density power delivery to support GPU clusters at scale. In Indonesia, AI-ready capacity is currently estimated at approximately 200 MW, compared with projected demand exceeding 2 GW by the end of the decade. By comparison, Indonesia's AI-ready ratio (10–12% of total capacity) still lags behind Singapore (~25%) and Japan (~30%), but its growth trajectory is significantly steeper, reflecting a younger market catching up through hyperscale and sovereign initiatives.

### Indonesia AI-Ready Capacity (in MW)



Notes: (a) Data points for 2024 and 2029 are sourced from the e-Economy SEA 2024 Report by Google, Temasek, and Bain & Company. Intermediate years (2025–2028) are interpolated estimates based on the reported growth trajectory.

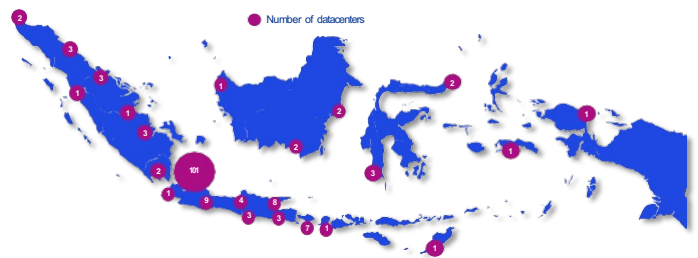
The implication is clear: operators unable to adapt risk being confined to low-value colocation services, while those capable of delivering AI-ready infrastructure will be positioned to capture premium pricing and secure strategic partnerships.

## Edge Computing and the Archipelago Challenge

Delivering digital services across more than 17,000 islands through centralized infrastructure alone is impractical, particularly for latency-sensitive applications such as financial technology, logistics, and online gaming.

The deployment of edge data centers in secondary cities offers a viable solution, reducing latency from several hundred milliseconds to only a few.

### Indonesia's data center footprint map



Notes:  
 (a) Number of datacenters of Jakarta (94), Bogor (5), Bekasi (2) are combined of 101 datacenters  
 (b) Number of datacenters of Bandung (8) and Cirebon (1) are combined of 9 datacenters  
 (c) Number of datacenters of Semarang (2) and Surakarta (2) are combined of 4 datacenters  
 (d) Number of datacenters of Madiun (1), Malang (1), and Jember (1) are combined of 3 datacenters

Source: DataCenterMap. Indonesia Data Centers.

For instance, digital payment transactions in Papua are often routed through servers located in Jakarta, resulting in latency of around 300-400 milliseconds, which degrades the overall user experience. With nationwide 5G deployment accelerating, the strategic role of edge computing, capable of reducing latency to just 30-50 milliseconds via local edge nodes is expected to grow substantially, positioning it as a critical enabler for industrial IoT solutions and smart city initiatives across Indonesia.



# Data sovereignty and regulatory alignment will decide who captures the next wave of digital value

## Policy and sovereignty considerations

Data sovereignty is no longer a theoretical debate; it is becoming a regulatory requirement. **The Personal Data Protection Law ("PDP law")** requires stricter governance of personal data and increases the demand for local processing, though not all data types are subject to mandatory localization. For multinational firms, this creates both a compliance burden and a market opportunity: local providers who can guarantee sovereignty and compliance may become preferred partners, even against larger global players.

Indonesia must decide whether to position sovereignty as a strategic differentiator, much like China did with its strict localization laws, or remain more open like Singapore, which prioritizes FDI and cross-border flows.

## Regulatory and policy pressures

Indonesia's regulatory landscape is shaping data center strategy as much as demand fundamentals. **The PDP Law** establishes stricter requirements on data handling and accelerates demand for local storage infrastructure.

**Government Regulation 71/2019** further defines when offshore storage is permitted versus when localization is mandatory, creating both compliance obligations and opportunities for domestic operators. Against this backdrop, data sovereignty is emerging as a strategic differentiator: unlike Singapore, which positions itself as an open regional hub, or China, which enforces highly restrictive controls, Indonesia is developing a hybrid model that rewards providers who embed compliance-by-design into their offerings.

## As Indonesia moves from expanding capacity toward building resilience, sustainability will define the next phase of growth





03

# Designing for resilience and sustainability:

Power, cooling, and green data centers

# Innovation is no longer optional, sustainability, intelligence, and compliance now define competitiveness

As data consumption continues to rise, data centers are under growing pressure to cut emissions, save water, and improve energy efficiency, without compromising the uptime. As such, operator and designers must leverage renewable energy, implement high-efficiency cooling systems, and adopt sustainable design principles to ensure digital growth remains environmentally responsible.

