NAVIGATING ASEAN

ASEAN Strategy

The road ahead for data centres in ASEAN

- We see Malaysia and Indonesia emerging as prime beneficiaries in ASEAN from strong global demand growth for new data centres amid AI proliferation.
- Our report discusses implications for relevant sectors in the region, such as telecom, real estate, power producers, tech manufacturing and construction.
- We prefer players involved in the value chain of data centre construction over operators as they also benefit from the surge in investment by hyperscalers.

Analyst(s)

Thanapol JIRATANAKIJ
T (66) 2 761 9224
E thanapol.ji@cgsi.com
Prem JEARAJASINGAM
T (60) 3 2635 9288
E prem.jearajasingam@cgsi.com
LOCK Mun Yee
T (65) 6210 8606
E munyee.lock@cgsi.com
Bob SETIADI
T (62) 21 3006 1724
E bob.setiadi@cgsi.com
Dharmini THURAISINGAM
T (60) 3 2635 9289
E dharmini@cgsi.com
CHONG Tjen-San, CFA
T (60) 3 2635 9298
E tjen-san.chong@cgsi.com
Natalie ONG
T (65) 6210 8662
E: natalie.ong@cgsi.com

TABLE OF CONTENTS

ASEAN

ASEAN Strategy

The road ahead for data centres in ASEAN

- We see Malaysia and Indonesia emerging as prime beneficiaries in ASEAN of strong global demand growth for new data centres amid AI proliferation.
- Our report discusses implications for relevant sectors in the region, such as telecom, real estate, power producers, tech manufacturing and construction.
- We prefer players involved in the value chain of data centre construction over operators as they also benefit from the surge in investment by hyperscalers.

Rising data usage and AI are key drivers for data centres

According to DC Byte, data centre capacity in ASEAN could increase by more than fourfold from 1,677MW in 1Q24 to 7,589MW by 2028F. This growth trend is underpinned by: 1) a rapid increase in the region's data usage from the proliferation of internet-connected devices, 2) additional computation demand due to increased artificial intelligence (AI) training, and 3) land and power availability constraints in the primary markets.

Growing opportunities in secondary and tertiary markets

We identify Malaysia and Indonesia as prime beneficiaries of the spur in data centre investment due to their location advantage, which makes them the ideal gateway for international connectivity. Although Singapore currently has the highest data centre capacity in ASEAN, land and power constraints have pushed operators to explore alternative locations in Malaysia, Indonesia, Thailand, Vietnam and the Philippines. Based on DC Bytes projections, data centre capacity in Malaysia, Thailand, and Indonesia is expected to deliver 32-56% CAGR in 2023-28F, far outstripping the 8% CAGR forecast for Singapore. We expect the rise in data centre demand outside Singapore to be driven by both global hyperscalers (Amazon, Google and Microsoft) and colocation providers, whose clients may require computing resources for AI development and deployment.

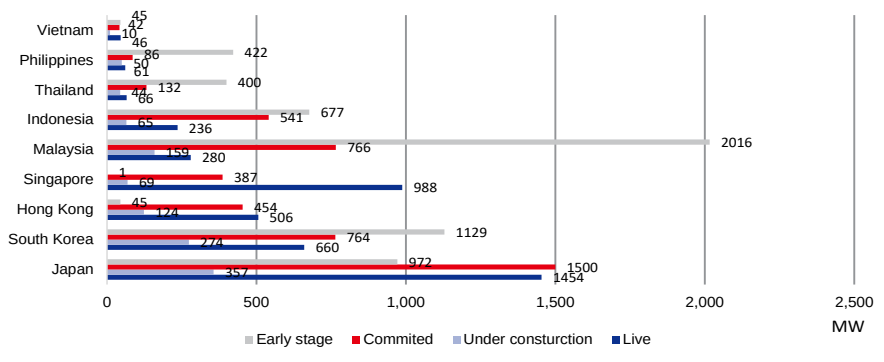
Prefer players earlier in the value chain

We believe players involved in the value chain of data centre construction (i.e. equipment providers, real estate landlords and contractors) will benefit more in the next 3-5 years vs. operators due to the current stage of the industry's growth cycle, which is still focused on building infrastructure for AI training purposes. We also note that the benefits for telecom operators may not be meaningful from an incremental earnings perspective, although they stand to gain from increased connectivity requirements from a data centre capacity boom.

Investment opportunities across MIST

Our top picks are Keppel (KEP SP; Add; TP: S$8.98; CP: S$6.5) and Singtel (ST SP; Add; TP: S$2.9; CP S$2.9) in Singapore, Gamuda (GAM MK; Add; TP: RM7.5; CP: RM6.44) in Malaysia and Amata (AMATA TB; Add; TP: THB30; CP THB21.4) in Thailand. While Delta Electronics (DELTA TB; Reduce; TP: THB60; CP THB87.25) is poised to benefit the most from data centre industry growth, we believe the upsides are fully reflected in its demanding valuations of 53x FY25F P/E. In Indonesia, we see Telkom Indonesia (TLKM IJ; Hold; TP: Rp3,600; CP Rp2,840 and DCI Indonesia (DCII IJ; Non-rated) as top beneficiaries.

Figure 1: Data centre capacity growth across APAC in 2024-28F



SOURCES: CGSI RESEARCH, DC BYTE

Highlighted Companies

Gamuda
ADD, TP RM7.50, RM6.44 close

Gamuda's edge in data centres lies in its ready IBS plant which gives it an advantage in terms of superior and faster completion compared to its competitors, with pretax margins of 10-20% in our view

Keppel Ltd
ADD, TP S$8.98, S$6.50 close

As an asset manager and operator, KEP is a potential data centre beneficiary. As at Jun 2024, KEP owns/operates 32 data centres across 10 countries globally.

Telekomunikasi Indonesia
HOLD, TP Rp3,600, Rp2,840 close

TLKM operates 32 data centres (27 in Indonesia, 5 outside Indonesia) with a total capacity of 42MW 1Q24. According to TLKM, the company plans to increase its data centre capacity to 55MW in 2024F and 400MW by 2030F.

Summary Valuation Metrics

P/E (x)	Dec-24F	Dec-25F	Dec-26F
Gamuda	15.66	13.54	12.37
Keppel Ltd	11.57	10.98	11.01
Telekomunikasi Indonesia	10.69	10.44	10.47

P/BV (x)	Dec-24F	Dec-25F	Dec-26F
Gamuda	1.45	1.35	1.25
Keppel Ltd	1.05	1.01	0.98
Telekomunikasi Indonesia	1.95	1.84	1.74

Dividend Yield	Dec-24F	Dec-25F	Dec-26F
Gamuda	1.87%	1.86%	1.86%
Keppel Ltd	5.59%	5.89%	6.24%
Telekomunikasi Indonesia	6.33%	6.48%	6.45%

Analyst(s)

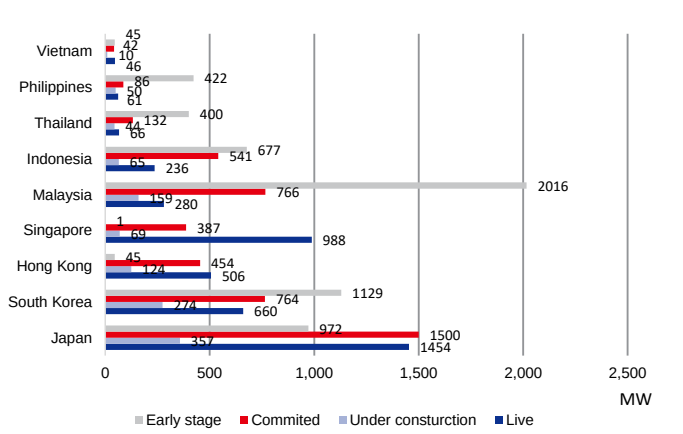
Thanapol JIRATANAKIJ
T (66) 2 761 9224
E thanapol.ji@cgsi.com
Prem JEARAJASINGAM
T (60) 3 2635 9288
E prem.jearajasingam@cgsi.com
LOCK Mun Yee
T (65) 6210 8606
E munyee.lock@cgsi.com
Bob SETIADI
T (62) 21 3006 1724
E bob.setiadi@cgsi.com
Dharmini THURAISINGAM
T (60) 3 2635 9289
E dharmini@cgsi.com
CHONG Tjen-San, CFA
T (60) 3 2635 9298
E tjen-san.chong@cgsi.com
Natalie ONG
T (65) 6210 8662
E: natalie.ong@cgsi.com

KEY CHARTS

Data centre capacity ASEAN is projected to increase rapidly over the next 5 years

According to DC Byte, data centre live supply in APAC to increase from 11.1GW in 2023 to 26.7GW in 2028F. This presents a growth rate of 19.1% CAGR for the APAC region vs. 16.7% CAGR for the Americas and 13.6% CAGR for Europe, the Middle East and Africa (EMEA).

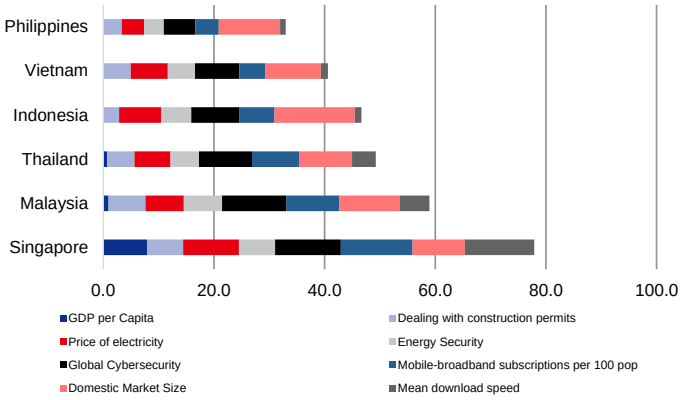
Within ASEAN, Malaysia and Indonesia are seeing the strongest potential for new data centre development with the combined supply in the committed and early stages of 2,781MW and 1,218MW respectively.



Singapore and Malaysia stand out as best locations in ASEAN for data centres

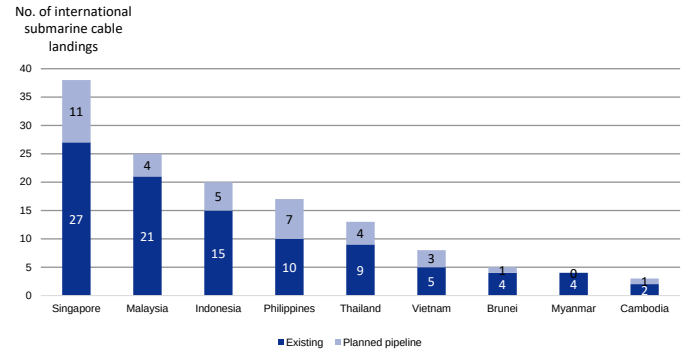
According to Cushman & Wakefield, power availability, land availability, and domestic market size are the most critical factors for data centre site selection due to their impact on operational efficiency, reliability, and scalability.

According to Bloomberg's score for data centre investment attractiveness, Singapore and Malaysia stand out as the best locations for data centre construction in Southeast Asia due to their robust power and telecom infrastructure.



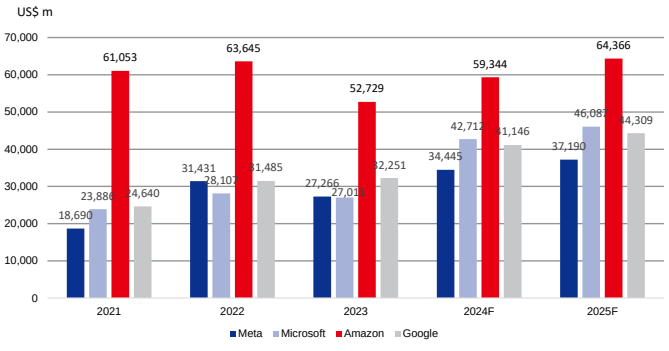
29% of the 97 international submarine cables in ASEAN land in Singapore

According to TeleGeogeography, Singapore is the most connected nation within ASEAN, with 27 cable landings. As a city, it is also the most connected in ASEAN, hosting the highest density of data centres in the region based on DC Byte estimates. According to TeleGeography, there are a further 36 cable landings planned in ASEAN from 2H24 till 2027F, through the building of 13 new cables, with Singapore again gaining the greatest number of new landings.



Money pouring into the development of cutting-edge AI models

According to Bloomberg consensus forecasts, capex for major tech companies, namely Meta (META US, non-rated), Microsoft (MSFT US, non-rated), Amazon(AMZN US, non-rated) and Google (GOOGL, non-rated), is expected to increase substantially by 29% yoy to US$177bn in FY24F. The surge in investment is led by hyperscalers' development of proprietary large language models (LLM) for their cloud infrastructure, we believe.



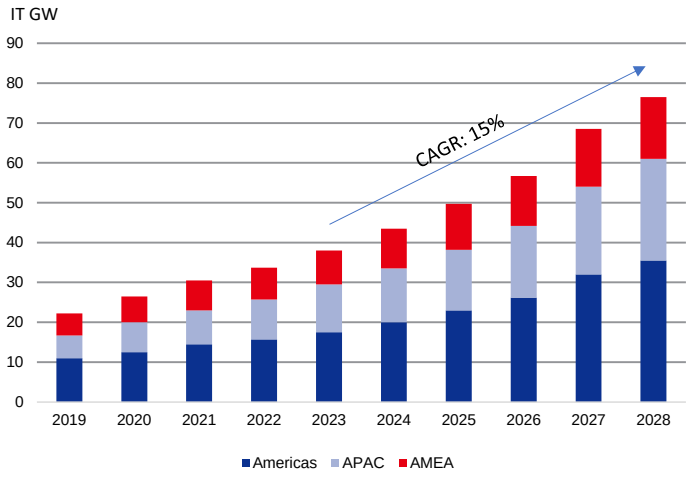
SOURCES: CGSI RESEARCH, BLOOMBERG, DC BYTE,TELEGEOGRAPHY

The road ahead for data centres in ASEAN

Executive summary

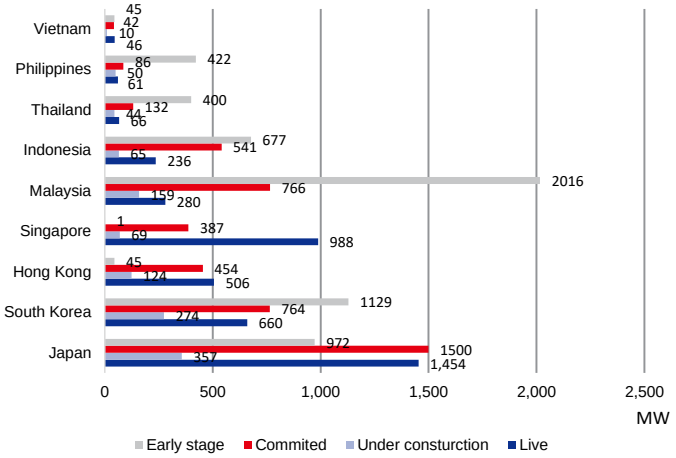
Riding the wave of data centre growth »

Figure 2: Data centre global live supply projection by DC Byte



SOURCES: CGSI RESEARCH, DC BYTE

Figure 3: Data centre supply in key APAC countries (2024-2028F)



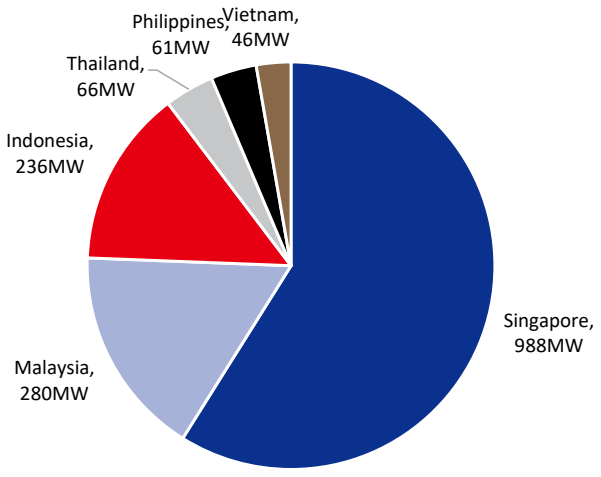
SOURCES: CGSI RESEARCH, DC BYTE

According to DC Byte, global data centre live supply grew by 20GW between 2018 and 2023 (16.6% CAGR). DB Byte also projects, using historical CAGR, data centre live supply in APAC to increase from 11.1GW in 2023 to 26.7GW in 2028F. This presents a growth rate of 19.1% CAGR for the APAC region vs. 16.7% CAGR for the Americas and 13.6% CAGR for Europe, the Middle East and Africa (EMEA).

Within ASEAN, Malaysia and Indonesia are seeing the strongest potential for new data centre development with the combined supply in the committed and early stages of 2,781MW and 1,218MW respectively.

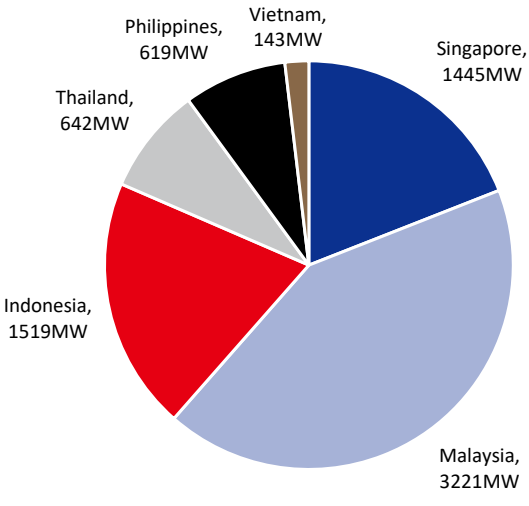
According to DC Byte, the early stage supply refers to the IT Load that has been announced or speculated, but has yet to secure all of the required elements (government, land, power, etc.) for development.

Figure 4: Data centre capacity across ASEAN in 1Q24



SOURCES: CGSI RESEARCH, DC BYTE

Figure 5: Data centre capacity across ASEAN by 2028F



SOURCES: CGSI RESEARCH, DC BYTE

*This includes new capacity that is in the planning stage but has not yet started construction as well as early stage capacity.

Malaysia and Indonesia are emerging as key data centre hubs beside Singapore

While Singapore has the highest data centre capacity among the countries in ASEAN, thanks to its strategic geographical position at the crossroads of major shipping routes and advanced infrastructure (i.e. reliable power grid and telecommunication networks), it nevertheless faces challenges, in particular, land and energy constraints, that we believe could reduce its room for growth compared to its neighbours.

These challenges could push potential data centre operators to explore alternative locations in the Southeast Asia region, in our view, making Singapore's neighbours likely beneficiaries. With this, we believe new data centre investments in Malaysia, Indonesia, Thailand, Vietnam and the Philippines could accelerate in the next 3-5 years, with Malaysia and Indonesia likely to be the prime beneficiaries thanks to their location advantage, which make the countries ideal gateways for international connectivity.

Among data centre players, hyperscalers are some of the first movers into emerging markets, forming partnerships with local governments and telecom companies. For instance, Microsoft recently announced substantial investments in Indonesia, Malaysia and Thailand over the next few years to build new cloud and AI infrastructure.

Prefer players involved in the value chain of data centre construction over operators

We believe players involved in the construction of data centres (i.e. equipment providers, real estate landlords and contractors) in Southeast Asia will benefit more in the next 3-5 years compared to operators/owners, typically colocation service providers, due to the current stage of the industry's growth cycle, which is still focused on building infrastructure for AI training purposes. We also note that the benefits for telecom operators may not be meaningful from an incremental earnings perspective even though they stand to gain from increased connectivity requirements from the boom in data centre capacity in the region.

In our view, construction-related players are poised to benefit from the additional demand for new data centre from the significant investment by hyperscalers such as Google, Amazon and Microsoft into their own data centres.

Figure 6: Key local players in data centre

	Hardware providers / Tech manufacturing	Contractors / Engineering solution	Real estate	Operators/owners	Submarine cable	Utilities
Malaysia	Unisem	Sunway construction	Eco World Development	Telekom Malaysia	Time dotcom	Tenaga
	MPI	YTL	Mah Sing	YTL Power	Telekom Malaysia	Malakoff
	Inari	Gamuda	Sime Darby Property	Time dotcom		
	Natgate		UEM Sunrise			
	ViTrox					
	PIE industry					
Singapore		Keppel		Keppel	Singtel	Keppel
		Singtel		Singtel		Semcorp
		CSE Global		ST Engineering		
				CapitaLand Ascendas Trust		
				Keppel DC Reit		
Indonesia		Multipolar Technology	Jababeka	Indosat	Telkom Indonesia	
		Surya Semesta Internusa		DCI Indonesia		
		Mastersystem Infotama		Telkom Indonesia		
				XL Axiata		
Thailand	Delta electronics	Infraset	Amata	True	Symphony	Gulf
	Hana microelectronics		WHA	AIS	True	B.Grimm
	KCE Electronics			Gulf	NT	GPSC
				NT		

SOURCES: CGSI RESEARCH, COMPANY REPORTS

Malaysia

We see construction companies as the key beneficiaries of this data centre boom, with Suncon, Gamuda and YTL Corp (TYL MK; Hold; TP: RM3.88; CP: RM3.51) our top picks. We also believe YTL Power (TYLP MK; Hold; TP RM5.5; CP: RM5.05), which has a 500MW green data centre park in Johor that will come onstream in 2024F and which has partnered NVIDIA (NVDA US; non-rated) to provide AI-focused computing infrastructure, is set to see earnings take off as its data centre capacity scales up.