## New practices



Several new practices to improve efficiency have been implemented as below:

- ECL's a California-based startup offers sustainable digital infrastructure entirely powered by green hydrogen fuel cells and using closed-loop cooling water without external water use.
- With the hyperscale infrastructure built to ANSI/TIA-942-B rated 3 standard, the use of Hydrotreated Vegetable Oil ("HVO") powered backup systems and self-generation has made Scala Data Centers the leading energy efficiency and carbon neutral operations.
- Edgnex Data Centers has invested an AI-ready data center in Jakarta and aiming for power usage efficiency ("PUE") of 1.32 with the help of AI.

## Emerging technologies



Recent advancements in AI, mainly in Deep Reinforcement Learning ("DRL"), offers dynamic power optimization, making it ideal for the integration of renewable energy with traditional power grids. This will enhance energy efficiency, reduce dependency on traditional power sources, and lower carbon emissions.

## Regulatory & investor pressure



- Environmental, social, and governance ("ESG") metrics are no longer optional. Global Real Estate Sustainability Benchmark ("GRESB") increased participation means sustainability performance is now financially material.
- Investors increasingly demand disclosures, lifecycle emissions, PUE/WUE metrics. In Europe, cloud buyers are beginning to exclude providers without scope 3 emission standards.

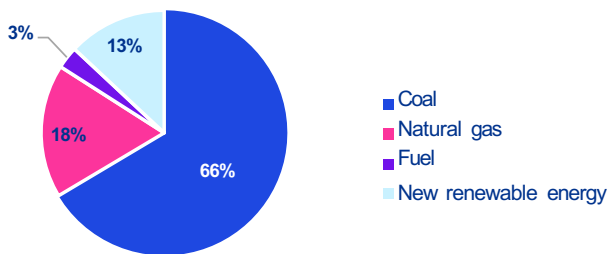


# Efficiency, intelligence, and accountability are reshaping how data centers are built and run

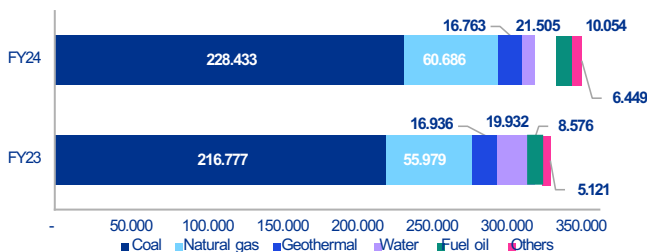
## Power as the achilles heel

Power remains the single largest cost driver and risk factor for Indonesian data centers, as a single hyperscale facility can consume as much power as a city of 150,000 households. Based on PLN's total electricity power production in FY24, coal continues to be the primary fuel power plants, contributing 228,433GWh (66,4%) out of the total production 348,892GWh, while the new renewable energy only contributing 44,717GWh (13,0%). This indicates that Indonesia grids may lack the capacity to sustainably support the projected 18,993 GWh data center power demand by 2030. This forces operators to explore hybrid strategies such as captive solar & geothermal plants, private power purchase agreements (PPAs), and gas peaker (power plant) for peak load balancing. Without such diversification, operators risk not only outages but also reputational damage in a global market where ESG scrutiny is increasing.

### PLN's electricity power by fuel type in FY24



### PLN electricity power production by type of power plant fuel (in GWh)

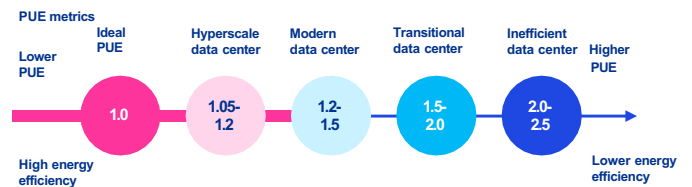


## Cooling efficiency and innovation (1/2)

Cooling contributes 30–40% of total energy use in data center and plays vital role in managing heat produced by

various IT equipment to maintain optimal performance and prevent equipment failure. Indonesia's humid tropical climate compounds the challenge, limiting efficiency gains from traditional systems. As a result, it is more difficult for operators to achieve energy efficiency and maintain optimal operations using traditional cooling systems alone.

In order to address these challenges, data center has started to adopt advanced cooling system such as liquid cooling system, that could reduce energy consumption by up to 40%. Key approaches include: (i) immersion cooling where servers are submerged in coolant fluid; and (ii) direct-to-chip where coolant circulates through cold plates mounted directly on top of the chip. Operators in Japan and Singapore have already demonstrated success in reducing PUE (Power Usage Effectiveness) below 1.2. If Indonesian providers can replicate these efficiencies, they will not only cut operating costs but also position themselves as leaders in sustainable infrastructure.



### Average PUE by type of cooling system

Type	Average PUE
Immersion cooling	1.02-1.04
Liquid cooling	1.07-1.24
Evaporative cooling	1.06 - 1.33
Air cooling	1.5 - 2.0

Source: (1) dgtlinfra; (2) energyinformatics.springeropen.com; (3) datagarda.com; (4) datacenterdynamics.com

# Balancing power, water, and cost, redefining cooling efficiency for Indonesia's climate reality

## Cooling efficiency and innovation (2/2)

While PUE focuses on energy consumption, water usage effectiveness ("WUE") measures how efficient data center manage its water usage, which is an equally important factor to achieve overall cooling efficiency. For example, Microsoft with its next generation data center has adopted closed-loop liquid cooling, and reported WUE of 0.30 L/kWh, a 39% improvement from previous WUE of 0.49 L/kWh. On the other hand, Equinix with mixed of cooling methods, reported average WUE of 0.95L/kWh for its entire data center portfolio. For comparison, Equinix data center that still use evaporative cooling reported a higher WUE of 1.55 L/kWh.

WUE and PUE are closely linked because cooling choices affect both water and energy efficiency", as explained below:

- Air cooling uses no water but increases energy consumption, hence raising PUE.
- Evaporative cooling reduces energy usage but consumes more water, hence, increasing WUE.
- Liquid cooling provides the best performance for both water and power efficiency but comes at the expense of capital costs.

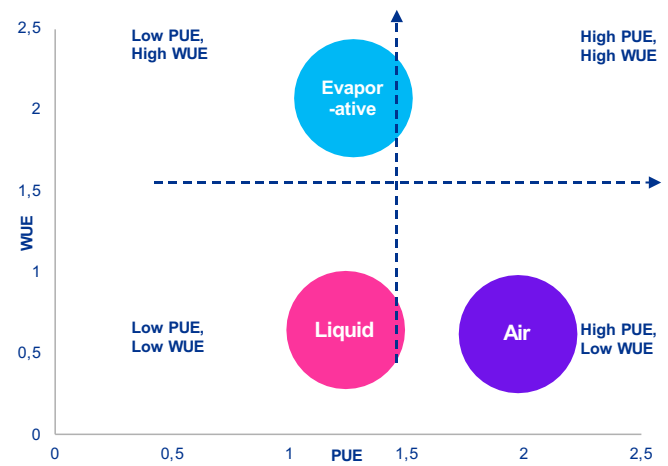
Therefore, data center operators must pick a cooling technology that well suited for their respective environment situation.

Average PUE by type of cooling system		
Cooling systems	Typical WUE (in L/kWh)	Remarks
Evaporative cooling	>2.0	Use water evaporation to cool IT equipment, hence consume more water
Immersion and liquid cooling	0<	Minimal to no water usage
Air (traditional) cooling	-	No water usage

Source: semianalysis.com

The following chart illustrates the trade offs between PUE and WUE across different cooling system.

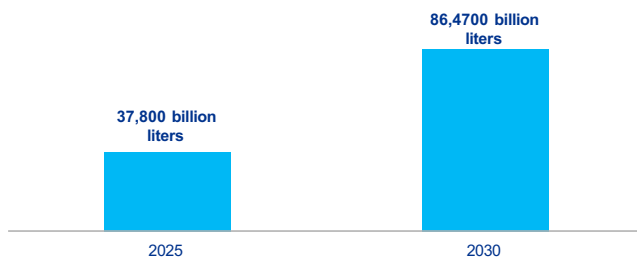
Illustrative PUE vs WUE trade-off by cooling systems