Thailand

While Delta Electronics (DELTA TB; Reduce; TP: THB60; CP THB87.25) is poised to benefit the most from data centre industry growth, we believe the upsides are fully reflected in its demanding valuations of 58x/53x FY24/25F P/E. Instead, we prefer real estate players, like WHA Group (WHA TB; Add; TP THB6.35; CP THB5.05) and Amata Corporation (AMATA TB; Add; TP: THB30; CP THB21.4), who we believe stand next in line to benefit from potential big-ticket land sales to overseas hyperscalers. We also believe the increasing interest in building more data centres in Thailand will benefit contractors like Infraset (INSET TB; non-rated) and submarine cable owners like Symphony (SYMC TB; non-rated).

Singapore

Within the Singapore data centre market, we see potential beneficiaries across the industry value chain, such as owners/operators, real estate landlords, as well as energy providers. Our preference is for players that can benefit from the complete value chain, i.e. those involved from development to operating the data centre, as this will enable them to maximise investment returns. These would include SingTel (ST SP, Add, TP: SG$2.9 CP: S$2.63) and KEP (KEP SP, Add, TP: S$8.98 CP: S$6.5). We also think, with the increasing number of data centres to be completed over the next few years, energy providers such as SCI (SCI SP, Add, TP: S$7.01; CP: S$4.98) and KEP are likely to enjoy higher energy off-take and contributions from this sector.

Indonesia

We believe a key player for direct exposure to data centre is DCI Indonesia, one of the early movers in the industry in Indonesia and which has a capability to further scale up capacity to 1,000MW (2023: 83MW). Major telco operators will also try to get a bite of data centre development in Indonesia; Telkom Indonesia has invested in 32 data centres (2024F capacity 55MW) while Indosat (ISAT IJ, Hold; TP: Rp11,900; CP: Rp10,250) signed a US$200m agreement with NVIDIA to develop AI centres in Central Java, although the impact on both companies' EBITDA will still be limited in the next 3 years, in our view. Other indirect plays include private construction companies, such as Total Bangun Persada (c.20% of its project pipeline is related to data centres as at Jun 2024), and independent power providers, such as Cikarang Listrindo (POWR IJ, non-rated).

Exploring the future of data centres

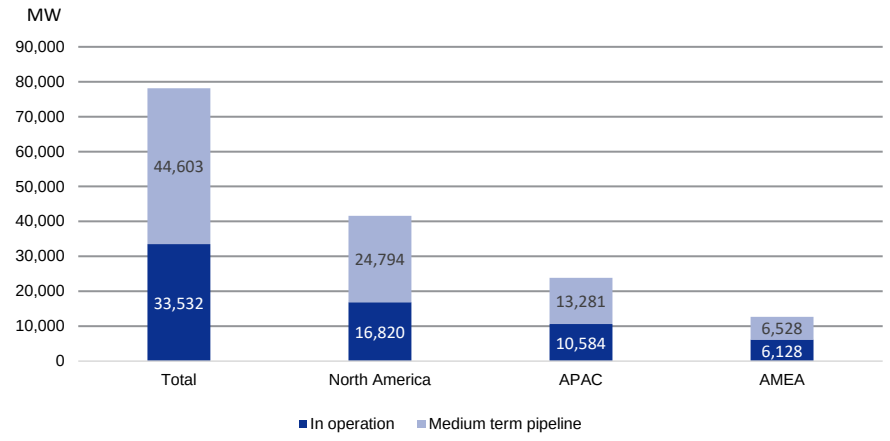
Data usage is expected to accelerate in the coming years

Data usage is increasing at an extraordinary rate due to several converging factors, including the increased usage of Internet-connected devices (i.e. smartphones, tablets and other IoT devices), which has led to an exponential rise in the amount of data generated and consumed daily. In addition, the surge in online activities, such as streaming, social media and remote working, have significantly boosted data traffic.

According to JLL (a real estate consulting firm), total global storage capacity in data centres and end-point devices will grow by 18.5% CAGR, from 10.1 zettabytes in 2023 to 21.0 zettabytes in 2027F.

Thus, the growing need for data storage also translates into growing demand for data centres, fuelling their rapid development. According to JLL, global data centre capacity is expected to reach 45GW in 2024F and increase to 72GW by 2029F, implying a CAGR of 9.7%.

Figure 7: Global data centre capacity and the medium-term pipeline, according to Cushman & Wakefield estimates (as of 1H24)



SOURCES: CGSI RESEARCH, CUSHMAN & WAKEFIELD

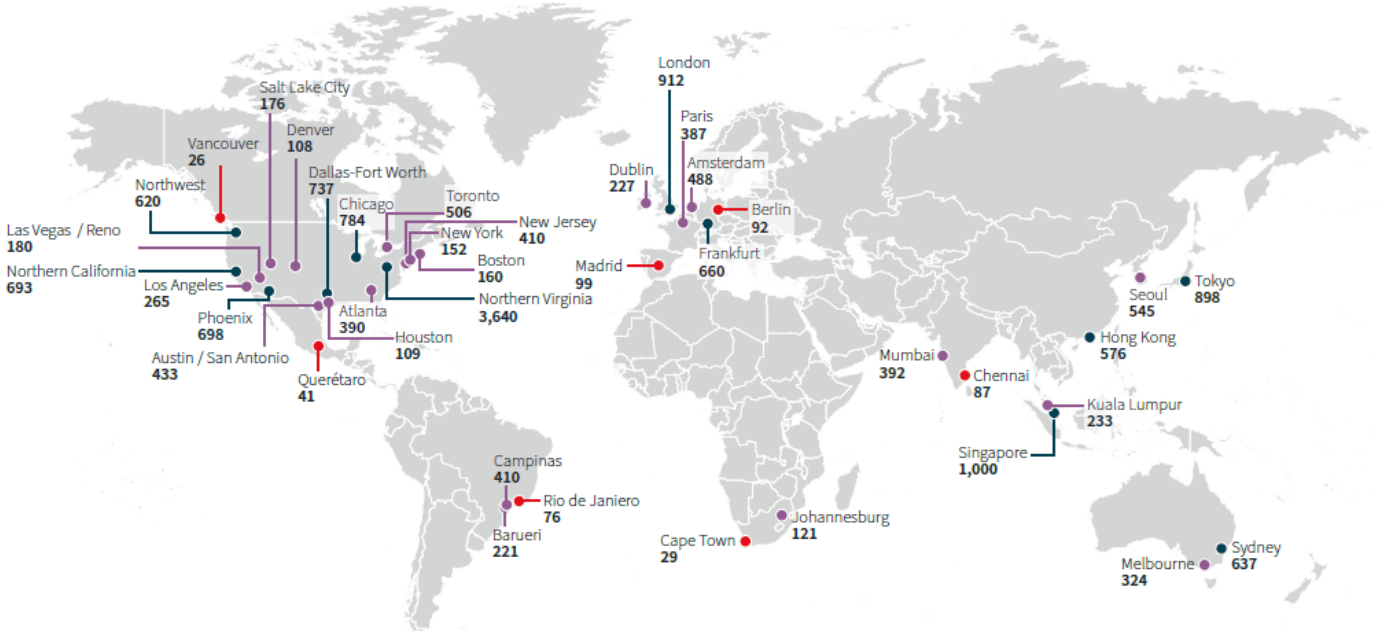
Furthermore, with the availability of land and power becoming the primary consideration for hyperscalers and colocation providers, data centre operators have increasingly turned from primary markets (i.e. Northen Virginia, London, Singapore) to secondary (Dallas, Frankfurt, Sydney) and tertiary (Mumbai, Malaysia, Indonesia) markets for sites to expand their infrastructure, according to Cushman & Wakefield.

Figure 8: Data centre market segmentation

	Established market
USA	Virginia, Atlanta, Dallas, Phoenix, Pregon, North/South Carolina, Chicago, Columbus, Toronto, San Francisco
APAC	Tokyo, Mumbai, Sydney, Beijing, Jakarta, Singapore, Johor, Kuala Lumpur, Shanghai, Hong Kong
EMEA	London, Madrid, Paris, Frankfurt, Amsterdam, Dublin, Oslo, Brussels, Stockholm, Johannesburg
	Emerging markets
USA	Kansas City, Nashville, Iowa, Minneapolis, Austin, Queretaro, Salt Lake City, Indiana, Santiago, Denver
APAC	Osaka, Hyderabad, Bangkok, Chennai, Delhi, Taipei, Guangzhou, Batam, Manila
EMEA	Milan, Zurich, Copenhagen, Warsaw, Riyadh, Zaragoza, Abu Dhabi

SOURCES: CGSI RESEARCH, CUSHMAN & WAKEFIELD

Figure 9: Global data centre colocation market size by country in MW of built-out critical IT load capacity as at June 2023



SOURCES: CGSI RESEARCH, JLL DATA CENTRES 2024 GLOBAL OUTLOOK

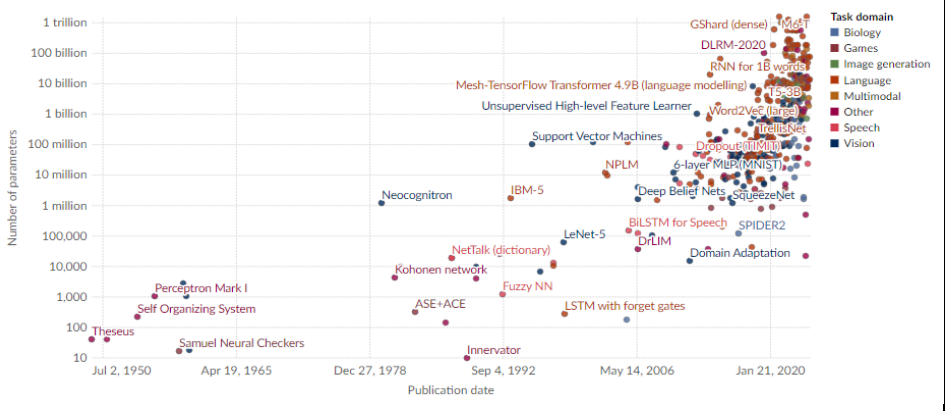
Within the Asia-Pacific (APAC) region, China currently has the largest data centre capacity with 4,134MW in operation across 244 data centres in 1Q24 according to Cushman & Wakefield. Based on Cushman & Wakefield estimates, there are also 820MW of new capacity under construction and 1,796MW in planned new capacity. India is also another rapidly growing market with 1,117MW of new capacity under construction and 1,645MW of planned new capacity which come on top of its 1,075MW of capacity in operation.

More data centres needed for AI applications

Today, AI is commonly demonstrated using devices based on semiconductors. Over the years, machine learning has adopted various algorithmic approaches, such as decision tree learning, inductive logic programming, clustering, reinforcement learning, etc., to parse input data using statistical techniques, learn from the parsed input data, and exercise the learned concept to determine or predict something relevant to the input data.

One example of an AI training method is deep learning, which is a subfield of machine learning that aims to model and simulate the human brain's neural networks to make predictions and learn from data. According to Microsoft, deep learning involves training artificial neural networks with multiple layers, known as deep neural networks, to extract features and patterns from large amounts of data.

Figure 10: Parameters in notable AI systems (1950-2024)

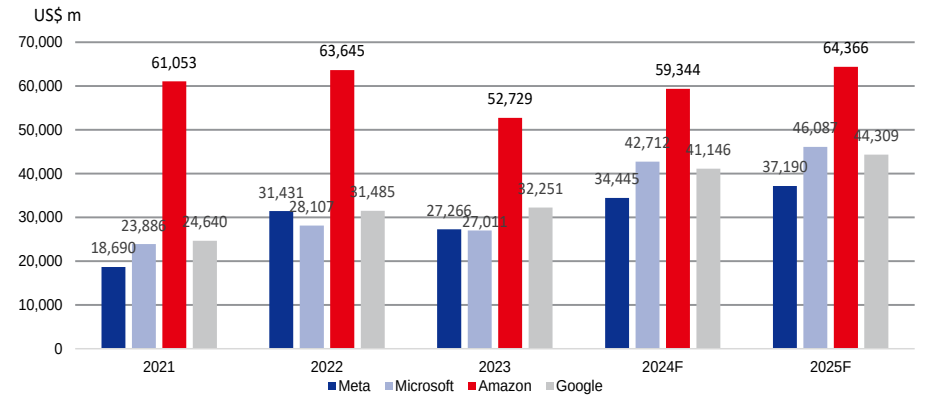


SOURCES: CGSI RESEARCH, OURWORLDINDATA.ORG, EPOCH (2024)

In recent years, as computing power and data availability have increased, the pursuit of more powerful and capable models has led to AI training parameters growing significantly. However, as AI models grow larger and require more parameters, it also requires more computational resources, necessitating the need for more data centres.

According to Bloomberg, capex for major tech companies, such as Meta, Microsoft, Amazon and Google, is expected to increase substantially by 29% yoy to US$177bn in FY24F. The spur in investment is led by hyperscalers' development of proprietary large language models (LLM) for their cloud infrastructure, in our view. According to estimates by Bloomberg, the generative AI market size is forecast to reach US$1.3tr by 2032F. In the early stages, however, we expect the bulk of investment in AI to focus on infrastructure, particularly on enhancing date centre capabilities, as robust data centre infrastructure forms the backbone of efficient AI training and inference. Consequently, a significant portion of these investments will be channelled into the various relevant hardware, such as advanced processors (CPU, GPU), memory chips, and other power-related components.

Figure 11: Hyperscaler capex projections, based on Bloomberg consensus forecasts



SOURCES: CGSI RESEARCH, BLOOMBERG, COMPANY REPORTS

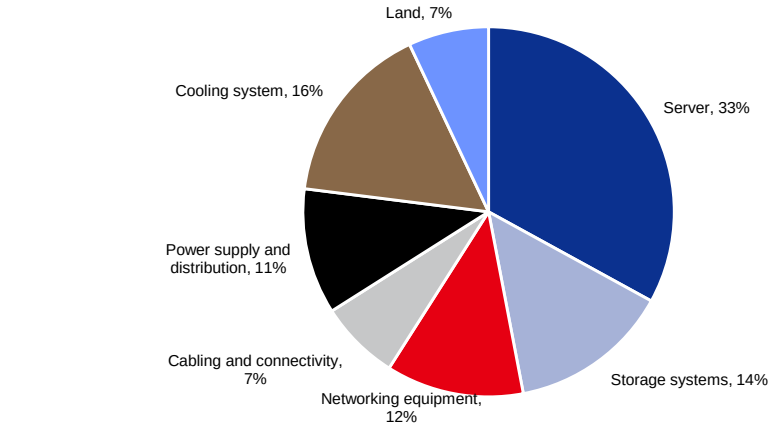
Figure 12: Generative AI revenue potential, according to Bloomberg

(in milllions of $)	2023	2027E	2032E	Implied 9 yr. CAGR (%)
Hardware	**$53,105**	**$286,903**	**$639,399**	**32%**
Devices (Inference)	$6,415	$72,703	$168,641	44%
Computer Vision AI Products	$2,749	$19,387	$58,376	40%
Conversational AI Products	$3,666	$53,315	$110,265	46%
Infrastructure (Training)	$46,690	$214,200	$470,758	29%
AI Server	$26,060	$73,984	$105,197	17%
AI Storage	$10,858	$31,707	$56,982	20%
Generative AI Infrastructure as a Service	$9,772	$108,509	$308,579	47%
Compute	$4,343	$69,756	$173,575	51%
Internal Consumption	$1,303	$20,434	$33,312	43%
Hyperscale Consumption	$3,040	$49,322	$140,263	53%
Networking	$3,257	$16,911	$43,832	33%
Inference/Fine-Tuning Cloud	$2,172	$21,843	$91,171	51%
Software	**$5,028**	**$61,680**	**$317,961**	**59%**
Specialized Generative AI Assistants	$2,489	$22,029	$95,259	50%
Enterprise Applications	$1,493	$13,217	$50,011	48%
Consumer/E-Commerce Applications	$995	$8,812	$45,248	53%
Coding, DevOps and Generative AI Workflows	$473	$13,436	$68,763	74%
Generative AI Workload Infrastructure Software	$1,195	$13,885	$80,788	60%
Generative AI Drug Discovery Software	$32	$4,561	$35,091	117%
Generative AI Based Cybersecurity Spending	$11	$3,419	$15,063	124%
Generative AI Education Spending	$829	$4,349	$22,996	45%
Generative AI Based Gaming Spending	**$533**	**$24,890**	**$83,591**	**75%**
Virtual Goods	$133	$8,889	$31,347	83%
Game Design Software	$399	$16,000	$52,244	72%
Generative AI Driven Ad Spending	**$4,624**	**$53,154**	**$206,693**	**53%**
Search	$2,458	$21,006	$67,661	45%
Videos	$1,666	$24,729	$100,941	58%
Messaging	$500	$7,419	$38,091	62%
Generative AI Focused IT Services	**$165**	**$20,451**	**$80,904**	**99%**
Generative AI Based Business Services	**$78**	**$9,705**	**$32,443**	**95%**
Total	$63,533	$456,782	$1,360,990	41%

SOURCES: CGSI RESEARCH, BLOOMBERG

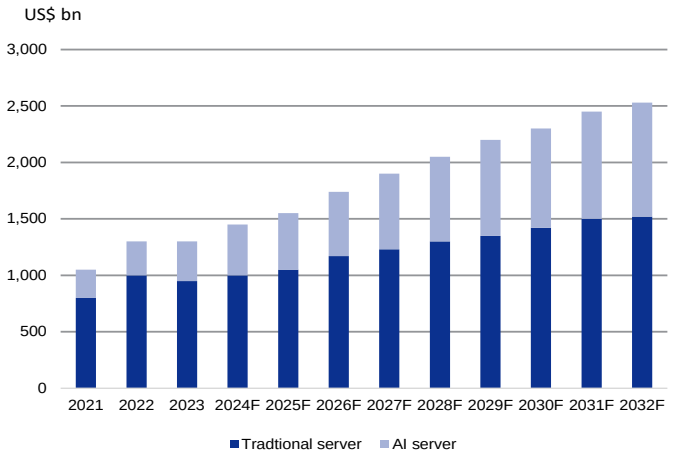
Note that the cost associated with setting up a data centre can vary significantly due to location, size and technology choices.

Figure 13: Estimated data centre infrastructure cost breakdown in 2022



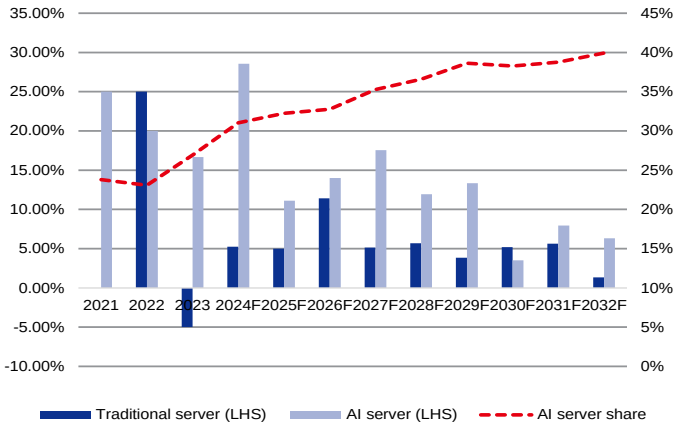
SOURCES: CGSI RESEARCH, GRANULATE, DATA CENTRE KNOWLEDGE

Figure 14: Server market mix



SOURCES: CGSI RESEARCH, BLOOMBERG, IDC

Figure 15: Server market growth by type (LHS) and AI server share (RHS)



SOURCES: CGSI RESEARCH, BLOOMBERG, IDC

IDC forecasts the shipment value of global AI server (defined as servers outfitted with GPU, TPU or FPGA) market to grow 29% yoy in 2024F, with 17% CAGR over 2023-28F, as growth in the traditional segment moderates. IDC also forecasts the market share of AI servers in the total server market to increase from 20% in 2020 to 31% in 2024F and 40% by 2032F.

According to the International Energy Agency (IEA), dedicated AI data centres are more power hungry than traditional data centres as AI servers are often fitted with GPUs, which require more power than traditional CPUs given its parallel processing capabilities and higher computational abilities. Thus, we expect sales of power-related components of data centres to increase in tandem with the rise in server deployments as the expansion in data centre capacity necessitates improvements in power infrastructure, including power distribution units (PDU) and uninterruptible power supplies (UPS).

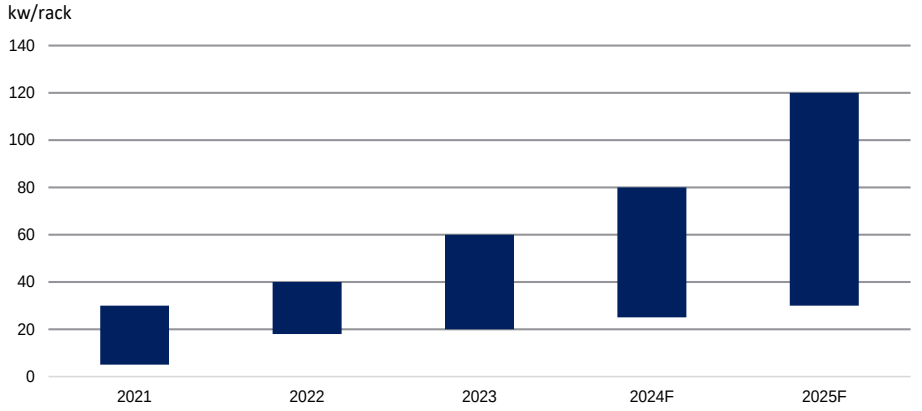
Furthermore, the trend for increasing rack density (i.e. fitting more servers into a data centre rack) also necessitates better cooling technologies, such as liquid cooling, which is gaining prevalence in data centres, especially those supporting AI workloads as servers fitted with high-performance processors such as GPUs and TPUs generate significantly more heat compared to traditional servers. Liquid cooling systems are much more efficient at removing heat from these components than air cooling, according to operators like Microsoft and Intel. In our discussions with Delta Electronics, the company said it is currently developing new liquid cooling solutions for its hyperscaler customers.