# Sustainability has become strategy. Water, land, and ESG now decide who leads Indonesia's data future

## Water and land constraints

### Illustrative PUE vs WUE trade-off by cooling systems



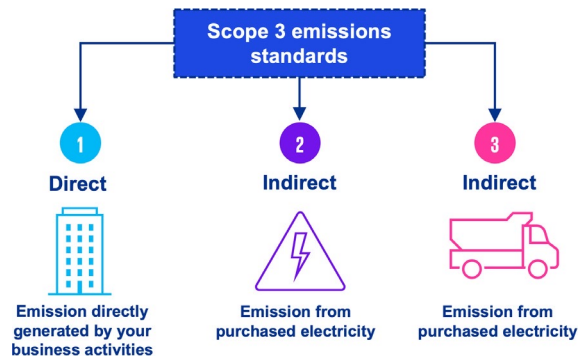
Source: mordorintelligence.com

Beyond electricity, water scarcity and land constraints are becoming critical bottlenecks. Conventional cooling systems consume vast amounts of water as Indonesia's data centers are projected to consume 86.5 billion liters of water by 2030, reflecting 18.0% of CAGR, intensifying the competition for water sources with local communities. It should be noted that due to the excessive of groundwater extraction, Jakarta is facing land subsidence rate ranging from 12 – 18 cm per year which increase the flood risk.

Indonesia is facing land the land shortage in Jakarta and its surrounding area is driving data center to be built on the outskirts, resulting in higher logistical costs and increased latency. According to Badan Perencanaan Pembangunan Nasional ("Bappenas"), Jakarta has a total area of 662 square kilometers, and houses a population of 10.5 million, making Jakarta highly populated. Furthermore, 90% of the total area has been developed, with 85.6% allocated for residential area. This land profile presents land constraints for future development, including data centers.

Smart site selection, near renewable power sources, fiber routes, and water recycling infrastructure will be a strategic differentiator. Operators who ignore these constraints may face community backlash, as seen in Taiwan where protests halted new builds.

## ESG as competitive strategy



Source: ourcarbon.com

ESG standards is no longer checkbox compliance exercise; it has become decisive factor in procurement decisions. Multinational clients increasingly demand carbon-neutral operations and proof of ESG compliance in RFPs. For example, European cloud buyers are beginning to exclude providers without scope 3 emission standards.

In Indonesia, PT Ekagrata Data Gemilang ("EDGE DC ") is leading by example as their EDGE1 facility in downtown Jakarta now uses 100,0% renewable energy certificates ("RECs") from PLN, marking a significant milestone in the development of sustainable data centers in Indonesia. Furthermore, the upcoming EDGE2 facility will introduce innovative cooling technology from Nortek Statepoint, with design PUE of 1,27, below the global average of 1,55.

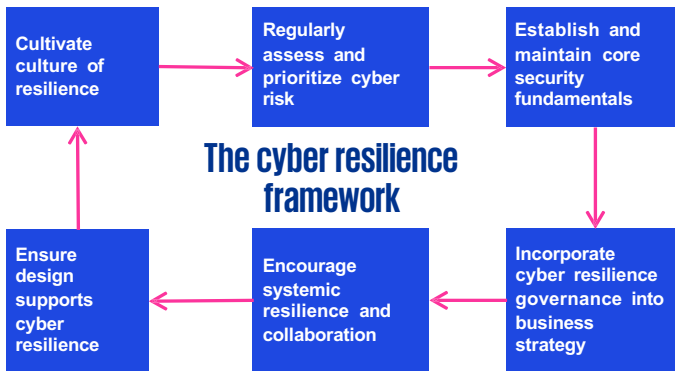
Operators who invest early in renewable integration and transparent ESG reporting will gain access to premium clients and avoid being commoditized on price alone.

# Translating Indonesia's data ambitions into operational excellence

## Resilience beyond energy

Resilience now extends far beyond uptime. Cyberattacks, regulatory obligations, and disaster exposure require operators to harden digital and physical safeguards. Therefore, operators must invest in:

- **Cyber resilience frameworks, particularly against ransomware.** As an example, in 2024, Indonesia's National Data Center was attacked by ransomware, affecting over 230 government agencies, highlighted critical vulnerabilities. Alarmingly, 98% of the compromised data lacked proper backups. Implementing advanced threat detection systems and comprehensive data backup strategies are essential to mitigate such risks.



Source: nospec.com

- **Business continuity planning (BCP) and disaster recovery (DR) protocols** to ensure uninterrupted service and quick recovery from disruptions. Due to Indonesia's location in earthquake and flood-prone zones many data centers are at risk, making redundant infrastructure, offsite backup, and rigorously tested recovery centers are critical.
- **Transparent compliance reporting** to build trust with regulators and clients. For instance, publishing annual ESG and resilience audits can differentiate providers in competitive tenders.

By adopting these strategies, Indonesian data centers can ensure uninterrupted services, protect critical data, and contribute to the nation's digital infrastructure's long-term sustainability.





**04**  
**From**  
**infrastructure**  
**to value:**

**Monetizing digital services through  
cloud, edge, and AI**

# Indonesia's digital infrastructure is evolving from utility to value creator

Indonesia is at an inflection point where digital infrastructure is no longer a purely technical asset but a strategic lever of national economic growth. For example, research by Microsoft and Access Partnership estimates that generative AI could unlock more than USD243.5 billion in economic production capacity, equivalent to roughly 18% of Indonesia's 2022 GDP. This underscores why investment in cloud, edge, and AI infrastructure is critical: it enables not just connectivity, but measurable economic value creation.

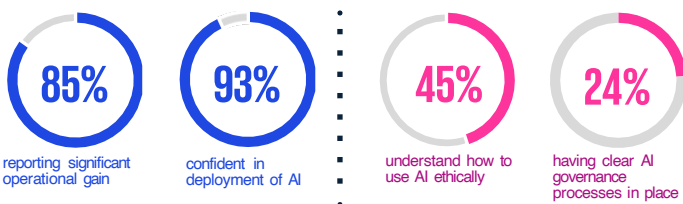
## Production in Indonesia potentially unlocked by generative AI (USD billions)

**USD243.5** billion



Source: Access Partnership & Microsoft, *The Economic Impact of Generative AI: The Future of Work in Indonesia (2023)*.

However, the ability to capture this opportunity is constrained by governance and policy gaps. An IBM study highlights that while many businesses are ready to adopt AI, fewer are prepared with the necessary ethical frameworks, governance models, and skilled workforce. This points to the need for operators and policymakers to move in parallel advancing infrastructure, regulation, and talent development together.



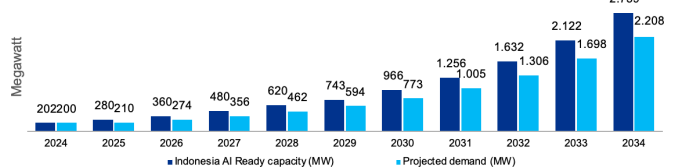
Source: IBM Study: *Indonesia Businesses Primed for AI, But Face Gaps in Security, Infrastructure, Ethics and Talent*

At the same time, the future of AI in Indonesia will hinge on local context and language. Initiatives such as Sahabat-AI, a collaboration between Indosat and GoTo, show the importance of building local-language models that reduce latency, align with cultural norms, and meet regulatory requirements. Data centers that can support training of such models locally will be crucial in sustaining this momentum.

To realize these ambitions at scale, Indonesia will also need innovative financing and sovereign strategies. Proposals for a "Sovereign AI Fund" for 2027-2029 illustrate how public-private investment vehicles can reduce the risk borne by early movers, while projects such as the DayOne - INA data center campus in Batam (backed by an IDR 6.7 trillion loan) demonstrate that large-scale local financing is already underway. Together, these developments highlight a pathway where infrastructure investment, governance reform, local innovation, and financing strategies converge to create a resilient and value-driven digital ecosystem for Indonesia.

## Indonesia: AI-ready capacity vs Projected demand

Indonesia: AI-ready capacity vs Projected demand



Notes:

(a) Data points for 2024 and 2029 are sourced from the e-Economy SEA 2024 Report by Google, Temasek, and Bain & Company. Intermediate years (2025–2028) are interpolated estimates based on the reported growth trajectory.

(b) Projected demand in MW are sourced from Asia News Network from the statement of Chairman IDPRO, Hendra Suryakusuma. The data are interpolated estimates based on the projection stated.

Source: Google, Temasek, Bain & Company. e-Economy SEA 2024 Report; Asia News Network – "Indonesia missing AI data centre opportunity despite having all it takes"

## DayOne-INA Data Center Financing in Batam

DBS Group and UOB have extended a IDR6.7 trillion (USD411 million) loan to finance the development of a data center campus at Nongsa Digital Park, Batam. The project is a joint initiative between DayOne, a Singapore-based data center operator, and Indonesia's sovereign wealth fund, INA, marking INA's first investment in the sector. Once completed by end-2025, the campus will host three facilities with a combined capacity of 72 MW, equivalent to around 5% of Indonesia's projected 1.41 GW by 2029. This transaction represents the largest rupiah-denominated data center financing to date, underscoring growing investor appetite for infrastructure supporting AI and cloud computing in the region.