Rack density refers to the amount of computing power within a single data centre rack. High rack density indicates a greater concentration of hardware within a given rack space.

This is typically measured by power consumption per rack.

.

Figure 16: Data centres' rack density is increasing in tandem with increased workload



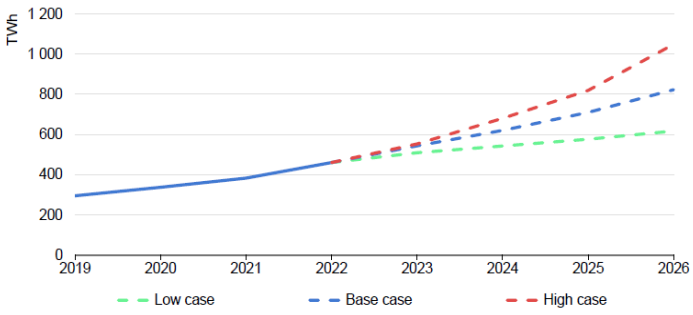
SOURCES: CGSI RESEARCH, BLOOMBERG

The increasing power demands of data centres

According to IEA, estimates, power usage in data centres mainly comes from computing, which accounts for c.40% of electricity demand, while cooling and other remaining processes make up about c.40% and c.20% respectively.

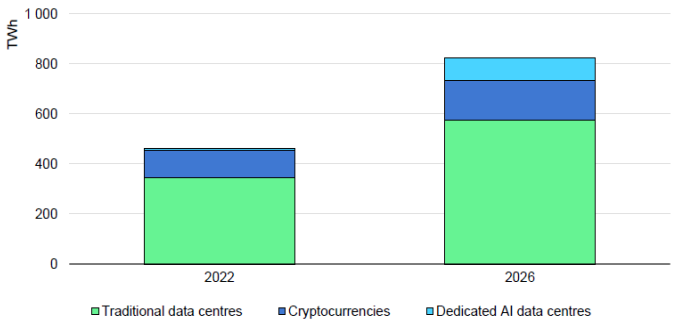
Furthermore, dedicated AI data centres are more power hungry than traditional data centres as AI servers are often fitted with GPUs, which require more power than traditional CPU given its parallel processing capabilities and higher computational abilities. According to IEA forecast, global AI industry electricity consumption is expected to increase tenfold, from 7.3TWh in 2023 to 73TWh by 2026F.

Figure 17: Global electricity demand from data centres, AI, and cryptocurrencies in 2019-26F



SOURCES: CGSI RESEARCH, IEA

Figure 18: Estimated global power demand from traditional/AI data centres and cryptocurrencies in 2022 vs. 2026F

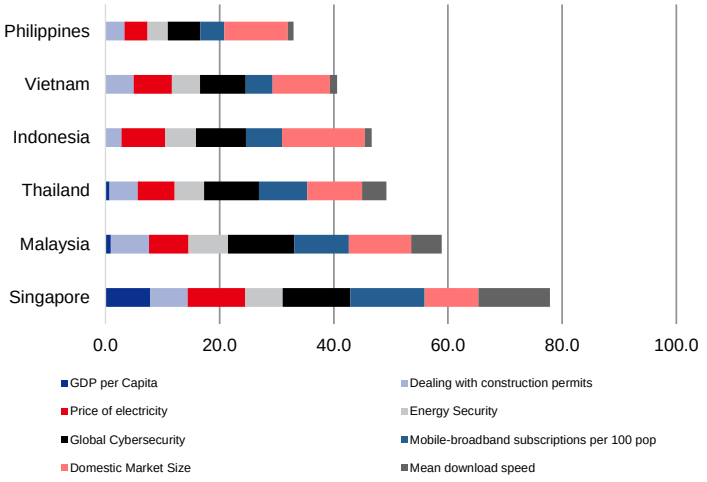


SOURCES: CGSI RESEARCH, IEA

Factors influencing data centre site selection

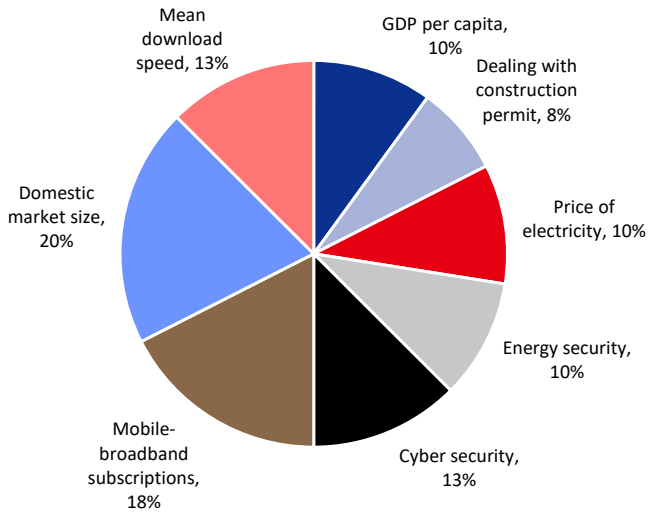
According to Cushman & Wakefield, power availability, land availability, and domestic market size are the most critical factors for data centre site selection due to their impact on operational efficiency, reliability, and scalability. These factors are important to ensure that data centres can operate continuously and expand as needed. Meanwhile, other factors, such as fiber connectivity, power cost, and government incentives also play significant roles in optimising performance and cost-efficiency. According to Bloomberg's score for data centre investment attractiveness, Singapore stands out as the best location for data centre construction in Southeast Asia due to its robust power and telecom infrastructure.

Figure 19: Score for data centre investment attractiveness



SOURCES: CGSI RESEARCH, BLOOMBERG

Figure 20: Weighting of factors influencing ranking



SOURCES: CGSI RESEARCH, BLOOMBERG

ASEAN power supply: SG and MY stand out

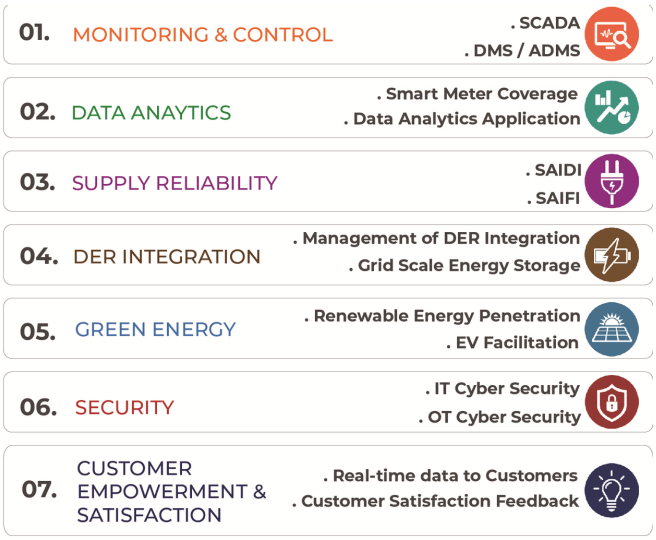
Grid reliability

One of the most critical resource requirements for a data centre is power, making its availability the lifeline of data centre operations, according to Delta Electronics . Power supply, grid network stability, adoption of smart grid technology, and reliable power supply are vital for the seamless operation of data centres. Data centres have very low tolerance for power outages and require uninterrupted power to maintain continuous service availability and ensure data integrity and security. Stable power supply and, more recently, smart grid systems safeguard against power fluctuations that could damage sensitive equipment while also promoting energy efficiency and reducing operational costs. Moreover, smart grid technologies enable data centres to integrate renewable energy sources.

Going by the 2022 Smart Grid Index (SGI) global scoring rankings, Singapore clearly stands out among ASEAN countries for its power grid infrastructure with a score of 75% while Malaysia comes in second with a score of 71.4%. The remaining four ASEAN countries fall below the 70% mark, with Indonesia coming in lowest at 44.6%.

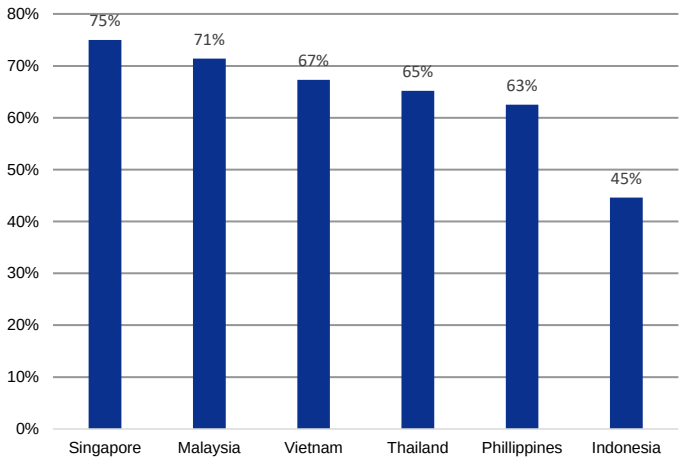
The 2022 SGI benchmarks a total of 94 utilities infrastructure providers across 39 countries globally. The index was developed and has been evaluated by SP Group since 2018, based on a simple and quantifiable framework that covers seven aspects of an electricity grid: 1) Monitoring and control, 2) Data analytics, 3) Supply reliability, 4) Distributed energy resources (DER) integration, 5) Green energy, 6) Security, and 7) Customer empowerment & satisfaction. Countries often use this index as a measure to identify and learn best practices from each other to establish a smart energy low-carbon future.

Figure 21: The seven key criteria used in determining the SGI scores



SOURCES: CGSI RESEARCH, SP POWER

Figure 22: Smart Grid index (2022)

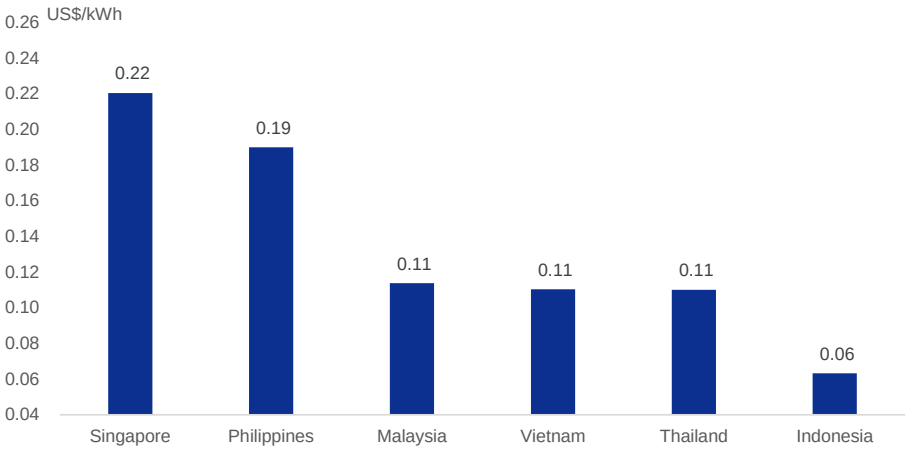


Utilities providers dataset – Singapore: SP Group; Malaysia: TBN, Sarawak Energy; Vietnam: EVN HCMC, EVN Hanoi, EVN CPC; Thailand: PEA, MEA; Philippines: Meralco; Indonesia: PLN
SOURCES: CGSI RESEARCH, SP GROUP

Power tariffs

Given the power-hungry nature of data centre operations, power cost is increasingly becoming a key consideration. In an ASEAN context, commercial power tariffs are the highest in Singapore at US$0.22/kWh in 1Q24, followed by the Philippines coming in a close second at US$0.19/kWh. Malaysia, Vietnam and Thailand charge largely comparable rates while Vietnam is the lowest at US$0.06/kWh.

Figure 23: Vietnam offers the lowest electricity tariffs across ASEAN while Malaysia, Indonesia and Thailand also offer relatively comparable rates



SOURCES: CGSI RESEARCH, TENAGA, EVN, MERALCO, SP POWER, PLN, ENERGY REGULATORY COMISSION OF THAILAND

In conclusion, we find that Singapore and Malaysia stand out from a power supply standpoint, with Malaysia currently edging out the former from a cost of supply perspective.

Connectivity a key consideration

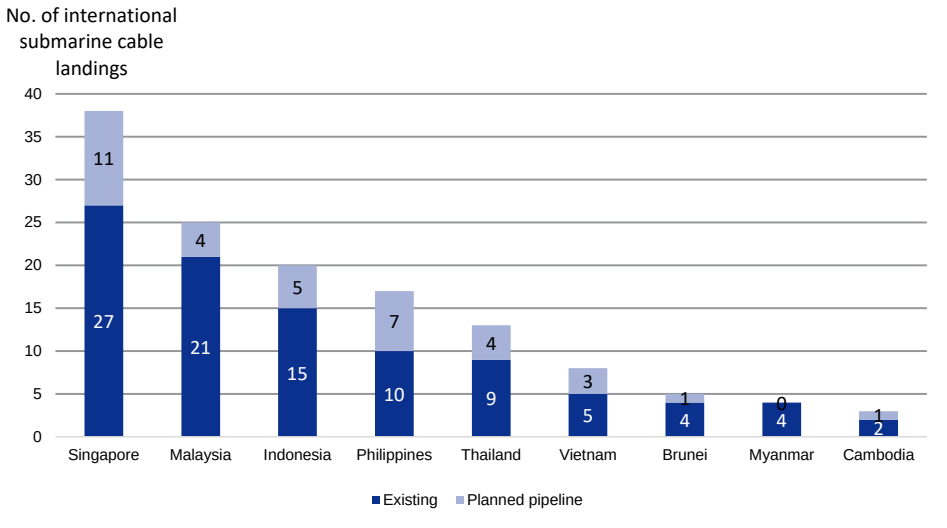
Data centres exist to fulfil a slew of purposes but, at its core, they provide storage and computing capacity to businesses. As a result, data centres are typically built in key financial and business hubs and connected via fibre optic cables.

According to Google, as data usage increases, new data centre locations have sprouted to reduce latency and cost of supporting the demand, resulting in a hub-and-spoke type model. For example, a YouTube video produced in Columbus, Ohio, in the US would make its way to a server in Google's data centre in the country. Based on the YouTube algorithm, this video will then be replicated on certain key servers around the world. In ASEAN, the server will most likely be in Singapore. If the video becomes popular in Thailand, it would be replicated onto a YouTube server in Bangkok to make the user experience better (lower latency) and reduce the cost of providing that content to the user.

Cable connectivity is therefore crucial for data centres because it provides the necessary bandwidth and speed to handle the large amount of data processed and transmitted, according to Global Switch. High-capacity submarine and terrestrial cables ensure minimal latency and high reliability, essential for supporting cloud services, real-time applications, and global data exchange. This connectivity is also vital for maintaining uptime and ensuring continuous service availability, providing redundancy to reroute traffic in case of cable failures and thereby minimising data loss and service interruptions.

According to the US Institute for Telecommunication Sciences (ITS), robust cable infrastructure is economically advantageous providing cost-effective data transmission compared to alternative methods like satellite. This efficiency is critical for data centres to scale operations and support emerging technologies, such as AI, IoT, and machine learning, which require rapid data processing and real-time communication. High-quality cable connectivity enables data centres to meet the growing demands of the digital economy, facilitating global connectivity and ensuring seamless access to information and services worldwide.

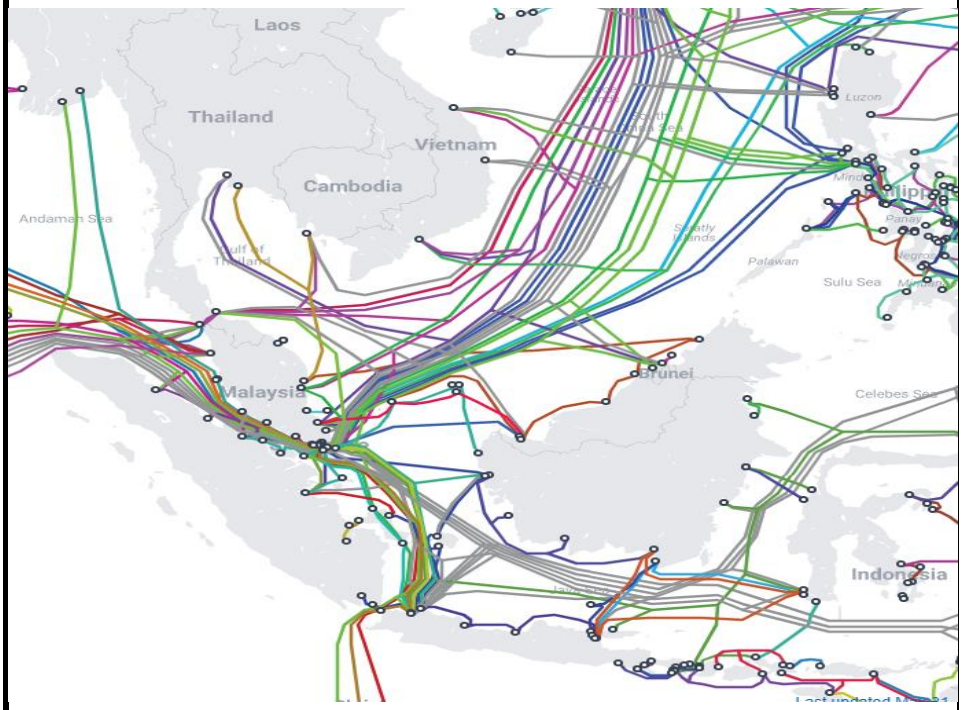
Figure 24: 29% of the 97 international submarine cables in ASEAN land in Singapore



Excludes intra-country submarine cables
SOURCES: CGSI RESEARCH, TELEGEOGRAPHY

Singapore is the most connected nation within ASEAN with 27 cable landings, according to TeleGeography. As a city it is also the most connected in ASEAN and hosts the highest density of data centres in ASEAN. According to TeleGeography, there are a further 36 cable landings planned in ASEAN from 2H24F to 2027F, through the building of 13 new cables, with Singapore again gaining the most number of new landings.

Figure 25: Submarine cable map as of June 2024



SOURCES: CGSI RESEARCH, TELEGEOGRAPHY

We do note that the number of landings alone is not a gauge of the capacity that each country possesses to send and receive data but it does indicate the level of connectivity available to operators planning to set up data centres in a country to serve other markets.

Figure 26: New submarine cables scheduled to connect Singapore to the rest of the world

New submarine cables	Expected live date	Owners	Landing stations
Asia Direct Cable (ADC)	2024	China Telecom. China Unicom, National Telecom, PLDT, Singtel, Softbank Corp, Tata Communications, Viettel Corp	China, Japan, Philippines, Singapore (Tuas), Thailand, Vietnam
India Asia Xpress (IAX)	2024	China Mobile, Reliance Jio Infocomm, others	India, Malaysia, Maldives, Singapore (Tuas), Sri Lanka, Thailand
MIST	2024	Orient Link	India, Malaysia, Singapore (Tuas), Thailand
Asia Link Cable (ALC)	2025	China Telecom, DITO Telecommunity, FPT Telecom, Globe Telecom, Singtel, TIME dotCom, Telekom Malaysia, Unified National Networks (UNN)	Brunei, China, HK SAR, Malaysia, Philippines, Singapore (Changi South), Vietnam
Bifrost	2025	Keppel T&T, Meta, Telin	Guam, Indonesia, Mexico, Philippines, Singapore (Tuas), USA
Echo	2025	Google, Meta	Guam, Indonesia, Palau, Singapore (Changi North), USA
SEA-H2X	2025	China Mobile, China Unicom, Converge ICT, Irix Sdn Bhd	China, Malaysia, Philippines, Singapore (Tuas), Thailand
SeaMeWe-6	2025	Bahrain Telecommunications Company (Batelco), Bangladesh Submarine Cable Company Ltd (BSCCL), Bharti Airtel, China Unicom, Dhiraagu, Djibouti Telecom, Microsoft, Mobily, Orange, PCCW, Singtel, Sri Lanka Telecom, Telecom Egypt, Telekom Malaysia, Telin, Transworld	Bahrain, Bangladesh, Djibouti, Egypt, France, India, Malaysia, Maldives, Oman, Pakistan, Qatar, Saudi Arabia, Singapore (Tuas), Sri Lanka, UAE
Southeast Asia-Japan Cable 2 (SJC2)	2025	China Mobile, Chunghwa Telecom, Donghwa Telecom, KDDI, Meta, SK Broadband, Singtel, Telin, True Corporation, VNPT-Vinaphone	China, Japan, Singapore (Changi South), South Korea, Taiwan, Thailand, Vietnam
Apricot	2026	Chunghwa Telecom, Google, Meta, NTT, PLDT	Guam, Indonesia, Japan, Philippines, Singapore (Tuas), Taiwan
INSICA	2026	Singtel, Telin	Batam, Singapore (Tuas)
Asia Connect Cable-1 (AAC-1)	2027	Inligo Networks	Australia, Guam, Indonesia, Philippines, Singapore, Timor-Leste, USA
Hawaiki Nui 1	2027	BW Digital	Australia, Indonesia, Papua New Guinea, Singapore, Solomon Islands

SOURCES: CGSI RESEARCH, TELEGEOGRAPHY

Meanwhile, the recent flurry of data centre builds announced in Malaysia will benefit from the country's proximity to Singapore as well as the terrestrial cable connections between the two countries provided by incumbent Telekom Malaysia and Time dotCom. International connectivity from Malaysia will also help users of data centres in the country provide services to customers outside its borders, which we believe differentiates Malaysia in an ASEAN context (excluding Singapore).