# Cloud, Edge, and AI are redefining the data center's role in the digital value chain

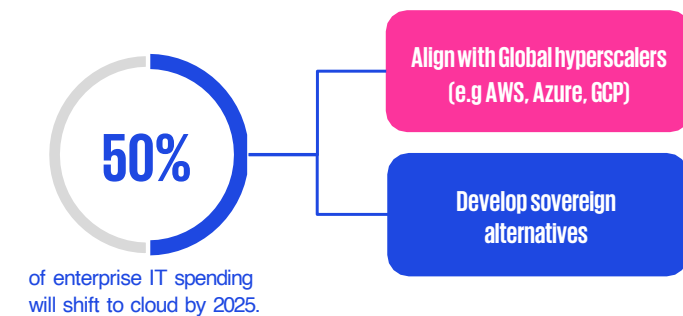
## Cloud native services as default

Indonesia Data Center Revenue Mix (2025 - 2030 Projection)					
Segment	Description	2025 Share	2030 Share	CAGR (approx.)	Key drivers
Colocation Services	Rack leasing & managed hosting	68.0%	45.0%	~14%	Legacy enterprise demand, banking & telco workloads
Cloud-as-a-Service (IaaS/PaaS)	Hyperscale + private cloud tenants	15.0%	25.0%	~25%	Cloud migration, government workloads
Edge Computing Services	Regional micro-DCs, low-latency nodes	3.0%	12.0%	~45%	5G rollout, IoT, fintech & gaming
AI-as-a-Service (GPU/ML workloads)	GPU hosting, AI platform training/inference	2.0%	10.0%	~60%	GPU clusters, sovereign AI fund, localized LLMs
Compliance / Sovereign Hosting	PDP-law-aligned, regulated-sector clients	7.0%	8.0%	~20%	PDP Law 2022, GR 71/2019 localization
Value-Added Services (Interconnect, ESG, DR)	Connectivity hubs, green PPAs, DRaaS	5.0%	10.0%	~30%	ESG premium clients, regional interconnectivity

Source: Company reports (DCI, NeutraDC, PDG, NTT, Equinix), and ASEAN DC market analogs (Singapore, Malaysia, Thailand)

Enterprise IT spending is rapidly shifting toward the cloud, driving demand for partners that can deliver hybrid and multi-cloud solutions, containerized environments, and secure cloud-native platforms. For Indonesian operators, the strategic challenge lies in choosing whether to align with global hyperscalers or to develop sovereign alternatives tailored to local needs.

**Strategic question: Should Indonesia partner with hyperscaler or build sovereign cloud alternatives?**



Source: Gartner

## Edge as growth multiplier

Edge computing gives Indonesia an opportunity to reduce latency while creating new sources of revenue. Through Edge-as-a-Service, operators can deliver packaged

compute, storage, and analytics directly closer to end users. This can unlock practical use cases, such as logistics firms using local edge nodes for real-time fleet tracking, or gaming companies improving the speed and experience of multiplayer play.

For Indonesia's outer islands i.e., Sumatra, Kalimantan, Sulawesi, and Papua, edge nodes could dramatically improve digital services, enhance user experience, and support regional economic growth.

## Revenuestream wheel: Edge-as-a-service



Source: Ericsson – Enabling demanding use cases with CSP edge computing; Verizon – Edge computing and the future of telecommunications; Lumen – 5 edge computing use cases revolutionizing retail; ObjectBox – Why Edge AI is crucial for retail and POS systems in 2025; STL Partners – 10 Edge computing use case examples.

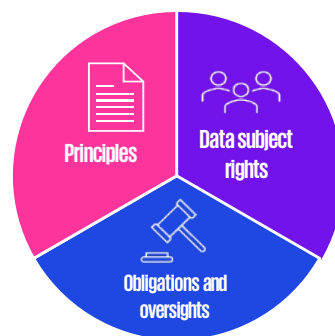
# To capture this value, Indonesia must build compliant, collaborative, and resilient ecosystems

## AI and GenAI services

Artificial intelligence has shifted from being optional to becoming a competitive imperative. A large majority of global executives view AI adoption as critical to their organizations' future. For data center operators, this creates significant monetization opportunities, including providing GPU-as-a-Service, hosting AI inference workloads, and delivering curated generative AI platforms tailored for industries such as banking, manufacturing, and healthcare. In practice, this could enable an Indonesian bank, for example, to train fraud detection models locally, improving latency performance and strengthening compliance with regulatory requirements. The key challenge lies in cost: GPUs remain scarce and highly expensive. Operators that succeed in establishing partnerships with hardware providers such as Nvidia or AMD, and in deploying scalable GPU clusters, will be well positioned to attract and retain high-value clients.

to foreign-only players. In the longer term, regulatory compliance itself is expected to evolve into a monetizable service, with enterprises willing to pay premiums for "sovereign-certified" hosting environments.

## Indonesian Compliance PDP Framework



Source: UU No. 27 Tahun 2022 ([www.peraturan.go.id](http://www.peraturan.go.id))

## Opportunities and challenges for artificial intelligence monetization

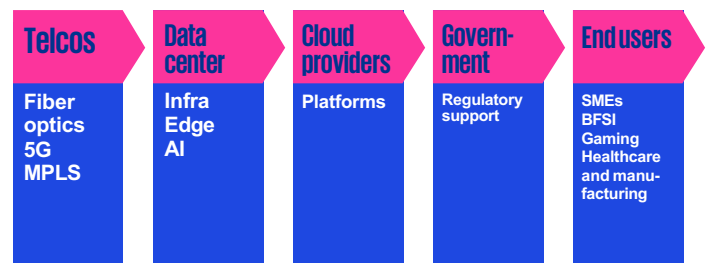
Opportunities	Challenges
<ol style="list-style-type: none"> <li>GPU as-a-service</li> <li>AI inference hosting</li> <li>Curated AI-platforms</li> </ol>	<ol style="list-style-type: none"> <li>High GPU cost and capacity</li> <li>Need for partnership</li> </ol>

## Ecosystem partnership

Data center operators must move beyond a siloed mindset. The future lies in ecosystems: telcos bringing fiber and customer reach, cloud providers bringing platforms, and government agencies providing regulatory backing. For example, a telco-DC partnership could bundle connectivity, edge computing, and AI analytics for SMEs, creating an end-to-end digital infrastructure package. Ecosystem thinking allows operators to scale faster, diversify revenues, and lock in client loyalty.

## Data sovereignty and compliance as value propositions

Indonesia's PDP Law, together with sector-specific regulations, is shaping a market for compliance-driven hosting solutions. Financial institutions and telecommunications companies are generally restricted from placing sensitive workloads offshore, creating a structural advantage for domestic operators. Local providers that adopt a compliance-by-design approach, incorporating audited controls, strong encryption protocols, and regulatory reporting mechanisms are better positioned to secure contracts that remain inaccessible



# To capture this value, Indonesia must build compliant, collaborative, and resilient ecosystems

## Risks in monetization

Regional experience has shown that overextending into services without clear differentiation can be costly. Several providers that attempted to launch cloud services in direct competition with global hyperscalers like AWS or Azure ultimately failed, with most ventures closing within two years.