Telcos to benefit from increased connectivity requirements

In our view, telcos within ASEAN are beneficiaries of the growing data usage within each country and, when it comes to new data centre builds, domestic telcos stand to benefit from having to provide connectivity services to these data centres . Domestic telcos in each country are also typically members of the consortiums that own the international submarine cables running through the region.

While telcos in the region own and operate data centres, their capacities pale in comparison to carrier-neutral data centres. As an example, SingTel, the largest regional telco by customer portfolio as at 1Q24, will see its regional data centre capacity grow from 62MW in Sep 2023 to about 155MW in 2025F, of which 120MW will be in Singapore. This compares to Singapore's total data centre capacity of 1.4GW as at May 2024.

Within each of the ASEAN markets, the telcos that will benefit the most from providing connectivity to data centres are those with the most terrestrial fibre assets, in our view, e.g. Telekom Malaysia, Time dotCom, SingTel, StarHub, PT Telkom, AIS and True.

While telcos will benefit from increased connectivity requirements from the boom in data centre capacity, we note that this may not be meaningful from an incremental earnings perspective.

There are a only a handful of beneficiaries in the tech manufacturing space in ASEAN

Apart from the designers of leading-edge processors i.e. Nvidia, AMD (AMD US; non-rated) and their foundries i.e. TSMC (2330 TT; non-rated), we believe the server supply chain's original design manufacturers (ODM) are also poised to reap the most benefits as we estimate the largest portion of a data centre bill of materials goes into servers.

However, there are very few local server manufacturers capable of supporting the growth in the data centre industry in Southeast Asia. Most of the high-tech server hardware utilised in the region is produced by manufacturers in North Asia, particularly Taiwan. Major server manufacturers include: 1) Quanta (2382 TT: non-rated), 2) Wiwynn (6669 TT: non-rated), 3) Foxconn (2317 TT; non-rated), 4) Inventec (2356 TT; non-rated), 5) Wistron (3231 TT; non-rated), and 6) IEIT (000977 CH; non-rated). The absence of local server manufacturers mean that ASEAN countries must import the majority of required data centre hardware.

Nevertheless, we identify a few local tech manufacturers that could be prime beneficiaries from more data centre investments in ASEAN. In Thailand, we believe Delta Electronics stand to gain the most, thanks to its significant market share in data centre power supply products for hyperscalers and colocation customers. Nationgate Holdings (NATGATE MK; non-rated) and PIE Industrial (PIE MK; non-rated) are also clear beneficiaries, having secured sizeable contracts from global providers of coming power infrastructure and services to assemble AI and GPU servers. To a smaller extent, outsourced assembly and testing (OSAT) players, such as Hana Microelectronics (HANA TB; Add; TP THB46; CP: THB48), Inari Amertron (INRI MK; Hold; TP RM2.9; CP: RM3.69), Unisem (UNI MK; Reduce; TP MRY2; CP RM4.17) and MPI (MPI MK; Reduce: TP RM27.4; CP RM39.6), should benefit from their advanced packaging solutions for power management modules that go into these servers.

Contractors look like the next best alternative after hardware names

Despite the reliance on North Asian manufacturers for hardware, local construction firms are often involved in the physical construction of data centres in ASEAN countries. Local contractors are well-versed in regional knowledge and the local regulatory environment, in our view.

What's the winning formula for data centre jobs?

Based on our conversations with construction contractors in Malaysia, the key requirements from data centre owners/operators are speed-to-market with minimal execution risk, strong reputation in building jobs and possessing building information systems (BIM) expertise. Having a vertically integrated construction outfit, like Sunway Construction (Suncon) in Malaysia and Keppel in Singapore, is an added advantage.

What other useful information have we gathered on data centre construction?

Based on our conversations with data centre construction contractors in Malaysia, we also gather the following anecdotes.

i) A simple crude calculation of the IT load of a data centre divided by the construction cost may not give a fair representation of the cost of construction per MW. Other factors need to be considered, such as whether the data centre facility is single- or multi-storey, whether the owner of the centre's equipment gets lumped into the construction value and how much of the core building is actually fitted out with mechanical and engineering (M&E).

ii) The general breakdown of construction value of a data centre project is one-third for civil works and two-thirds for M&E, which sometimes includes the data centre owner's equipment.

iii) Hyperscaler owners generally prefer single-storey data centres.

iv) The general announcements we see in the media from data centre owners announcing the size and scale of their planned facilities do not necessarily translate into the actual build-out. At times, it is an exercise to gauge interest from tenants.

v) Given that speed-to-market is a primary criterion for data centre owners, there have been instances where some have used property developers as a conduit to build centres. This is because property developers have the necessary know-how to obtain land and energy approvals.

Industrial estate

We believe industrial estate players are key beneficiaries of data centre investments in ASEAN for several reasons. First, industrial estates provide the necessary infrastructure and real estate required for large-scale data centre operations. These estates are often equipped with robust power supply amenities and advanced telecommunications infrastructure.

Second, industrial estates provide benefits in terms of favourable regulatory environments and incentives from governments to attract foreign investment. These incentives can include tax breaks, facilitated permitting processes, and subsidies for infrastructure development. For instance, the Board of Investment (BOI) in Thailand offers a range of incentives for data centres, including 1) up to eight years corporate income tax exemptions, 2) import duty exemptions, and 3) additional tax deductions for transportation, electricity and construction & installations. Companies investing in the Eastern Economic Corridor (EEC) in the country can also benefit from additional incentives, such as extended tax holidays.

Similarly, in Malaysia, data centres located within the Multimedia Super Corridor (MSC) zone may qualify for exemptions on import duties and reduced corporate tax rates.

In Thailand, WHA's industrial estates host a number of data centres operated by foreign entities, including the largest data centre in Thailand (owned by Supernap Thailand (not listed) spanning 70 rai (112,000 sqm), while Amata Industrial Estate's data centre customers include facilities by NTT Global Data Centers (not listed), located in the Amata Chonburi Industrial Estate. According to Amata, NTT is also planning to expand with the construction of the Bangkok 3 (BKK3) Data Centre in Amata City Chonburi Industrial Estate with a tentative investment of US$90m. Amata expects BKK3 to have an IT load capacity of 12MW across 4,000 sqm.

Based on Thailand's total potential new capacity of 576MW (derived from the sum of 44MW in new capacity under construction, 132MW in committed new capacity and 400MW of early stage capacity according to DC Byte forecast in Fig 3), we estimate a potential new land sales of 1,000-2,000 rai in 2024-2030F. Note that we expect AMATA and WHA combined land sales at 3,825-4,075 rai in 2024-26F.

Figure 27: Benefits framework for Thailand's Eastern Economic Corridor

Tax Incentive	Non-Tax Incentive
• Exemption of corporate income tax (CIT) on the net profit, derived from the approved business. • Reduction of CIT on the net profit, derived from approved business. • Deduction of annual loss incurred during the period of CIT exemption, from the net profit accrued after the expiration of CIT exemption period. • Deduction of the investment capital of the approved business from net profit. • Double deduction for the costs of transportation, electricity and water supply. • Deduction of the cost of installation or construction of facilities used in the approved business from the net profit. • Exemption of dividend from taxable income. • Exemption of fees for goodwill, copyrights and other rights from taxable income. • Exemption or Reduction of import duty on machinery, material imported for R&D, item imported to re-export, and raw materials and essential materials used in the business as specified. • Exemption of export duties.	• Ownership of land in the promotional zone. • Ownership of condominium in EEC area. • Right to bring workforce into and residing in the country. • Right to obtain EEC Work Permit.

SOURCES: CGSI RESEARCH, EASTERN ECONOMIC CORRIDOR

Figure 28: Supernap's data centre in WHA Chonburi Industrial Estate 2

SOURCES: CGSI RESEARCH, GOOGLE MAP

Malaysia – likely to benefit the most from accelerating data centre investment across ASEAN

By Prem JEARAJASINGAM, CHONG Tjen-San, CFA, Dharmini THURAISINGAM |
E: prem.jearajasingam@cgsi.com, tjen-san.chong@cgsi.com, dharmini@cgsi.com

In our view, Malaysia is emerging as the fastest-growing player in the data centre scene within the ASEAN region, driven by several strategic advantages, such as superior infrastructure, location and favourable government policies.

Figure 29: Southeast Asia as a secondary location for data centres

Market	MW IT Supply	MW per million Capita
Tier 1 (Singapore, HK, Sydney, Tokyo)	6,287	113.1
Indonesia	1,220	4.5
Malaysia	934	28.9
Thailand	211	3.0
Vietnam	127	1.3
Philippines	217	2.0

SOURCES: CGSI RESEARCH, KNIGHT FRANK

Figure 30: Knight Frank SEA-5 Data Centre Opportunity Index in 2022

Rank	Market	Take up (MW)	GDP Growth (%)
1	Malaysia	113	8.7
2	Indonesia	22	5.3
3	Vietnam	2	8
4	Philippines	2	7.6
5	Thailand	25	2.6

SOURCES: CGSI RESEARCH, KNIGHT FRANK

Malaysia has seen a flurry of activity in the data centre space since 2019. Good connectivity, reliable power supply and political stability were key attractions, we believe, as demand for data centre capacity in the region expanded. The Singapore government's decision to place a moratorium on power and land for data centres in 2019 provided an added shot in the arm for demand for data centre capacity in Malaysia, especially in the state of Johor, which is ranked as the 7th largest data centre market in Asia by Cushman & Wakefield as of 1Q24.

In May 2024, Microsoft announced that it planned to invest US$2.2bn focusing on cloud computing and AI in Malaysia over the next four years. Key components of this investment include the establishment of a National AI Centre of Exellence and the creation of AI skill opportunities for 200,000 Malaysians.

We see construction companies, particularly, Suncon, Gamuda and YTL Corp, as the key beneficiaries. YTL Power, which owns a 500MW green data centre park in Johor that will come onstream in 2024 and has partnered Nvidia to provide AI-focused computing infrastructure, is also set to see earnings take off as its data centre capacity scales up, in our view.

Telecom operators, namely Telekom Malaysia (T MK; Add; TP RM8.56; CP RM6.7) and Time dotCom (TDC MK; non-rated), which are key providers of connectivity in Malaysia, will benefit from increased connectivity requirements from the boom in data centre capacity but we note that this may not be meaningful from an incremental earnings perspective.

Telekom Malaysia (TM) and SingTel have announced a 51:49 JV to develop a 64MW AI-enabled data centre in Johor with the option to go to 200MW in the long term subject to demand. Based on the agreement, TM's equity commitment for the JV company will be RM588m. The first phase of the DC will add 3% to TM's FY27F net profits assuming a 10% equity IRR, rising to 6% to FY27F net profits at an equity IRR of 15%. Management, in a call on 20 Jun, stated that in addition to the new data centre, TM was doubling the capacity of its two data centres in Klang Valley and Iskandar Puteri to 40MW, and exploring other opportunities to grow the data centre business.

Property and potentially plantation companies with landbanks in selected areas could similarly be beneficiaries, in our view, e.g. Sime Property's Elmina development, which is the site of Google's first data centre in Malaysia, Eco World Development Group (ECW MK; Hold; TP RM1.55; CP RM1.58) and Mah Sing Group (MSGB MK; non-rated).

In the tech manufacturing space, Nationgate Holdings and P.I.E. Industrial are clear beneficiaries, having secured sizeable contracts from global providers of computing power infrastructure and services to assemble AI and GPU servers. To a smaller extent, we believe Malaysian outsourced assembly and testing (OSAT) players, such as Inari Amertron, Unisem and MPI, will benefit from their advanced packaging solutions for power management modules that go into servers.

Johor data centre market set to eclipse Singapore

Johor is shaping up to be a key data centre market in Malaysia given its proximity to Singapore following the moratorium there in 2019 and ample land bank in Johor. Based on a DC Byte (global data centre market intelligence) data centre report dated Feb 2024, the total IT capacity in Johor has surpassed 1,600 MW, of which 20% is live and under construction and the balance 80% is committed and in early stage of planning for rollout (Fig 31). The baseline in 2019 was just 10MW in Johor. DC Byte in another global data centre report published in Mar 24 said Johor has emerged as Southeast Asia's fastest growing data centre market. The main data centre locations in Johor are Sedenak Tech Park, Nusajaya Tech Park and YTL Green Data Centre Park.

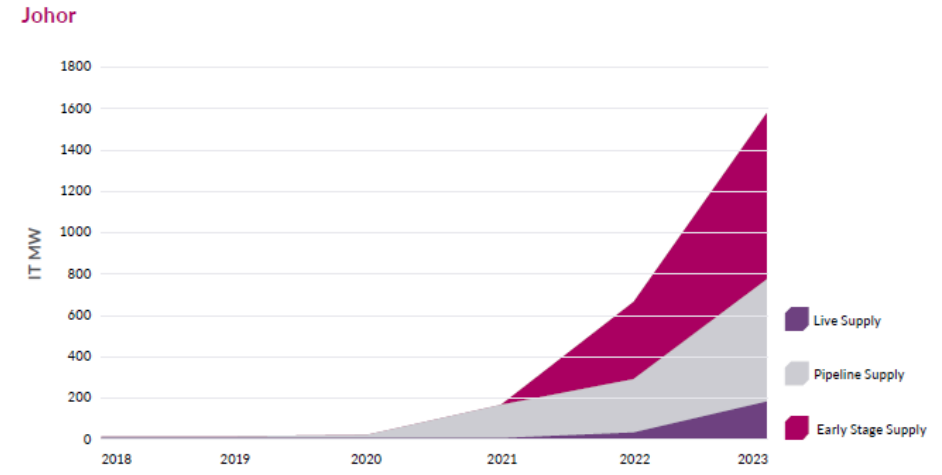
If we were to strip out the early-stage supply, which are data centre capacity that may be more speculative in nature, the figure in Johor drops to c.800MW. This compares with 988MW of data centre capacity in Singapore as of 1Q24, which, with the completion of current builds, will increase to 1,444MW.

Live Supply: Determined IT power that is operational whether it is let or not

Early Stage (ES) Supply: IT Load that has been announced or speculated, but has yet to secure all of the required elements (government, land, power, etc.) for development.

Pipeline Supply: The sum of supply under construction and supply which is highly likely to be added to the overall market supply.

Figure 31: Data centre supply in Johor according DC byte



SOURCES: CGSI RESEARCH, DC BYTE - GLOBAL DATA CENTRE INDEX 2024

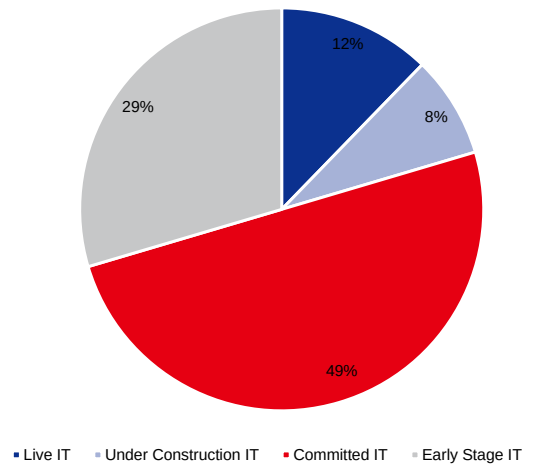
Removing the early-stage supply in Johor and using a simple measure to estimate potential construction works at US$7m-9m/MW, this may translate into potential construction flows of RM26bn-33bn in Johor alone in the next 12-24 months. However, we caution that this is a back-of-the-envelope measure and could vary depending on other factors.

According to DC Byte, the Malaysian government has been supportive of the data centre industry, with Malaysia Industrial Development Authority (MIDA) and Malaysia Digital Economic Corporation (MDEC) establishing a Digital Investment Office as a one-stop centre to ensure faster processes and approvals. Meanwhile, Johor's proximity to Singapore with potential dark fibre connectivity could mean reduced latency and better cost control, in our view.

DC Byte also mentioned in its Mar 24 global data centre report that, in order to streamline power approvals, the Malaysian authorities launched the Green Lane Pathway initiative in 2023 to reduce the duration required to power a data centre to as little as 12 months.

In Johor, we think Suncon stands out as the clear beneficiary for data centre projects given its first mover advantage there with two projects in Johor. (RM1.7bn Sedenak and RM291m K2). In addition, its integrated construction and prefabrication hub (ICPH) plant in Singapore and fully vertically integrated structure are key positives.

Figure 32: Total IT data centre capacity in Johor in 2023 (total: 1,600MW)



SOURCES: CGSI RESEARCH, DC BYTE

Figure 33: Selected data centre investments in Johor

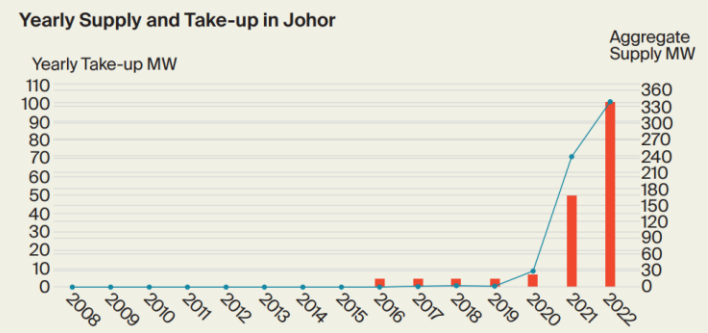
Date	Company	Acres	MW	Total investment (RM m)
Nov-23	ST Telemedia	22	120	na
Sep-23	K2 Strategic Ptr Ltd	60	200	na
May-23	Princeton Digital Group	31	150	2000
Apr-23	MN Holdings China Shanghai DC	20	120	2650
Jan-23	Macquarie AirTrunk	25	150	na
Nov-22	Equinix	na	na	176
Mar-22	Yondr	73	200	na

SOURCES: CGSI RESEARCH, KNIGHT FRANK MALAYSIA

Cyberjaya still the mainstay in KL

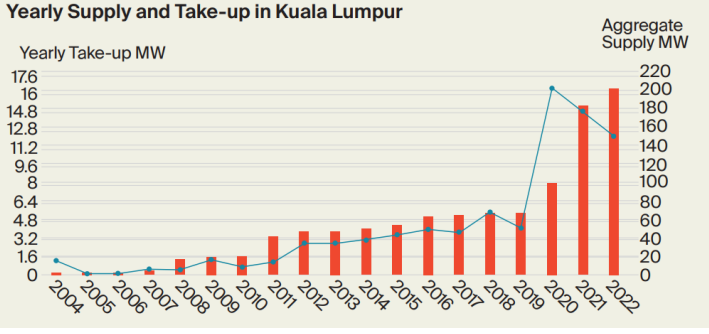
According to Knight Frank's data centre report in Apr 2023, the KL supply of data centres is focused in the Cyberjaya area. Knight Frank believes that Cyberjaya has become the key data centre hub in Greater KL due to its affordable land prices, reliable power infrastructure and proximity to the capital city. According to the report, new locations such as Bukit Jalil and Petaling Jaya are also potential new areas for data centres. Meanwhile, we expect Microsoft's self-build data centre in Cyberjaya announced in Apr 2021 to dominate future capacity and eventually become the largest data centre in the greater KL region.

Figure 34: Data centre take-up in Johor



SOURCES: CGSI RESEARCH, KNIGHT FRANK MALAYSIA

Figure 35: Data centre take-up in KL



SOURCES: CGSI RESEARCH, KNIGHT FRANK MALAYSIA

Suncon, Gamuda and YTL stand out as key beneficiaries

The more obvious beneficiaries for the proliferation of data centres in Malaysia are the Malaysian contractors, in our view. Data centres have provided significant orderbook replenishment opportunities for some contractors. The companies that stand out under our coverage are Gamuda, YTL, Suncon and IJM, which all have years of experience in building projects and strong execution track records.

YTL has a ready pipeline for construction of data centres given Nvidia's participation in the data centre campus in Kulai, Johor. It has built a 48MW facility there so far, of which SEA Limited (SE US; non-rated) is taking up 32MW.

We understand Gamuda is also actively bidding for data centre jobs, mainly in the Klang Valley, leveraging its IBS plant in Banting. In our view, Gamuda's advantage in data centres lies in its ready IBS plant and speed-to-market where it completed the AIMS data centre in just eight months vs. other bidders that submitted bids for completion in 12-16 months. Its recent RM1.7bn data centre contract win in Elmina Business Park A from Sime Darby Properties and one from a US MNC are further feathers in its cap and we expect more contracts to follow.

In Johor, we think Suncon stands out as the clear winner for data centre projects given its first mover advantage there with two projects in Johor (RM1.7bn Sedenak and RM291m K2). In Mar 24, it also won a data centre contract in Cyberjaya from a US MNC. In addition, its ICPH plant in Singapore and fully vertically integrated structure are key positives.

We have observed the smaller contractors (both listed and unlisted) also venturing into data centre projects. While we do not discount more competition in the future, we think the large hyperscalers who are setting up a presence in Malaysia will likely award construction contracts to the more established contractors, such as Gamuda, YTL and Suncon.