### Lessons Learned from Telco-backed Cloud Failures in Southeast Asia in the 2010s

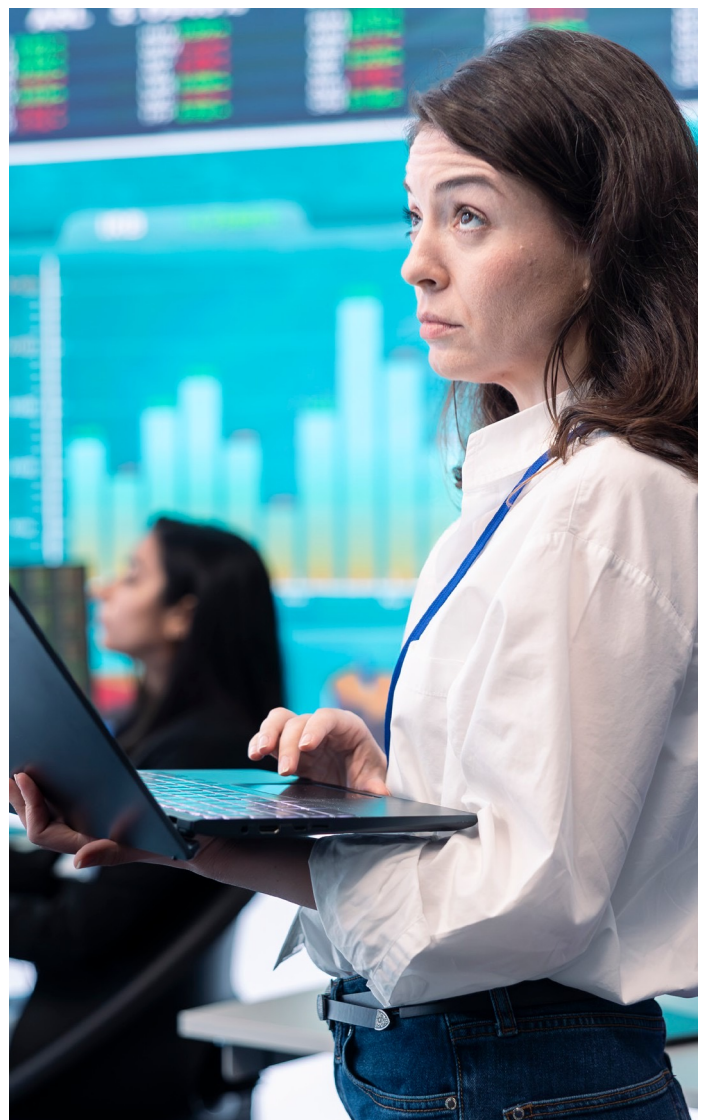
In the mid-2010s, several regional telcos (e.g., Telekom Malaysia's Cloud α, Telkom Indonesia's TelkomCloud, and PLDT Enterprise Cloud in the Philippines) tried to launch their own public cloud platforms. The idea was to replicate AWS or Azure, offering compute and storage services at scale. However, these offerings failed to gain traction. Customers preferred hyperscalers for their vast ecosystem, global reach, and continuous innovation. Local providers struggled with high infrastructure costs and could not match the pace of feature development. Once regulatory barriers eased, enterprises migrated workloads to AWS or Azure, leaving local services with low utilization. By the late 2010s, most of these telco clouds were either shut down or pivoted into hybrid cloud and managed services, often in partnership with the same hyperscalers they once tried to compete against.

For Indonesia, the key lesson is to develop offerings tailored to local needs, such as compliance-driven solutions (e.g. PDP law in Indonesia), Bahasa-based NLP models, vertical solutions (healthcare, fintech, government workloads) rather than duplicating global products.

At the same time, cybersecurity remains a critical vulnerability. A single breach can undermine years of brand-building, as demonstrated in 2023 when a Southeast Asian data center operator lost major clients after failing to contain a ransomware attack. Without robust safeguards, AI hosting or cloud services risk becoming prime targets. This highlights the need for investment in Security Operations Centers, zero-trust frameworks, and continuous monitoring before any meaningful service expansion. Finally, operators must recognize that there is no one-size-fits-all model. Some will succeed by focusing on hyperscale colocation, while others may thrive as orchestrators of multi-cloud and AI platforms. Strategic clarity is therefore essential: Trying to be everything risks becoming mediocre at everything.

## Conclusion:

Indonesia's data center sector is at a crossroads. The choices made in the next five years, regarding tier migration, power strategy, ESG integration, and service monetization will determine whether the country becomes a regional hub for intelligent and sustainable infrastructure or remains a follower in the global digital economy. The opportunity is immense, but so are the risks. Stakeholders must align vision, capital, and execution to ensure Indonesia moves beyond capacity into intelligence, resilience, and value creation.



# Call to action

**The next five years will test Indonesia's ability to translate digital ambition into operational excellence. Aligning government incentives, private capital, and sustainability goals will be critical to achieving that vision.**

Developing sustainable data centers is a complex but manageable task. By treating them as active participants in the energy ecosystem and leveraging technology, strategic partnerships, and thoughtful policy, the industry can transform this infrastructure from a sustainability challenge into a cornerstone of a resilient, low-carbon digital economy.

The future of data centers will rely on sustainable business models. It will transform both customers and investors from passive resource consumers into one that demands sustainable digital infrastructure that becomes a key infrastructure as it integrates clean energy, water (for cooling), and materials (critical minerals, etc.). This outlook means that the market moves beyond environmental imperatives by future-proofing the economy.





# Contact us

## **PT KPMG Siddharta Advisory**

21<sup>st</sup> Floor Menara Astra  
5-6, Jl. Jend. Sudirman  
Jakarta 10220  
T: +62 (21) 8060 2828

## **Irwan Djaja**

Chief Executive Officer  
PT KPMG Siddharta Advisory

[kpmg.com/id](https://kpmg.com/id)

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