We are also seeing property development companies that have vast land bank capitalise on the data centre trend by leasing land to data centre operators. The most recent instance was Sime Darby Property, which has a 20-year lease with a hyperscaler valued at up to RM2bn, with options to renew for two additional five-year terms at the Elmina Business Park A.

Figure 36: Selected data centre wins for contractors as at June-24

Suncon	**Projects won from FY22-FY24F**	**Value (RMm)**
	K2 Data Centre	289
	Data Centre Sedenak Tech Park	3,200
	Cyberjaya Data Centre for US MNC	748
	Total	4,237
YTL	**Projects won from FY22-FY24F**	**Value (RMm)**
	Data centre in Kulai for Sea Limited	1300
	Data centre Nvidia	4000
Gamuda	**Projects won in FY23/FY24F**	**Value (RMm)**
	AIMS data centre in Cyberjaya	470
	Hyperscale DC in City of Elmina	1744
Gadang	**Projects won in FY24F**	**Value (RMm)**
	Data Centre Block 2 Cyberjaya	280
Jakel/PIDC Holdings	**Projects won in FY24F**	**Value (RMm)**
	Data Centre Cyberjaya	1200

SOURCES: CGSI RESEARCH, KNIGHT FRANK MALAYSIA

Suncon

We believe Suncon's edge in data centres is its vertically integrated nature, where, besides a construction arm, it also owns a piling, mechanical, engineering and plumbing (MEP) and precast division. In addition, it has expertise in air conditioning and mechanical ventilation (ACMV) systems, which are crucial in data centres. Suncon also has a 73,500 m3 ICPH facility in Singapore, which we believe gives it a competitive advantage in terms of time to market. This facility typically caters to the Housing Development Board market in Singapore but will be instrumental in its data centre wins in Johor, in our view.

Suncon has 5 data centre projects (from 4 clients) contributing 50% of its orderbook of RM7.9bn as at May 24. Management said it is also bidding for 4 data centre projects, most of which are in Johor and are still at the design stage. It is more mindful of capacity constraints if some of the existing data centre projects need to be accelerated.

We believe Suncon is shaping up to be the go-to contractor for data centres in Johor. More importantly, its reputation as a contractor is solid and its strong parentage gives clients assurance in terms of execution capabilities, in our view.

YTL

YTL is the contractor for a 42MW data centre currently under construction in Kulai, Johor, where 32MW has been leased by Sea Ltd. Separately, according to the company, YTL Power is allocating US$4bn in capex for its collaboration with Nvidia for an AI data centre of 100MW, of which c.US$1bn is earmarked for construction cost. Assuming construction cost of US$7m-12m/MW of IT load, we expect the construction contract to be worth RM3.3bn-5.6bn.

Gamuda

Gamuda announced a RM1.7bn data centre contract win in May 24, which was broken down into two contracts. The first is a RM815m hyperscale data centre building contract from Sime Darby Property in Elmina Business Park A while the second is a RM929m mechanical, electrical and plumbing (MEP) package from Pearl Computing Malaysia (non-listed), which we believe is linked to a US MNC.

There may be more MEP works as the site area of 49 acres can accommodate more capacity data centre. The tenure for the first contract is from May 2024 to Feb 2026F while for the second is from Jul 2025F to Sep 2026F.

An article in The Star newspaper dated 21 May 2024 reported that Gamuda clinched another data centre project for AIMS worth RM300m in May 2024, although the company has yet to make a formal announcement. This is on top of the completed AIMS Cyberjaya Block 2 with a value of RM200m for an IT load of 8MW, which it completed in just eight months vs. other bidders that submitted bids for completion in 12-16 months, according to the company.

In our view, Gamuda's advantage in data centres lies in its ready IBS plant featuring its "Next-Gen Digital IBS" solutions and speed-to-market. This gives it an advantage in terms of superior and faster completion compared to its competitors, with pretax margins of 10-20%, in our view. According to the company, the IBS plant allows data centre projects to achieve superior margins (double of MRT tunnelling) and faster completion time vs. MRT tunnels. To put things into perspective, assuming Gamuda clinches one RM500m data centre project a year, it will be able to replicate the total income of a RM6bn MRT project over a 6-year period.

Malaysia stands out in terms of RE power supply potential

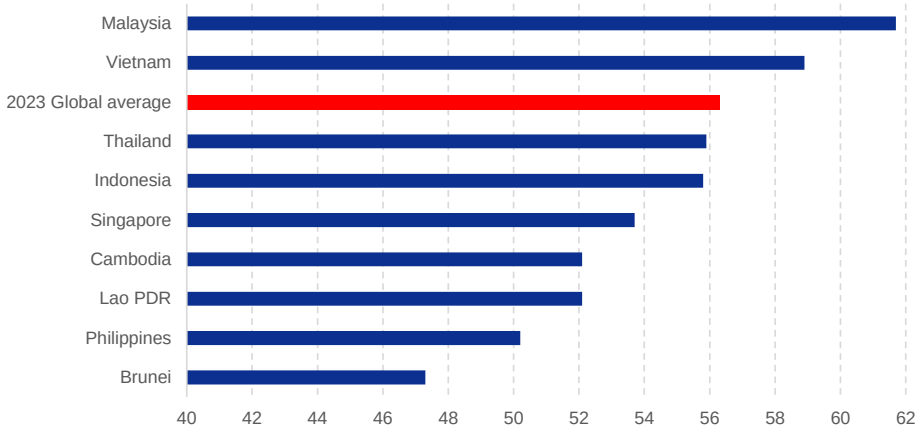
Given the massive data centre investments being ploughed into Malaysia over the past 12 months, a key question, we believe, is does the country have sufficient power generation capacity to cope with the growing demand.

Currently, Malaysia has a power reserve margin of 30% (vs. the recommended level by the Energy Commission of 23-25%), according to the Ministry of Natural Resources and Environmental Sustainability, while we estimate there is an additional ~10.5GW of planned new capacities (comprising gas and RE plants) entering the power ecosystem by 2030F. There is also an additional ~5.5GW of recently retired gas power plant capacity that can be tapped, should the need arise, in our view.

We think Malaysia's National Energy Transition Roadmap (NETR) has further enticed DC operators to set up operations in the country on the back of expectations of the growing availability of RE power supply. Data centres are increasingly coming under pressure to reduce their carbon footprint and meet sustainability goals as governments worldwide plan to impose regulations that require data centre operators to publicly report carbon emissions and climate-related risk management plans.

According to the World Economic Forum 2023 ETI (Energy Transition Index) score, Malaysia currently ranks no.1 in the region in terms of energy transition readiness, and 35th globally. Capitalising on the country's central location in SEA and abundance of natural resources, the Malaysian government aims to take a leadership role in spearheading the energy transition agenda in the region. Vietnam also stands out, with ETI scores above the global average, while Thailand and Indonesia are not far from the average.

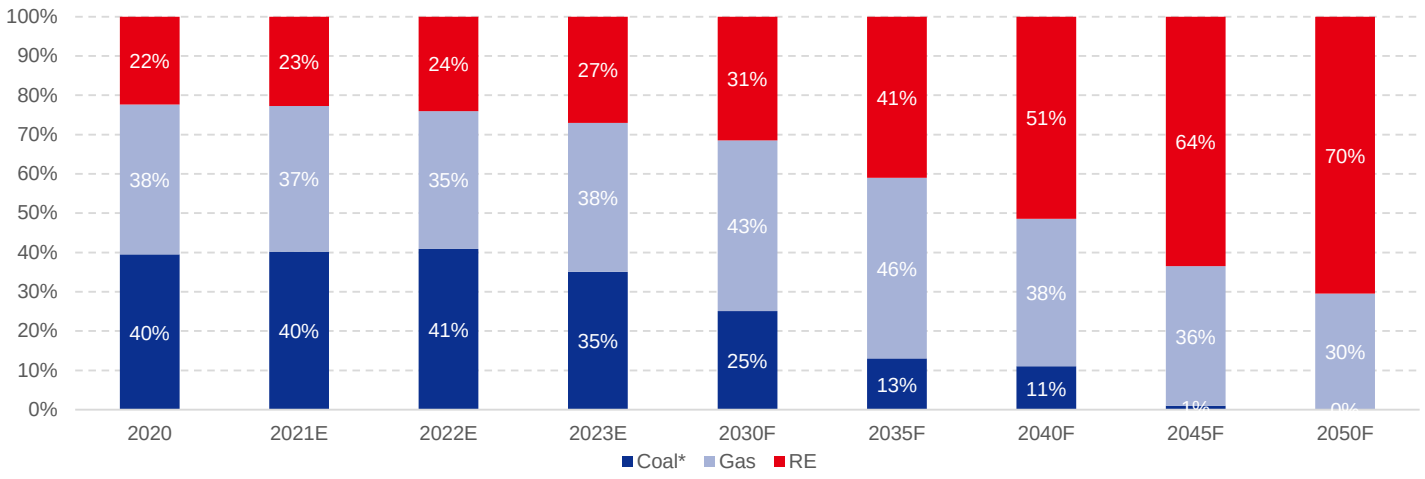
Figure 37: 2023 energy transition rankings within ASEAN: Malaysia ranks 1st



SOURCES: CGSI RESEARCH, WORLD ECONOMIC FORUM

As such, within ASEAN, we believe Malaysia is one of the more prepared countries in the region, offering the potential for cleaner energy for DC operations with the country's NETR. In 2023, Malaysia's RE installed capacity stood at 10.4GW, according to data from the Natural Resources, Environment and Climate Change Ministry, translating into c.27% of the country's total installed power capacity. Under the NETR, Malaysia has set an RE capacity share target of 31% by 2030F, which would result in RE capacity hitting ~18GW. For a more detailed discussion on ASEAN's RE landscape, please refer to our report "ASEAN's next brown-to-green ambition".

Figure 38: Malaysia's growing focus on RE power supply under the NETR



Note: 'E' denotes our estimates as official figures have not been released.
SOURCES: ENERGY COMMISSION MALAYSIA (EC), SEDA, DEPARTMENT OF STATISTICS MALAYSIA (DOSM), MINISTRY OF ECONOMY, CGSI RESEARCH ESTIMATES

YTL Power: Partnering Nvidia on AI DCs in Malaysia

Within the ASEAN context, YTLP is currently the first listed company embarking on the development and ownership of a sizeable AI data centre. In Dec 2023, YTLP announced a collaboration with Nvidia to build an AI data centre (DC) within its planned 500MW YTL Green Data Centre Park in Kulai, Johor. This partnership, in our view, expedited the rollout of the group's planned DC facility, in addition to providing YTLP with an additional growth angle with potentially concession-type income streams. Initial contract tenures for AI DCs tend to be ~3-5 years while the ones for colocation DCs often stretch between 10 and 15 years, according to industry sources.

According to management, its 32MW colocation capacity taken up by Sea Ltd entails a 14-year capacity offtake agreement. The first 8MW commenced operations in May 2024, with the balance equally rolled out annually over 2025-27. At the group's analyst briefing in May 2024, management highlighted that YTLP is in active negotiations with two potential offtakers (either for colocation or AI capacity) for another 16MW. YTLP also said construction works for an additional 100MW are progressing well, with completion expected by year-end, and it is receiving keen enquiries from potential offtakers for these capacities. For the Nvidia data centre, management had an initial target to roll out capacity by 2H24F, working closely with Nvidia to secure offtakers for the earmarked 100MW capacity.

Singapore – taking a different growth path

By Natalie ONG, LOCK Mun Yee, Kenneth TAN | E: natalie.ong@cgsi.com, munyee.lock@cgsi.com, kenneth.tan@cgsi.com

We believe top-notch infrastructure, adequate power and water supply, a stable political environment as well as being a key destination for subsea cables have enabled Singapore to become a top data centre hub in the region.

Looking ahead, while Singapore's data centre sector's absolute growth trajectory is likely to lag its ASEAN peers, in part due to rising costs, increasing focus on sustainability and resource efficiency, it is nevertheless our view that its excellent connectivity with an expanding number of subsea cable landings, decentralisation of IT infrastructure and growing demand for interconnection will continue to position it as a data centre hub in the region.

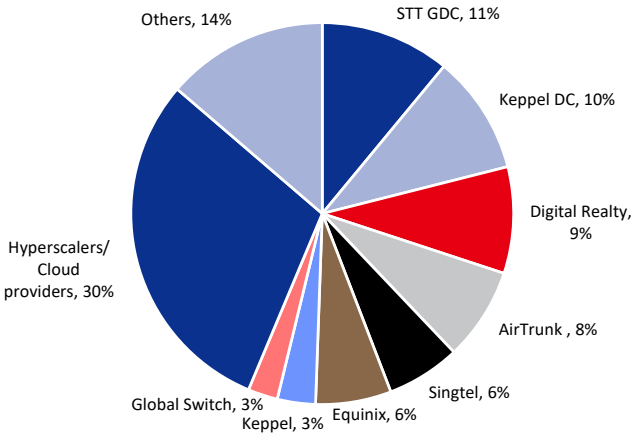
We calculate the Singapore data centre market is projected to deliver 4.5% CAGR in 2023-27F, based on DC Byte data, with potential upside due to increasing connectivity and improving energy efficiency. To play the data centre theme, we prefer complete value chain players and energy providers, such as ST, KEP and SCI. Key risk for the Singapore data centre market is potential energy constraint, which could limit the country's ability to realise the additional 300MW of capacity outlined in the Green Data Centre Roadmap as well as increasing competition from cheaper cost neighbouring locations.

Fifth largest DC market in APAC

Singapore stands as the fifth largest data centre market in Asia Pacific and the largest in ASEAN, in terms of IT load, as at end-2023. Based on a report by property consultant Cushman & Wakefield, the Singapore data centre market comprised 973MW[1] of operational capacity as at end-2023, spread across 25 operators and 51 data centres, ranking behind Mainland China (3.9GW), Japan (1.3GW), Australia (1.2GW) and India (1.1GW).

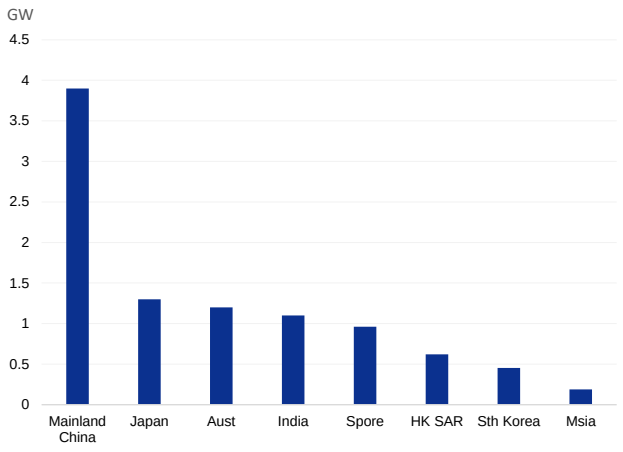
Cushman & Wakefield also said that global cloud service providers (CSP), namely Google, Microsoft and Amazon Web Services, were the largest CSPs in Singapore. Colocation operators, such as STT Global Data Centres (not listed), Equinix (EQIX US, non-rated), Digital Realty(DLR US; non-rated), Singtel (ST SP, Add, TP S$2.9; CP S$2.63), AirTrunk (not listed), Keppel (KEP SP; Add; TP: S$8.98; CP: S$6.5),and Global Switch (not listed), cumulatively accounted for more than 55% of operational capacity in Singapore as at end-2023.

Figure 39: Market share of key data centre owner/operators in Singapore by IT load as at 2023



SOURCES: CGSI RESEARCH ESTIMATES, COMPANY REPORTS

Figure 40: Size of selected data centre market in APAC by IT load as at Dec 23



SOURCES: CGSI RESEARCH, CUSHMAN & WAKEFIELD

[1] Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.

Singapore DC market to post 4.5% CAGR in 2023-27F

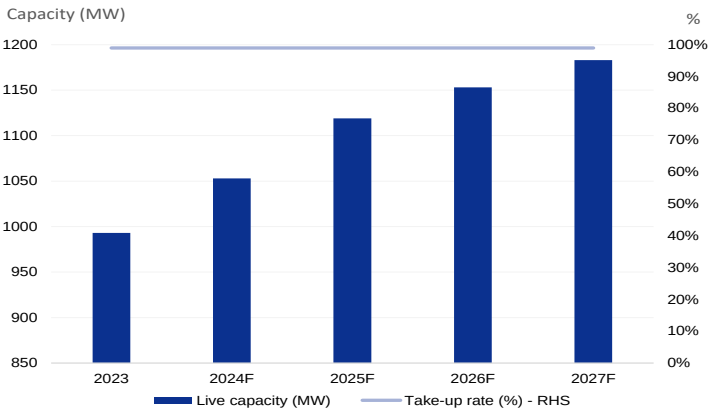
According to DC Byte data, the Singapore data centre market is projected to deliver CAGR of 4.5% in 2023-27F, slower than the estimated 6.4% CAGR in 2015-19. Utilisation rate stood at a high 99% at end-2023 and DC Byte expects take-up to remain at 99% on the back of limited supply and robust demand. To put this into perspective, while 14 DCs with a total IT capacity of 768MW were approved to be constructed in 2015-19, the relaxation of the 2-year moratorium (2019-21) on new data centres meant that only an additional 80MW of new capacity was awarded to 4 DC operators – Equinix, Microsoft, GDS and AirTrunk-Byte Dance consortium - in 2023. This, coupled with the 300MW outlined in the recently announced Green Data Centre Roadmap (with another 200MW set aside for operators that use green energy), would translate to c.26-34% increase in total capacity (including live, under development, committed and early stage) over the next 10 years. We believe the limited new capacity will likely keep utilisation rates high in Singapore over the next 3-4 years.

Figure 41: New data centre capacity approved in 2010-23

	No. of DCs	IT Capacity Awarded (MW)
2010-2014	12	307
2015-2019	14	768
2023	4	80

SOURCES: CGSI RESEARCH, MINISTRY OF TRADE AND INDUSTRY

Figure 42: Singapore data centre supply by IT load



SOURCES: CGSI RESEARCH, CUSHMAN & WAKEFIELD

Outlining a holistic digital connectivity plan

At the launch of the Digital Connectivity Blueprint in Jun 2023, Singapore outlined its holistic plans for digital connectivity over the next 10 years. These include building capacity for the widespread use of new applications, such as data intensive operations and heavy use of artificial intelligence (AI), development of sustainable software, scaling up its use of autonomous systems and enabling innovative solutions in key industries, such as maritime and aviation, and using technology such as low-earth orbit satellite services. To complement these, there are plans to expand the number of subsea cable landings in Singapore. This was followed by the launch of the Green Data Centre Roadmap in May 2024.

Figure 43: Singapore: Key policy developments and investments

Announcement Date	Details
2019	Singapore imposes an implicit 2-year moratorium on construction of new data centres
20-Mar-21	Keppel, Facebook and Telin Announce Bifrost Cable System which will connect Singapore, Indonesia, the Philippines, Guam and the west coast of North America
20-Jul-22	EDB and IMDA launch pilot Data Centre - Call for Application (DC-CFA) to support sustainable growth of DCs
5-Jun-23	Digital Connectivity Blueprint Launch 2023 - Estimated S$10bn in submarine cable and S$10bn-12bn in new green DC investments, largely funded by the private sector over the next 10 years
14-Jul-23	EDB and IMDA award about 80 MW of new capacity to four data centre operators through the pilot DC-CFA exercise
30-May-24	IMDA launches Green Data Centre Roadmap, aiming to provide at least 300 MW of addition al capacity in the near term

SOURCES: CGSI RESEARCH, ECONOMIC DEVELOPMENT BOARD (EDB), INFOCOMM MEDIA DEVELOPMENT AUTHORITY (IMDA)

Figure 44: New submarine cables scheduled to connect Singapore to the rest of the world

New submarine cables	Expected live date	Owners	Landing stations
Asia Direct Cable (ADC)	2024	China Telecom. China Unicom, National Telecom, PLDT, Singtel, Softbank Corp, Tata Communications, Viettel Corp	China, Japan, Philippines, Singapore (Tuas), Thailand, Vietnam
India Asia Xpress (IAX)	2024	China Mobile, Reliance Jio Infocomm, others	India, Malaysia, Maldives, Singapore (Tuas), Sri Lanka, Thailand
MIST	2024	Orient Link	India, Malaysia, Singapore (Tuas), Thailand
Asia Link Cable (ALC)	2025	China Telecom, DITO Telecommunity, FPT Telecom, Globe Telecom, Singtel, TIME dotCom, Telekom Malaysia, Unified National Networks (UNN)	Brunei, China, HK SAR, Malaysia, Philippines, Singapore (Changi South), Vietnam
Bifrost	2025	Keppel T&T, Meta, Telin	Guam, Indonesia, Mexico, Philippines, Singapore (Tuas), USA
Echo	2025	Google, Meta	Guam, Indonesia, Palau, Singapore (Changi North), USA
SEA-H2X	2025	China Mobile, China Unicom, Converge ICT, Irix Sdn Bhd	China, Malaysia, Philippines, Singapore (Tuas), Thailand
SeaMeWe-6	2025	Bahrain Telecommunications Company (Batelco), Bangladesh Submarine Cable Company Ltd (BSCCL), Bharti Airtel, China Unicom, Dhiraagu, Djibouti Telecom, Microsoft, Mobily, Orange, PCCW, Singtel, Sri Lanka Telecom, Telecom Egypt, Telekom Malaysia, Telin, Transworld	Bahrain, Bangladesh, Djibouti, Egypt, France, India, Malaysia, Maldives, Oman, Pakistan, Qatar, Saudi Arabia, Singapore (Tuas), Sri Lanka, UAE
Southeast Asia-Japan Cable 2 (SJC2)	2025	China Mobile, Chunghwa Telecom, Donghwa Telecom, KDDI, Meta, SK Broadband, Singtel, Telin, True Corporation, VNPT-Vinaphone	China, Japan, Singapore (Changi South), South Korea, Taiwan, Thailand, Vietnam
Apricot	2026	Chunghwa Telecom, Google, Meta, NTT, PLDT	Guam, Indonesia, Japan, Philippines, Singapore (Tuas), Taiwan
INSICA	2026	Singtel, Telin	Batam, Singapore (Tuas)
Asia Connect Cable-1 (AAC-1)	2027	Inligo Networks	Australia, Guam, Indonesia, Philippines, Singapore, Timor-Leste, USA
Hawaiki Nui 1	2027	BW Digital	Australia, Indonesia, Papua New Guinea, Singapore, Solomon Islands

SOURCES: CGSI RESEARCH, TELEGEOGRAPHY

Regulatory environment centered around sustainability and resource efficiency

While data centres are critical infrastructure supporting the digital economy, there is a need to balance the growth of data centre supply against Singapore's environmental commitment towards peak CO2 emissions by 2030 and net zero carbon by 2050, in our view. According to the government, data centres account for 7% of electricity consumption in Singapore and this expected to grow to 12% by 2030F. Singapore's DC power usage effectiveness (PUE) averaged 1.47 in 2023, with scores ranging from 1.2 to 1.9. For example, newbuilds such as SingTel's DC Tuas, scheduled to complete in 2H25, is an AI-ready and energy-efficient data centre (1.23 PUE) with a fully integrated submarine cable landing station.

New capacity to meet sustainability, strategic and economic criteria

The recently awarded 80MW of new capacity was the first under the Economic Development Board (EDB) and Infocomm Media Development Authority (IMDA) pilot Data Centre - Call for Application (DC-CFA), which included sustainability, strategic and economic criteria. The 4 awardees were not only able to deliver DC plans that met Green Mark DC Platinum Certification criteria but that would also expand Singapore's international connectivity, including through facilitating an increase in submarine cable capacity and setting up new carrier neutral exchanges, anchoring key compute capacities, including AI/ML compute, and High-Performance Compute in Singapore, while linking with offshore DCs to complement Singapore's capacity as well as offering economic opportunities to Singapore beyond the direct DC investment. Going forward, we expect future capacity allocations to go to operators who are able to provide a holistic value proposition that fulfils the government's sustainability, strategic and economic criteria.

Green Data Centre Roadmap to provide an additional 300MW of capacity

The Green Data Centre Roadmap was launched on 30 May 2024 with the aim of charting a sustainable pathway for the continued growth of DCs in the country. The roadmap is likely to provide at least 300MW of additional capacity in the near term, with much more through green energy deployments, in our view. Through the additional capacity, the government aims to seed innovation to accelerate energy efficiency and find ways to unlock further capacity through green energy in order to support Singapore's ambitions to become a digital economy. We believe this will be achieved through partnerships with the industry to drive best-in-class energy efficiency and the use of green energy. The green standards outlined in the roadmap include ways to improve energy efficiency by upgrading equipment and reducing energy used for air conditioning by raising the operating temperature to 26 degrees Celsius to support the development and operation of energy-efficient DCs with PUE of 1.3 or lower over the next 10 years. In addition, IMDA will co-develop enhanced standards and certifications with the industry to refresh BCA-IMDA Green Mark for DCs by end-2024F to raise the standards for energy efficiency in DCs, introduce standards for IT equipment energy efficiency and liquid cooling by 2025F to facilitate adoption of these technologies in Singapore as well as incentivise the industry's journey towards sustainability through EDB's enhanced Resource Efficiency Grant for Emissions as well as the new Energy Efficiency Grant for the DC sector.

Recent data centre developments in Singapore

In our view, floating data centres solve several challenges faced by the Singapore's data centre market, such as alleviating Singapore's space constraints by freeing up valuable land for other urban uses, reducing energy and treated water required for cooling as well as shortening the speed-to-market through the use of a modular design. KEP's floating data centre park journey began in Apr 2018 with the formation of an inhouse innovation team tasked to explore the possibility of building floating data centre modules. In May 2020, KEP inked partnerships with Toll Group (non-listed) to explore the development of a near-shore floating data centre park at Loyang Offshore Supply Base, following which KEP received approval from the regulatory authorities to build its floating data centre in Apr 2023. We understand that KEP is currently in the process of commercialising its floating data centre.

Together with its other partners Royal Vopak (VPK US; non-rated), City Gas (non-listed) and City-OG Gas Energy Services (non-listed), KEP is exploring the use of LNG and hydrogen to power its floating data centres.

Key beneficiaries of the DC theme

Within the Singapore data centre market, we see potential beneficiaries across the industry value chain, such as owners/operators, real estate landlords as well as energy providers. Our preference to play the Singapore data centre theme are players that can benefit from the complete value chain, i.e. those deriving returns from the development to operation of the data centre as this would enable them to maximise investment returns. We believe these include ST and KEP. We think that, with the increasing number of data centres to be completed over the next few years, energy providers such as SCI and KEP are also likely to enjoy higher energy off-take and contributions from this sector.

Figure 45: Potential beneficiaries across the data centre value chain

Construction

Main contractor
- * **Keppel**
- * **SingTel**
- # ACME Associates
- # RCS Engineering
- # Shimizu Corp
- # Sim Lian Construction Co
- # Fortis
- # ABB Ltd
- # Precomp Singapore
- # AECOM

Environment consultant
- # DSCO Group
- # Afogreen Build Pte Ltd
- # Building System & Diagnostics
- # Surbana Jurong

C&S Engineer
- # Beca Carter Hollings & Ferner
- # CPG Consultants
- # BK Consulting Engineers

Mechanical & Engineering Equipment

Carrier
- * **SingTel**
- * **Starhub**
- # M1 Ltd

Cooling & Power
- + Schneider Electric
- + Vertiv
- + Siemens AG

M&E Engineer
- # Wah Loon Engineering
- # i3 Critical
- # DSCO Group
- # Plan-One Engineering

Hardware
- + Avago ^*1*
- + Schneider Electric
- + Cisco Systems
- + Dell Technologies
- + Hewlett Packard Enterprise^*1*
- + IBM
- + Intel ^*3*
- # Huawei
- + Lenovo
- + Nvidia ^*2*

System Integrator
- * **CSE Global**
- * **ISDN**
- + Nera Telecommunications

Energy providers
- * **Sembcorp**
- * **Keppel**
- # SP Group
- # Tuas Power Supply

Operators
- * **Keppel**
- * **SingTel**
- * **ST Engineering**

DC Owners
- * **SingTel**
- * **Mapletree Industrial Trust**
- * **CapitaLand Ascendas Trust**
- * **Keppel DC REIT**

Note:
**** Singapore Coverage***
 # Not Listed
+ Listed but not under Singapore Coverage
^ : indirect beneficiaries
^1 : ***Venture***
^2 : ***Frencken***
^3: ***AEM***

SOURCES: CGSI RESEARCH, COMPANY REPORTS

Keppel. As an asset manager and operator, KEP is a potential DC beneficiary. Its Connectivity segment, which comprises the Data Centres and Networks Division and M1, possesses deep expertise in designing, developing and operating high-quality data centres and subsea cable systems, as well as providing 5G network and solutions to consumers and enterprises. As a leader in data centres, the Data Centres and Networks Division develops higher-capacity and more sustainable digital infrastructure to support rapid digitalisation. Within its data centre business, KEP develops and operates data centres for its private funds (Alpha Data Centre Fund an Keppel DC Fund IIS). and listed KDC REIT (KDCREIT SP, Add, TP: S$1.88 CP: S$1.78). As at Jun 2024, KEP owns/operates 32 data centres, spread over 10 countries globally. On the earnings front, data centre-related contribution is small; we estimate data centre revenue (from both data centre operations and fund management) formed 1-2% of KEP's FY23 group revenue. More meaningful impact could come from monetisation of data centre assets, with proceeds channelled towards growing its asset-light fund management business, in our view. To this end, KEP owns and operates two data centres in Singapore - KDC SGP 7 and KDC SGP 8. KDC SGP 7 is fully leased out and operational while KDC SGP 8 is expected by management to commence operations in 3Q24F.

Singtel. We see Singtel as a direct beneficiary of growing data demand in ASEAN. From 2026F onwards, Singtel will have 120MW of operational data centre capacity in Singapore, of which 58MW comes from the newly constructed DC Tuas, an AI-ready and energy-efficient data centre (1.23 PUE) with a fully integrated submarine cable landing station. We believe revenue contribution from data centres in FY3/27F should be approximately double that of FY24F levels, premised on 1) commencement of DC Tuas in 2026F and quick utilisation ramp-up, and 2) new revenue streams gaining traction (e.g. GPU-as-a-service). However, we believe steady increase in investment costs and growth capex should weigh on the segment's margins over FY24-26F. Further upside could come from commencement of regional data centres Indonesia and Thailand but we expect earnings contribution from these to be smaller as Singtel holds minority stakes in these projects.

ST Engineering. STE provides data centre solutions, which include customised design and build of green data centres, managed hosting services, facility management/operation services, and cooling solutions. STE expects revenue from its digital business (comprises Cloud, AI analytics, and cybersecurity) to meaningfully exceed S$500m by end-2026F (end-2023: S$463m). While STE has not publicly disclosed its revenue from data centres, we believe contribution (as a % of digital business) is low at the moment.

CSE Global provides systems integration services for data centres in the US. Currently, CSE's main customer is a US-based hyperscaler, whereby the group assists with the assembly and installation of key systems (e.g. cooling systems, backup power, surveillance systems). Revenue contribution from data centre contracts is still small (we estimate less than 5% of FY23 revenue). According to the group's commentary in its 1Q24 analyst brief, CSE intends to focus on growing its customer base in the US and does not expect to expand into Asia over the near term.

Thailand – significant growth opportunities still exist

By Thanapol JIRATANAKIJ | E: thanapol.ji@cgsi.com

Background and landscape

In the context of the ASEAN region, Thailand is a relatively small player in the data centre scene compared to its neighbours like Malaysia and Singapore.

As of 1Q24, there were 59 data centres with a total capacity of 66MW in Thailand, according to data by Cushman and Wakefield. Additionally, there are also 80MW currently under construction and 246MW of new capacity still in the planning stage.

A more aggressive estimate by DC Byte suggests Thailand's capacity could rise as high as 642MW by 2028F.

We believe that Thailand has strong domestic demand for data centres owing to an increasingly tech-savvy population that has led to a surge in data demand. We also believe Thailand infrastructure (such as a reliable power grid and developed telecommunication networks) is robust and constantly improving, which makes it an attractive destination for data centre investments.

Under the Thailand 4.0 framework, which aims to transform the current economy, heavily reliant on manufacturing, into one that is more digitally driven, the Board of Investments (BOI) has introduced a range of tax and non-tax incentives to promote growth in the data centre industry in Thailand. These include 1) 8 years' tax holiday and withholding tax exemption son dividend payments, 2) easier repatriation of profits, and 3) lifting foreign ownership restrictions (including permission to own land for use in the data centre projects)

Figure 46: Thailand government timeline on data centre support

Timeline	Data center support policy
2011	Launch of the "Smart Thailand" policy, aimingto enhance the country's ICT infrastructure and promote digital transformation
2012	Establishment of the Minisrty of Digital Economy and Society (MDES)
2015	Introduction of the "Thailand 4.0" economic framework which emphasises the development of digital infrastructure, including data centers
2017	Luanch of the Eastern Econonomic Corridor (EEC) initiative which is a special economic zone designed fto attract high-tech industries including data centers. EEC offers enhanced incentives amd allows more foreign ownership
2018	Amendments of the Foreign Business Act to facilittate higher levels of ownerishipin the data center sector
2020	Further liberisation of foreign ownership regulations and enhanced incentives for foreign investors in the data center industry under the BOI framework
2021	Merger of CAT Telecom and TOT to form National Telecom (NT) which aims at conslidating and strengthening Thailand's telecommunucation infrastructure

SOURCES: CGSI RESEARCH, COMPANY REPORTS

Many areas still need to be improved to compete with Malaysia

While we consider Thailand's power and connectivity infrastructures robust, we believe the country has a ways to go to be an attractive data centre destination when compared to Malaysia, which has more developed infrastructure for data centre construction purposes.

For example, Thailand has fewer submarine cables landing on its shore compared to Malaysia, limiting its capacity to handle large volumes of international data traffic and making it less attractive to global tech firms looking for greater connectivity. According to Submarine Networks, Thailand is connected by nine international submarine cable systems (vs. 19 in Malaysia).

We believe this is the result of Thailand's geographical location that is not as favourable for submarine cable routes compared to Malaysia. While Thailand is still connected to major international cables, it lacks the strategic centrality of Malaysia.

According to Bloomberg, Thailand also scores lower than Malaysia in terms of 1) ease of getting a permit, 2) energy security, and 3) global cybersecurity.

Nevertheless, the Thai government has undertaken several initiatives to address the country's key deficiencies. For instance, the government is investing in enhancing connectivity by expanding the submarine cable network; the new Asia Direct Cable (ADC) is an example of such investments aimed at improving international bandwidth and connectivity. Furthermore, the Thai government is also promoting the use of renewable energy sources for data centres to ensure sustainability and reduce operational costs. Data centres in industrial estates usually require dedicated power supplies and we believe renewable energy is a viable options.

Recent data centre investment news in Thailand

- Microsoft

In May 2024, Microsoft announced a major investment to establish a new data centre hub in Thailand. It plans to open its first regional data centre to enhance the availability of its Azure cloud platform. Microsoft also aims to provide AI skilling opportunities for over 100,000 people, supporting the local developer community.

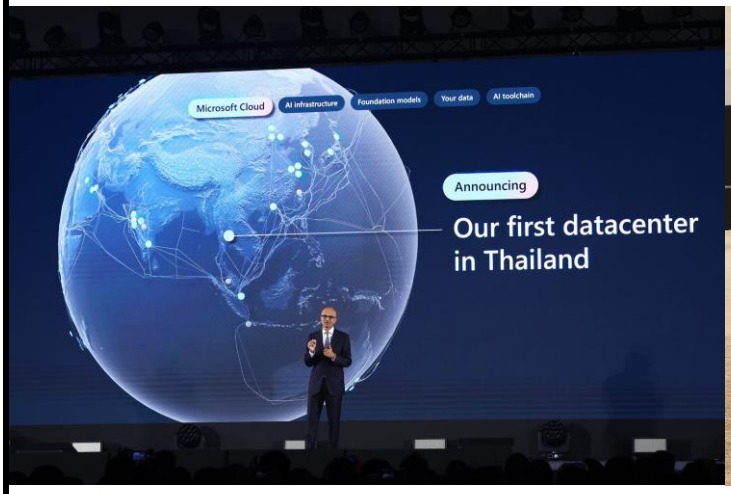
- GSA (JV by Singtel, Gulf , and AIS)

In Feb 2023, Gulf Energy Development (GULF TB; non-rated) (40%), Singtel (35%) and Advance Info Service (ADVANC TB; Add; TP THB259; CP THB208) (25%) formed a JV to build a new hyperscale data centre near Bangkok. This facility, operated by GSA Data Centre Company Limited (non-rated), is set to start operations by 2025F with a capacity of over 20MW.

- Amazon Web Services (AWS), Google and Microsoft

According to a Thai government spokesperson in Nov 2023, Thailand will receive a total of THB300bn worth of investment from Amazon Web Services (AWS), Google and Microsoft. However, the specific timeline for the investments was not provided. It was also reported that AWS plans to build data centres in Thailand with a budget of US$5bn over 15 years.

Figure 47: Microsoft Chairman and CEO Satya Nadella announcing the building of a data centre in Thailand (7 May 2024)



SOURCES: CGSI RESEARCH, MICROSOFT

Figure 48: Satya Nadella with Thailand's prime minister Srettha Thavisin

SOURCES: CGSI RESEARCH, MICROSOFT

Figure 49: Potential new data centre investments in Thailand

Firms	Investment	Details
Microsoft	Not specified	Establishing a new data center region in the Eastern Economic Corridor (EEC)
Amazon Web Services (AWS)	US$5bn over 15 years	Building a large-scale data center infrastructure to enhance cloud services
Google	US$2.85bn	Expanding cloud region capabilities in Thailand
NTT Ltd	US$90m	Developing the Bangkok 3 Data Center (BKK3) with a maximum IT capacity of 12MW
Telehouse	US$74m	Opened its first data center on Rama IX Road, Bangkok, with a power capacity of 9.5MW
ST Telemedia Global Data Centres (STT GDC)	Not specified	Expanding data center capacity and services in Thailand
Alibaba Cloud	Not specified	
Tencent Cloud	Not specified	
Huawei	Not specified	

SOURCES: CGSI RESEARCH, COMPANY REPORTS

Figure 50: Progress of investments in data centres in Thailand

SOURCES: CGSI RESEARCH, BOI

Key incumbents

- True IDC

A subsidiary of True Corporation (TRUE TB; Hold; TP THB8; CP THB8.65), IDC is a prominent data centre provider in Thailand, operating multiple facilities offering colocation, cloud computing, and disaster recovery services. As of May 2024, True IDC operated 4 data centres in Thailand.

- National Telecom (NT)

NT (non-listed) was formed from a merger between CAT Telecom and TOT. NT provides co-location and cloud services, leveraging its extensive telecommunications infrastructure. As of May 2024, NT operated 13 data centres across Thailand.

- Supernap Thailand

A subsidiary of DigitalBridge Group (DBRG US; non-rated), Supernap, located in Chonburi, was launched in 2017 and is one of Southeast Asia's largest data centres. It offers co-location and cloud hosting services, featuring advanced technology and robust security measures. As of May 2024, Supernap operated 3 data centres in WHA Chonburi Industrial Estate 2 (110km from Bangkok).

- ST Telemedia Global Data Centres (STT GDC)

STT GDC (non-listed) has made significant data centre investments in Thailand and has three facilities currently in operation. Launched in 2021, the STT Bangkok 1 facility is the first carrier-neutral hyperscale data centre in Bangkok (according to STT); the company subsequently opened STT Bangkok 2 and 3. STT said its collective IT capacity for these three data centres is 42MW.

Other potential beneficiaries

- Delta Electronics Thailand (DELTA TB; Reduce; TP THB60; CP THB87.25)

A subsidiary of Delta Electronics Inc (2308 TT, Non-rated) is a global player in power and thermal management solutions. Its products and services include power supplies and solutions for data centres. With the data centre business contributing c.30% of revenue in FY24F, we believe the company is well-positioned to benefit from the expanding investment in data centres in Thailand as this usually results in 1) increased demand from power solutions, 2) growing need for advanced cooling technologies, and 3) greater push for energy efficiency and sustainability.

Nevertheless, we believe the upsides are fully reflected in its demanding valuations of 58x/53x FY24/25F P/E.

- WHA corporation (WHA TB; Add; TP THB6.35; CP THB5.05)

WHA offers warehouse and logistics solutions, industrial estate development, utilities and power services in Thailand. We believe WHA stands to gain significantly from companies purchasing its land for data centre construction. Furthermore, companies that buy land from WHA often develop facilities that utilise WHA's utilities and power services, such as water and power supply, thereby creating a long-term revenue stream for WHA.

- Amata Corporation (AMATA TB; Add; TP THB30.75; CP THB21.4)

Amata is another industrial estate developer that stands to benefit from the growth of data centres in Thailand.

- Infraset Thailand (INSET TB; non-rated)

INSET specialises in providing integrated telecommunications infrastructure and engineering solutions, including data centre construction, network system installations, and maintenance services. In 2022, the majority of INSET's revenue was derived from the construction and mechanical and electrical (M&E) system installations for data centre projects. Its customers include Information and Communication Networks (ICN TB; non-rated), Forth Corp (FORTH TB; non-rated), TRUE , ALT Telecom (ALT TB; non-rated) and NT.

- Symphony Communication (SYMC TB; non-rated)

SYMC is a telecommunications service provider in Thailand, focusing on delivering high-speed, reliable connectivity solutions across various platforms.

One of their significant ventures is the MCT (Malaysia-Cambodia-Thailand) submarine cable system. The MCT submarine cable system, a collaborative project with Telekom Malaysia and Telcotech (Cambodia), spans approximately 1,300km. This system utilises advanced 100 Gbps technology with a total capacity exceeding 30 Tbps. The cable connects Cherating in Malaysia, Sihanoukville in Cambodia, and Rayong in Thailand, enhancing regional connectivity. MCT was launched in early-2017 and supports increased international bandwidth, facilitating efficient interconnection between major ASEAN cities and providing a gateway to global networks. We understand that SYMC's clients include global hyperscalers with data centres located in Bangkok and Rayong.

- Gulf Energy Development (GULF TB; non-rated)

Gulf is one of Thailand's largest power producers with a gross installed capacity of 13,856MW as of Apr 2024. Apart from its investment in GSA's data centre facilities, we believe the expansion of data centres in Thailand could also provide opportunities for Gulf to establish long-term power purchase agreements (PPAs) with data centre operators.

- B.Grimm Power (BGRIM TB; non-rated)

BGRIM is another major power producer in Thailand with a gross installed capacity of 4,021MW across Thailand and several other countries. As of May 2024, BGRIM operated 21 small power plants (SPPs) located within various industrial estates in Thailand. As we mentioned earlier in this report that data centres need stable and consistent power sources as well as efficient energy solutions to ensure smooth operation, we believe the increasing number of data centres within Thailand's industrial estates presents BGRIM with an opportunity to expand its energy supply portfolio.

Indonesia – steady growth in data centres

By Bob SETIADI, Rut Yesika SIMAK| E: bob.setiadi@cgsi.com, rut.simak@cgsi.com

Background and landscape

By the end of 2023, total data centre capacity in Indonesia reached 514MW, estimated the Indonesia Investment Authority (INA). We believe this will further increase to 1.41 GW by 2029F, driven by Indonesia's digital economic transformation, shift towards cloud computing, Internet of Things (IoT) technology and wider usage of artificial intelligence. Another driver of Indonesia's data centre potential is its rapidly growing tech-savvy population and the accompanying surge in data usage, in our view.

Under the "Making Indonesia 4.0" strategy, which aims to shift the economy towards advanced digital technologies, the Indonesian government has introduced a range of tax and non-tax incentives to foster growth in the data centre industry. These incentives include:

- Up to 10 years of tax holiday and exemption from withholding tax on dividends.
- Simplified procedures for repatriating profits.
- Relaxation of foreign ownership restrictions, including allowing foreign entities to own land for data centre projects.

Nonetheless, the data centre market in Indonesia is fragmented, with approximately 68 data centre companies in Indonesia, based on forecast by a market research firm Research and Markets. There are four main cities where most of the data centres in Indonesia are located (see figure below) given their unique advantages in supporting the expansion and efficiency of data centre operations in Indonesia.

Figure 51: Strategic location for data centres in Indonesia

City	Key features
Jakarta	Established infrastructure, proximity to major business districts
Batam	Strategic location close to Singapore, favourable economic zones
Bintan	Emerging data centre hub, strategic location
Surabaya	Significant opportunities for data centre development, serving the easten part of the country

SOURCES: CGSI RESEARCH

Figure 52: Indonesia data centre map in June 24

SOURCES: CGSI RESEARCH, BAXTEL

Government policy and regulation

The Indonesian government has implemented several regulations to support the development and operation of data centres in the country. These regulations are designed to ensure data protection, promote investment, and standardise data management practices, we believe. Figure 47 lists some of the key regulations.

Figure 53: Key government regulations and policies for data centres in Indonesia

Key Regulation	Description
Law No. 11 of 2008 on Electronic Information and Transactions (ITE Law)	Chapter IX discusses the role of the government and society. Article 40 relates to the facilitation of electronic systems by the government and strategic data storage by government agencies.
Government Regulation No. 71 of 2019 on the Implementation of Electronic Systems and Transactions (PSTE)	Article 92 addresses the facilitation of infrastructure, including data centres, by the government.
Government Regulation No. 18 of 2016 on Regional Government Devices	Article 120 concerns the coordination of data centre provision by the Ministry of Communication and Informatics.
Presidential Regulation No. 95 of 2018 on Electronic-Based Government Systems (SPBE)	Articles 27-30 relate to the infrastructure of SPBE and the National Data Centre.
Ministry of Communication and Informatics Regulation No. 8 of 2019 on the Organisation and Work Procedures of the Ministry of Communication and Informatics	Article 32 concerns the provision of the National Data Centre for infrastructure sharing across all regional governments by the Ministry of Communication and Informatics.
Additional key policies	**Description**
Personal Data Protection Law (PDP Law)	Enacted in 2022, the PDP Law mandates the lawful, fair, and transparent processing of personal data, similar to the EU's GDPR. This law emphasises data minimisation, accuracy, integrity, and security. It also defines the rights of data subjects, including access, correction, and deletion of personal data.
National Data Centres Initiative	The government is establishing four national data centres with Tier 4 certification in West Java, Batam Island, East Kalimantan, and East Nusa Tenggara to enhance digital infrastructure and ensure 99.995% uptime. These centres aim to support the digitalisation of government services by 2025.
Foreign Ownership Regulations	Under Presidential Regulation No. 10 of 2021, the Indonesian government has revised its foreign ownership policies to encourage more foreign investments in the data centre sector. This regulation allows greater foreign participation and ownership in data centre projects.
Tax Incentives	The Ministry of Finance provides various tax incentives to attract investments in the data centre industry. These include tax holidays of 100% of the corporate income tax (CIT) due for 5 to 20 years, depending on the investment amount. There are also tax deductions, such as a reduction in net taxable income by 30% of the invested amount, accelerated depreciation, and reduced withholding tax rates on dividends paid to non-residents.

SOURCES: CGSI RESEARCH, MINISTRY OF COMMUNICATION AND INFORMATICS

Indonesia data centre players

Key players in the Indonesian data centre industry include DCI Indonesia, Princeton DG (non-listed), NTT Ltd (non-listed), Telkom Indonesia, and EdgeConneX (non-listed). These companies are actively expanding their infrastructure to meet burgeoning demand driven by growth in the country's digital economy. The need for data centres will escalate further as more businesses transition to online platforms and digital services, in our view.

- **DCI Indonesia (DCII IJ; Non-rated):** As the leading data centre provider in Indonesia, DCI Indonesia operates multiple high-capacity facilities with total capacity of 83MW. The company is currently building its fifth data centre in Cibitung, which would increase its total capacity by 36MW and which caters to customers that seek large or hyperscale data centre placement. The company has a strategic partnership with Equinix, which allows DCI Indonesia to access International Business Exchange (IBX) data centres across the global market.

- **Princeton Digital Group (PDG):** PDG launched its 22MW JC2 hyperscale data center in Cibitung (Jakarta) in Sep 2023, transforming the company into a major player in the Indonesian market. As of 2023, PDG operated 6 data centres with a total capacity of 45MW in 4 cities in Indonesia and plans to develop a 96MW campus in Batam as part of its comprehensive SG+ strategy.

- **NTT Ltd**: NTT had 3 campuses throughout the Jakarta area with total capacity of 45MW in 2023, which offers carrier-neutral facilities, supporting the growing demand for interconnectivity and next generation AI solutions.

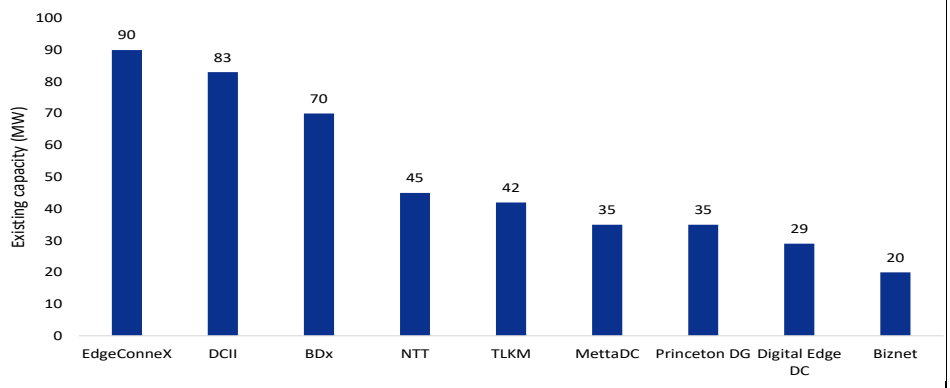
- **Telkom Indonesia (TLKM IJ):** Through its subsidiary Telkom-sigma, Telkom Indonesia operates 32 data centres (27 in Indonesia, 5 outside Indonesia) with a total capacity of 42MW with average utilisation level of 70% as at 1Q24. TLKM plans to increase its data centre capacity to 55MW in 2024F by increasing capacity at the Cikarang Hyperscale Data Centre, with the long-term goal of achieving 400MW by 2030F. To support its expansion, TLKM is currently planning to sell a partial stake in its data centre business in 2H24F.
- **EdgeConneX:** EdgeConneX acquired colocation firm GTN (non-listed) in 2022 to support its data centre development in the Greater Jakarta area. The company expanded the facility to 90MW by end-2023. The company has raised US$404m in sustainability-linked financing to further develop the Jakarta campus to 120MW.

Figure 54: Key data centre operators and their expansion plans in Indonesia as at 2023

Operator	Data Center	Building size (m2)	Type	Collocation	Expansion Focus	Expansion Plans
BDx - ISAT	CGK1-CGK4	51,446	Tier 3	Retail	Service Expansion	Sustainability initiatives
Biznet	MIG	8,600	Tier 3	Retail	Service Expansion	High reliability and availability focus
DCI Indonesia (DCII)	H1, H2, E1	794,000	Tier 4	Hyperscale	Capacity Expansion	New facilities planned
Digital Edge DC	EDGE1 & EDGE2	13,720	Tier 3	Retail	New Build	Next phase planned
EdgeConneX	Bekasi	15,000	Tier 3	Retail	Capacity Expansion	Phase 2 underway
MettaDC	ID01	10,000	Tier 3	Retail	New Build	Partnership with tech firms
NTT	Jakarta 2	38,000	Tier 4	Hyperscale	New Build	Capacity increase in progress
Princeton DG - EXCL	JC1 & JC2	23,850	Tier 3	Retail	New Build	Collaborations with AWS and NVIDIA
Telkom Indonesia (TLKM)	Telkom Sigma	12,300	Tier 3	Hyperscale	New Build	Renewable energy adoption,infrastructure expansion

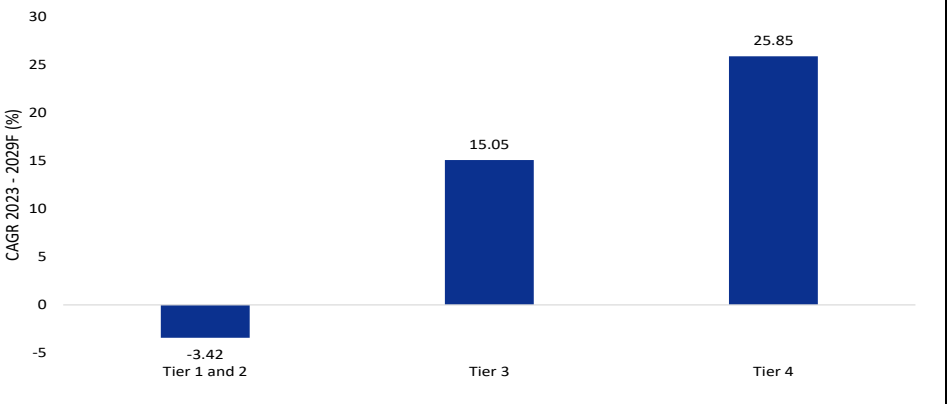
SOURCES: CGSI RESEARCH, COMPANY REPORTS, COMPANY WEBSITES

Figure 55: Existing capacity of key data centre operators in Indonesia



NOTE: DATA AS OF 2023
SOURCES: CGSI RESEARCH, COMPANY REPORTS

Figure 56: Tier 4 data centres in Indonesia estimated to deliver 25.85% CAGR by 2029F



SOURCES: CGSI RESEARCH, RESEARCH AND MARKETS ESTIMATES (www.researchandmarkets.com)

Recent investments in Indonesia data centres

Notable partnerships and investments in recent years include major initiatives by Google, AWS and Microsoft, and collaborations with local companies like Telkom Indonesia, Indosat Ooredoo (ISAT IJ; Hold; TP: Rp11,900; CP: Rp10,250), and XL Axiata (EXCL IJ; Hold; TP: Rp2,450; CP: Rp1,717). These efforts are aimed at enhancing cloud infrastructure, developing advanced data services, and expanding data centre capabilities across Indonesia. Below is a detailed table highlighting key partnerships and investments in Indonesia's data centre industry, sorted by the most recent developments.

Figure 57: Recent investment in Indonesia data centres

Partnership	Date	Description
Data Center Indonesia (DCII)	Ongoing	Continues to ex pand its data c enter footprint in Jakarta and other strategic locations
Google Cloud	Apr-24	Announced substantial investment to establish a new data centre region in Indonesia, enhancing cloud availability and supporting local developers through AI training programs
Amazon Web Services (AWS)	Mar-23	Unveiled plans to construct multiple data centres across Indonesia with a US$3bn investment over the next decade, focusing on hyperscale facilities
Microsoft	Nov-23	Committed to investing in a new data centre region in Indonesia to expand its Azure cloud platform and launching AI training programmes for over 50,000 individuals in the country
Equinix and GIC	Mar-22	Joint venture to develop and operate data c enters in Indonesia
Alibaba Cloud and Indoset Ooredoo	Jun-21	Developing advanced cloud services and data centres in indonesia
AWS and XL Axiata	Nov-21	Enhancing cloud infrastructure and data centre capabilities in Indonesia
Microsoft investment	Feb-21	Establishing first data centre region in Indonesia and a comprehensive skilling programme
Google Cloud and Telkom Indonesia	Dec-20	Expanded cloud region in Jakarta

SOURCES: CGSI RESEARCH, COMPANY REPORTS

Other beneficiaries

- **Schneider Electric Indonesia (non-listed):** A global leader in energy management and automation solutions. With approximately 25% of its revenue in FY24F coming from the data centre business, Schneider Electric Indonesia is well-positioned to benefit from increased demand for power and cooling solutions as well as energy efficiency and sustainability, in our view.
- **Multipolar Technology (MLPT IJ; non-rated):** Specialises in comprehensive IT infrastructure and engineering solutions, including data centre design, construction, and maintenance. Multipolar Technology plays a significant role in the Indonesian data centre market by offering end-to-end services for data centre projects.
- **Jababeka (KIJA IJ; non-rated):** A key player in industrial estate development in Indonesia, providing integrated infrastructure and utilities. Jababeka stands to benefit from land sales for data centre construction, aligning with its utilities and power services, and creating a long-term revenue stream.
- **Surya Citra Media (SCMA IJ; non-rated):** Primarily a media company, SCMA is investing in digital infrastructure to support its growing online media services, which indirectly benefits from the data centre boom. We believe the expansion of data centres enhances SCMA's ability to deliver high-quality, reliable digital content to a wider audience.
- **Surya Semesta Internusa (SSIA IJ; non-rated):** Active in real estate development, construction, and hospitality, SSIA is increasingly involved in developing industrial estates, including areas designated for data centre construction. This positions SSIA to benefit from the growing demand for data centre space in Indonesia, in our view.
- **Mastersystem Infotama (MSTI IJ; non-rated):** As a leading information and communications technology company, Mastersystem provides comprehensive IT solutions, including system integration, post-implementation services, and maintenance. In our view, the company supports the Indonesia data centre industry's growth through its robust infrastructure solutions and strategic partnerships with global IT principals.

Challenges faced by the industry

The data centre industry in Indonesia is booming, in our view, driven by increasing demand for digital services and significant investments. However, we think there are several key challenges that need to be addressed to sustain and accelerate this growth:

- **Power availability and reliability**
  One of the primary challenges is ensuring a stable and reliable power supply. Data centres are energy-intensive and Indonesia's power infrastructure is still developing, in our view. Furthermore, development of green data centres is hampered by Indonesia's relatively low renewable mix of only 13% in 2023. These challenges are compounded by regulatory complexities and the need for cost-effective electricity production.

- **Regulatory environment and bureaucracy**
  Bureaucratic inefficiencies often make doing business more expensive and challenging. While the government has made strides in improving the regulatory framework, including enacting the Personal Data Protection Law (PDP Law) in 2022, inconsistencies and delays in regulatory processes still pose significant hurdles for data centre operators, we believe.

- **Natural disasters**
  Indonesia is prone to various natural disasters, such as earthquakes, tsunamis, and volcanic eruptions. These natural risks pose a significant threat to data centre infrastructure. Ensuring that data centres are built to withstand such events (e.g., achieving Tier 4 certification for resilience) is crucial but also increases the complexity and cost of development.

- **Skilled labour shortage**
  There is a notable shortage of skilled labour in the data centre industry in Indonesia, if we compare to Singapore's data centre industry. Developing and maintaining advanced data centre operations require highly specialised skills that are currently in short supply in the country. This gap necessitates investment in education and training programmes to build capable local workforce, in our view.

- **Infrastructure development**
  Beyond power, other infrastructure components, such as Internet connectivity and physical structures, are crucial. While projects like the Palapa Ring have improved Internet connectivity across Indonesia, regions outside major urban centers still face challenges. Slow infrastructure development in potential data centre hubs like Batam Island could hinder the overall growth potential of the industry, we believe.

Catalysts and risks for the data centre industry

Catalysts

1) Growing demand for cloud services and data storage

The surge in digital activities has increased the need for cloud services, driving the demand for data centres to store and manage large amount of data.

2) Advancements in AI and machine learning

AI and machine learning applications require significant computing power and storage which fuels the expansion of data centres to accommodate these technologies.

3) Expansion of IoT devices

The increasing usage of internet of things (IoT) devices generates massive data that need processing and storage, thus necessitating data centre infrastructure to handle the data influx and ensure smooth operation.

Risks

1) Regulatory risks

Data centres consume large amounts of energy which could lead to concerns about their environmental impact and prompting regulatory scrutiny. For now, we expect regulatory risks to be the highest in Singapore given its constraints on resources (i.e. energy and land). Meanwhile, we expect regulatory risks in Thailand, Malaysia and Indonesia to be relatively limited in the next 3-5 years as the governments are still trying to attract more data centre investments into the countries. Thailand, for instance, has been deregulating on the data centre industry by lifting land ownership restrictions. A more stringent regulation could lead to a slower growth for the data centre industry.

2) Supply chain risks

The construction of AI data centre rely on critical high-tech components like GPU which could be vulnerable to supply chain disruptions, especially as supply is highly concentrated at the top manufacturer, TSMC. A supply chain disruption for hardware can cause project delays, increase costs and slow the growth of the industry. This would affect all players in the construction supply chain i.e. hardware providers, real estate landlords and contractors.

3) Demand risks

Competition among colocation providers could lead to lower rental rates for the industry, especially when new capacity is projected to increase at a rapid rate. As hyperscalers tend to rely on their own proprietary facilities for AI training purposes, the capacity addition among third party operators could exceed actual rental demand growth in the short term, thus leading to price wars.

Figure 58: Peer comparison

Company	Bloomberg Ticker	Recom.	Price (local curr)	Target Price (local curr)	Market Cap (US$ m)	P/E (x) CY24F	P/E (x) CY25F	P/E (x) CY26F	3-year EPS CAGR (%)	P/BV (x) CY24F	P/BV (x) CY25F	P/BV (x) CY26F	Recurring ROE (%) CY24F	Recurring ROE (%) CY25F	Recurring ROE (%) CY26F	EV/EBITDA (x) CY24F	EV/EBITDA (x) CY25F	EV/EBITDA (x) CY26F	Dividend Yield (%) CY23	Dividend Yield (%) CY24F	Dividend Yield (%) CY25F	Dividend Yield (%) CY26F
THAILAND																						
Advanced Info Service	ADVANC TB	Add	208.00	259.00	16,838	21.1	18.6	16.3	7.1%	6.62	6.39	6.15	32.9%	35.0%	38.4%	6.8	6.5	5.9	4%	4.4%	4.8%	5.5%
Amata Corporation	AMATA TB	Add	21.40	30.75	670	10.5	9.1	7.9	17.3%	1.12	1.04	0.96	11.4%	11.9%	12.6%	10.0	9.4	8.0	3%	3.8%	4.3%	4.9%
Delta Electronics (Thailand)	DELTA TB	Reduce	87.25	60.00	29,622	57.7	53.1	45.4	8.1%	13.79	11.94	10.31	26.7%	24.1%	24.4%	40.8	36.1	30.2	0%	0.7%	0.8%	0.9%
Gulf Energy Development PCL	GULF TB	NR	39.00	NA	12,452	24.9	21.4	19.2	15.0%	3.47	3.20	3.01	14.3%	15.6%	16.2%				2%	2.3%	2.7%	3.1%
Infraset PCL	INSET TB	NR	2.18	NA	47	15.9	13.0	12.3					14.8%						4%	4.3%	4.6%	4.6%
Symphony Communication PCL	SYMC TB	NR	7.90	NA	91														1%			
True Corporation	TRUE TB	Hold	8.65	8.00	8,135		111.9	55.8		3.65	3.59	3.48	-4.7%	3.2%	6.3%	7.3	7.2	7.0			0.4%	0.9%
WHA Corporation	WHA TB	Add	5.05	6.35	2,054	16.1	12.9	11.9	10.9%	2.13	1.99	1.86	14.1%	16.0%	16.2%	15.8	14.1	12.9	4%	4.0%	4.8%	5.2%
THAILAND Average					**69,910**	**36.8**	**29.6**	**25.5**	**21.1%**	**5.94**	**5.37**	**5.02**	**16.0%**	**18.8%**	**20.4%**	**9.8**	**9.3**	**8.6**	**2%**	**2.1%**	**2.2%**	
INDONESIA																						
DCI Indonesia Tbk PT	DCII IJ	NR	35,150.00	NA	5,080																	
XL Axiata	EXCL IJ	Hold	2,140.00	2,450.00	1,710	17.9	13.9	9.7	35.9%	1.03	0.99	0.94	5.9%	7.2%	9.9%	4.1	3.9	3.5	2%	3.4%	4.3%	6.2%
Indosat	ISAT IJ	Hold	10,250.00	11,900.00	5,030	16.3	13.7	11.8	24.0%	2.46	2.23	2.01	15.9%	17.1%	17.9%	4.7	4.5	4.2	2%	2.8%	3.1%	3.6%
Kawasan Industri Jababeka Tbk PT	KIJA IJ	NR	115.00	NA	145																	
Mastersystem Infotama PT	MSTI IJ	NR	1,450.00	NA	285																	
Surya Citra Media Tbk PT	SCMA IJ	NR	129.00	NA	610	11.5	9.8	10.8	37.1%	1.35	1.25	1.25	10.4%	13.3%	11.6%	7.9	6.8	6.4	3%	3.6%	4.9%	3.6%
Surya Semesta Internusa	SSIA IJ	Add	1,050.00	930.00	301														0%			
Telekomunikasi Indonesia	TLKM IJ	Hold	2,840.00	3,600.00	17,123	10.6	10.4	10.5	1.2%	1.95	1.84	1.74	19.1%	18.1%	17.1%	3.8	3.7	3.6	6%	6.4%	6.5%	6.5%
INDONESIA Average					**30,285**	**11.8**	**11.2**	**10.7**	**6.6%**	**1.91**	**1.78**	**1.67**	**15.9%**	**16.4%**	**16.1%**	**4.1**	**3.9**	**3.8**	**5%**	**5.3%**	**5.6%**	**5.8%**
MALAYSIA																						
Gamuda	GAM MK	Add	6.44	7.50	3,789	15.7	13.5	12.4	12.7%	1.45	1.35	1.25	9.7%	10.3%	10.5%	10.9	9.1	7.9	5%	1.9%	1.9%	1.9%
Inari-Amertron Bhd	INRI MK	Hold	3.69	2.90	2,952	37.2	32.8			5.29	5.24		14.3%	16.0%		26.1	23.5		2%	2.6%	2.9%	
Malaysian Pacific Industries	MPI MK	Reduce	39.60	27.40	1,673	44.9	32.7			3.80	3.50		8.7%	11.1%		13.5	11.7		1%	0.7%	0.8%	
PIE Industrial BHD	PIE MK	NR	6.63	NA	537	29.7	23.0	23.0	13.0%	3.87	3.29	3.29	13.4%	15.5%	14.3%				2%	1.1%	1.1%	1.1%
Sunway Construction Group Bhd	SCGB MK	Add	3.79	3.91	1,038	25.6	19.1	16.8	23.6%	5.35	4.69	4.12	22.3%	26.2%	26.1%	17.7	13.6	12.0	2%	2.0%	2.6%	3.0%
Sime Darby Property Berhad	SDPR MK	Add	1.37	1.25	1,978	21.0	19.0	19.7	3.8%	0.90	0.88	0.86	4.4%	4.7%	4.4%	17.9	17.0	17.0	2%	2.2%	2.1%	2.0%
Telekom Malaysia	T MK	Add	6.70	8.56	5,460	15.6	13.5	12.2	12.0%	2.57	2.35	2.15	17.3%	18.2%	18.4%	5.6	5.6	5.1	4%	3.8%	4.0%	4.5%
TIME dotCom Bhd	TDC MK	NR	5.01	NA	1,967	20.2	18.2	17.1	8.3%	2.21	2.13	2.01	10.9%	11.9%	12.1%	11.3	10.4	9.6	3%	4.8%	5.0%	5.2%
Unisem	UNI MK	Reduce	4.17	2.00	1,428	42.3	33.0	26.1	44.6%	2.79	2.74	2.67	6.8%	8.4%	10.4%	16.1	14.5	12.7	1%	2.0%	2.4%	2.9%
YTL Corporation	YTL MK	Hold	3.51	3.88	8,201	18.7	17.5			2.34	2.15		13.0%	12.8%		7.4	7.0		2%	2.0%	2.0%	
MALAYSIA Average					**29,881**	**20.6**	**18.1**	**14.9**	**13.2%**	**2.29**	**2.13**	**1.74**	**11.3%**	**12.2%**	**9.6%**	**8.8**	**8.2**	**7.7**	**3%**	**2.4%**	**2.6%**	**3.2%**
SINGAPORE																						
AEM Holdings Ltd	AEM SP	Reduce	1.90	1.82	439	26.8	10.0	10.3	102.6%	1.23	1.12	1.04	4.7%	11.7%	10.5%	8.9	5.6	5.2		0.9%	2.5%	2.4%
CapitaLand Ascendas REIT	CLAR SP	Add	2.54	3.06	8,253	16.6	16.4	15.9	0.2%	1.09	1.09	1.10	6.6%	6.7%	6.9%				6%	6.1%	6.2%	6.3%
Keppel DC REIT	KDCREIT SP	Hold	1.78	1.88	2,267	18.0	19.9	19.3	7.3%	1.31	1.31	1.32	7.5%	6.6%	6.8%				5%	4.9%	5.1%	5.3%
Keppel Ltd	KEP SP	Add	6.50	8.98	8,675	11.6	11.0	11.0	2.8%	1.05	1.01	0.98	9.3%	9.4%	9.1%	13.1	12.8	12.6	5%	5.6%	5.9%	6.2%
Mapletree Industrial Trust	MINT SP	Add	2.15	2.61	4,505	15.6	15.0	14.7	4.9%	1.22	1.22	1.22	7.8%	8.2%	8.3%				6%	6.5%	6.6%	6.7%
Sembcorp Industries	SCI SP	Add	4.98	7.01	6,560	9.6	9.2	9.1	-1.5%	1.68	1.48	1.32	19.0%	17.2%	15.3%	7.3	6.6	5.9	3%	2.6%	2.7%	2.8%
SingTel	ST SP	Add	2.63	2.90	32,091	18.1	16.4	15.0	9.5%	1.75	1.76	1.76	9.6%	10.7%	11.7%	9.6	9.2	8.6	6%	6.0%	6.6%	7.3%
ST Engineering	STE SP	Add	4.00	4.36	9,218	18.2	15.9	14.8	11.1%	4.71	4.26	3.81	27.2%	28.1%	27.2%	11.6	10.9	10.1	4%	4.1%	4.0%	4.0%
Venture Corporation	VMS SP	Add	14.00	15.93	3,000	14.0	12.8	12.2	6.8%	1.40	1.35	1.30	10.2%	10.7%	10.9%	7.8	7.1	6.5	5%	5.4%	5.4%	5.4%
SINGAPORE Average					**75,006**	**15.4**	**14.3**	**13.6**	**5.9%**	**1.57**	**1.53**	**1.50**	**10.2%**	**10.8%**	**11.1%**	**10.0**	**9.4**	**8.9**	**5%**	**5.4%**	**5.7%**	**6.1%**
Average (all)					**205,082**	**19.4**	**17.4**	**15.9**	**9.6%**	**2.34**	**2.21**	**2.10**	**12.1%**	**13.0%**	**13.1%**	**7.9**	**7.5**	**7.0**	**4%**	**3.9%**	**4.0%**	**4.5%**

SOURCES: CGSI RESEARCH ESTIMATES, COMPANY REPORTS, BLOOMBERG
Note: estimates for Non-rated {NR} companies are Bloomberg Consens us estimates
Data as of 20 JUN 2024

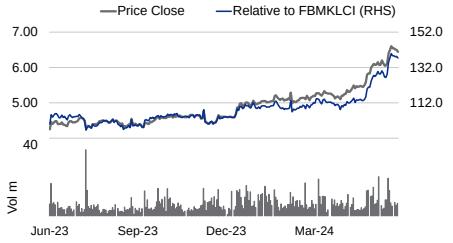
Company Briefs…

Malaysia

ADD *(no change)*

Consensus ratings*:	Buy 17	Hold 0	Sell 2
Current price:			RM6.44
Target price:			RM7.50
Previous target:			RM7.50
Up/downside:			16.5%
CGSI / Consensus:			12.8%
Reuters:			GAMU.KL
Bloomberg:			GAM MK
Market cap:			US$3,789m
			RM17,843m
Average daily turnover:			US$8.48m
			RM40.09m
Current shares o/s			2,659m
Free float:			71.7%

Source: Bloomberg



Source: Bloomberg

Price performance	1M	3M	12M
Absolute (%)	11	27	50.8
Relative (%)	13.1	23.3	36.1

Major shareholders	% held
EPF	14.6
ASN	13.7

Analyst(s)

CHONG Tjen-San, CFA
T (60) 3 2635 9298
E tjen-san.chong@cgsi.com

Gamuda

Leaving capacity for more data centre wins

- Gamuda is bidding for 4 to 5 more data centre projects after a large win from a US MNC.
- In our view, its value proposition is in its "Next-Gen Digital IBS" solutions and speed-to-market.
- Reiterate Add and SOP-derived TP of RM7.50.

Extending its data centre exposure

- We believe Gamuda represents one of the better proxies for exposure to the data centre construction theme in Malaysia.
- In late-May 24, in two separate announcements, Gamuda said it had clinched a total of RM1.7bn in new data centre contract wins. The first is a RM815m hyperscale data centre building contract from Sime Darby Property in Elmina Business Park A while the second is a RM929m mechanical, electrical and plumbing (MEP) contract from Pearl Computing Malaysia, which we believe is linked to a US MNC.
- Judging by most hyperscalers building a data centre presence in Malaysia, we believe there will be other subsequent phases to the US MNC's contract. Additionally, in our view, there may be further MEP works as the 49-acre site can accommodate a higher capacity data centre; the high building contract value also suggests this.
- While not announced by the company, an article in The Star newspaper dated 21 May 2024 reported Gamuda had bagged a RM300m project for AIMS earlier in the month.

What's Gamuda's edge for data centre projects?

- Gamuda's unique proposition for data centre projects is partly its track record in completing the AIMS Cyberjaya Block 2 with a value of RM200m for an IT load of 8MW in just eight months vs. other bidders that submitted bids for completion in 12-16 months.
- On top of this, in our view, Gamuda's advantage in data centre construction lies in its ready IBS plant with its "Next-Gen Digital IBS" solutions and speed-to-market. We believe these factors allow it to provide superior and faster completion compared to its competitors and at pretax margins of 10-20% (vs. peers' high single-digit).
- Gamuda has taken a more opportunistic approach to data centre projects and has recommissioned its second IBS plant; both have capacity of RM5bn in its orderbook. Capacity for data centres will take precedence over internal property projects, it said. As of Jun 24, it was also negotiating for 4 to 5 more data centre projects.

Reiterate Add and SOP-derived TP of RM7.50

- We reiterate our Add rating with an SOP-derived TP of RM7.50, which values the stock at an undemanding 15.8x CY25F P/E, still below mean levels since 2005. We continue to like Gamuda for its solid execution track record and diversified geographical reach. Valuations remain attractive at just 13.7x CY25F P/E (below 18-year mean levels of 17x) on the back of a 3-year EPS CAGR of 16% (FY23-26F) and anchored by its strong orderbook of RM24bn (as at Jan 24). Key downside risks: potential labour issues and higher raw material costs. Key re-rating catalysts: more construction wins and stronger property sales.

Financial Summary	Jul-22A	Jul-23A	Jul-24F	Jul-25F	Jul-26F
Revenue (RMm)	4,902	8,220	15,325	18,192	20,717
Operating EBITDA (RMm)	970	1,080	1,474	1,812	2,119
Net Profit (RMm)	806	860	1,017	1,197	1,359
Core EPS (RM)	0.32	0.33	0.38	0.45	0.51
Core EPS Growth	62.6%	3.7%	15.9%	17.7%	13.5%
FD Core P/E (x)	20.24	19.52	16.84	14.31	12.60
DPS (RM)	0.12	0.50	0.12	0.12	0.12
Dividend Yield	1.86%	7.76%	1.86%	1.86%	1.86%
EV/EBITDA (x)	15.36	16.92	12.13	9.81	8.23
P/FCFE (x)	14.52	7.30	13.29	13.71	11.55
Net Gearing	(7.8%)	25.1%	19.0%	18.5%	16.1%
P/BV (x)	1.66	1.59	1.49	1.39	1.29
ROE	8.5%	8.3%	9.1%	10.1%	10.6%
EPS/Consensus EPS (x)			1.05	1.04	1.09

SOURCES: CGSI RESEARCH, COMPANY REPORTS

BY THE NUMBERS

Profit & Loss

(RMm)	Jul-23A	Jul-24F	Jul-25F	Jul-26F
Total Net Revenues	**8,220**	**15,325**	**18,192**	**20,717**
Gross Profit	**1,153**	**1,832**	**2,221**	**2,570**
Operating EBITDA	**1,080**	**1,474**	**1,812**	**2,119**
Depreciation And Amortisation	(120)	(176)	(259)	(333)
Operating EBIT	**960**	**1,298**	**1,554**	**1,785**
Financial Income/(Expense)	(78)	(133)	(151)	(169)
Pretax Income/(Loss) from Assoc.	233	236	238	241
Non-Operating Income/(Expense)	0	0	0	0
Profit Before Tax (pre-EI)	**1,115**	**1,401**	**1,641**	**1,857**
Exceptional Items	0	0	0	0
Pre-tax Profit	**1,115**	**1,401**	**1,641**	**1,857**
Taxation	(221)	(350)	(410)	(464)
Exceptional Income - post-tax				
Profit After Tax	**894**	**1,051**	**1,231**	**1,393**
Minority Interests	(34)	(34)	(34)	(34)
Preferred Dividends	0	0	0	0
FX Gain/(Loss) - post tax				
Other Adjustments - post-tax				
Net Profit	**860**	**1,017**	**1,197**	**1,359**
Recurring Net Profit	860	1,017	1,197	1,359
Fully Diluted Recurring Net Profit	**860**	**1,017**	**1,197**	**1,359**

Balance Sheet

(RMm)	Jul-23A	Jul-24F	Jul-25F	Jul-26F
Total Cash And Equivalents	4,177	5,113	6,009	7,140
Total Debtors	2,942	2,795	2,655	2,522
Inventories	717	681	647	615
Total Other Current Assets	7,387	7,387	7,387	7,387
Total Current Assets	**15,223**	**15,976**	**16,698**	**17,664**
Fixed Assets	1,649	1,573	2,314	2,981
Total Investments	1,390	1,626	1,864	2,105
Intangible Assets	638	638	638	638
Total Other Non-Current Assets	4,884	4,884	4,884	4,884
Total Non-current Assets	**8,561**	**8,721**	**9,700**	**10,607**
Short-term Debt	1,410	1,810	2,810	3,810
Current Portion of Long-Term Debt				
Total Creditors	3,713	3,527	3,351	3,183
Other Current Liabilities	1,689	1,689	1,689	1,689
Total Current Liabilities	**6,812**	**7,026**	**7,850**	**8,682**
Total Long-term Debt	5,514	5,514	5,514	5,514
Hybrid Debt - Debt Component				
Total Other Non-Current Liabilities	371	371	371	371
Total Non-current Liabilities	**5,885**	**5,885**	**5,885**	**5,885**
Total Provisions	161	161	161	161
Total Liabilities	**12,858**	**13,072**	**13,896**	**14,728**
Shareholders' Equity	10,791	11,456	12,300	13,306
Minority Interests	135	169	203	237
Total Equity	**10,927**	**11,625**	**12,503**	**13,543**

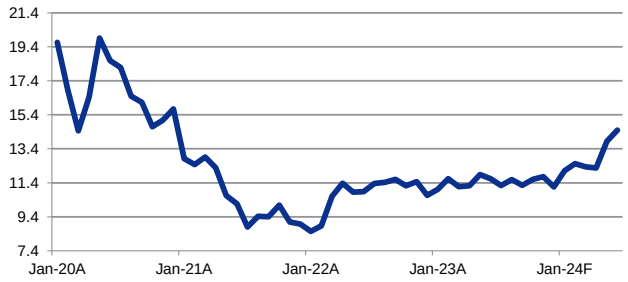
Cash Flow

(RMm)	Jul-23A	Jul-24F	Jul-25F	Jul-26F
EBITDA	1,080	1,474	1,812	2,119
Cash Flow from Invt. & Assoc.	(233)	(236)	(238)	(241)
Change In Working Capital	(166)	(3)	(3)	(2)
(Incr)/Decr in Total Provisions				
Other Non-Cash (Income)/Expense	120	176	259	333
Other Operating Cashflow	(80)	60	(21)	(93)
Net Interest (Paid)/Received	(78)	(133)	(151)	(169)
Tax Paid	(238)	(350)	(410)	(464)
Cashflow From Operations	**404**	**988**	**1,249**	**1,483**
Capex	(524)	(100)	(1,000)	(1,000)
Disposals Of FAs/subsidiaries				
Acq. Of Subsidiaries/investments				
Other Investing Cashflow	291	0	0	0
Cash Flow From Investing	**(233)**	**(100)**	**(1,000)**	**(1,000)**
Debt Raised/(repaid)	2,128	400	1,000	1,000
Proceeds From Issue Of Shares	0	0	0	0
Shares Repurchased				
Dividends Paid	(1,061)	(352)	(352)	(352)
Preferred Dividends				
Other Financing Cashflow	(2,643)	0	0	0
Cash Flow From Financing	**(1,575)**	**48**	**648**	**648**
Total Cash Generated	(1,404)	936	896	1,131
Free Cashflow To Equity	**2,299**	**1,288**	**1,249**	**1,483**
Free Cashflow To Firm	**249**	**1,021**	**400**	**652**

Key Ratios

	Jul-23A	Jul-24F	Jul-25F	Jul-26F
Revenue Growth	67.7%	86.4%	18.7%	13.9%
Operating EBITDA Growth	11.3%	36.4%	23.0%	16.9%
Operating EBITDA Margin	13.1%	9.6%	10.0%	10.2%
Net Cash Per Share (RM)	(1.03)	(0.83)	(0.87)	(0.82)
BVPS (RM)	4.06	4.31	4.63	5.00
Gross Interest Cover	12.24	9.77	10.29	10.56
Effective Tax Rate	19.8%	25.0%	25.0%	25.0%
Net Dividend Payout Ratio	123%	35%	29%	26%
Accounts Receivables Days	125.1	68.5	54.7	45.6
Inventory Days	35.45	18.97	15.18	12.69
Accounts Payables Days	165.0	98.2	78.6	65.7
ROIC (%)	7.97%	7.49%	9.02%	9.80%
ROCE (%)	2.87%	3.46%	3.84%	4.02%
Return On Average Assets	4.32%	4.74%	5.25%	5.55%

12-mth Fwd FD P/E (x) - Gamuda



Key Drivers

	Jul-23A	Jul-24F	Jul-25F	Jul-26F
Construction margins	7.7	7.9	7.8	7.7
Property launches Malaysia	2,090.0	2,725.0	2,655.0	2,725.0
New order wins	-	6,000.0	16,000.0	13,000.0

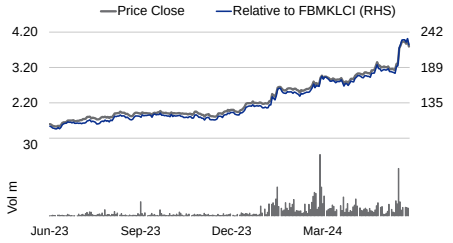
SOURCES: CGSI RESEARCH, COMPANY REPORTS

Malaysia

ADD *(no change)*

Consensus ratings*:	Buy 10	Hold 1	Sell 3
Current price:			RM3.79
Target price:			RM3.91
Previous target:			RM3.91
Up/downside:			3.3%
CGSI / Consensus:			4.1%
Reuters:			SCOG.KL
Bloomberg:			SCGB MK
Market cap:			US$1,038m
			RM4,887m
Average daily turnover:			US$2.45m
			RM11.59m
Current shares o/s			1,293m
Free float:			28.9%

Source: Bloomberg



Source: Bloomberg

Price performance	1M	3M	12M
Absolute (%)	13.1	38.8	136.9
Relative (%)	15.2	35.1	122.2

Major shareholders	% held
Sunway Berhad	54.4
EPF	9.4
Amanah Saham	7.3

Analyst(s)

CHONG Tjen-San, CFA
T (60) 3 2635 9298
E tjen-san.chong@cgsi.com

Sunway Construction Group Bhd

First mover advantage for data centres

- Suncon's fully vertically nature gives it an edge for data centre projects, in our view.
- Five data centre projects contributed 50% of Suncon's orderbook in May 24.
- Reiterate Add with an SOP-derived TP of RM3.91.

First mover advantage for data centre projects

- Suncon has 5 data centre projects (from 4 clients) contributing 50% of its orderbook of RM7.9bn as at May 24. Management said it is also bidding for 4 data centre projects, most of which are in Johor and are still at the design stage. It is more mindful of capacity constraints if some of the existing data centre projects need to be accelerated.
- Suncon's edge for data centres is its vertically integrated nature: besides a strong construction arm, it also owns a piling, mechanical, engineering and plumbing (MEP) and precast division giving it an edge when bidding for contracts including data centres. It also has expertise in air conditioning and mechanical ventilation (ACMV) systems which are crucial in data centres.
- Suncon has a 73,500 m3 Integrated Construction and Prefabrication Hub (ICPH) in Singapore which gives it a competitive advantage in terms of time to market. This facility typically caters to the Housing Development Board market in Singapore but will be instrumental in its data centre wins in Johor, in our view.
- This is consistent with our view that Suncon is shaping up to be the go-to contractor for data centres in Johor. More importantly, its reputation as a contractor is solid and its strong parentage gives clients assurance in terms of execution capabilities, in our view.

Upsizing in contract value for its Sedenak data centre contract

- In Jun 24, Suncon entered into an amendment deed with Yellowwood for the existing RM1.7bn Sedenak data centre (Sedenak) contract. This is in relation to an additional scope of work and the value of the contact is now RM3.2bn.
- The additional scope of work for the Sedenak contract means that the end-client has finalised a reputable offtaker to warrant the aggressive expansion, in our view.
- With this, we expect earnings recognition for the Sedenak contract to accelerate in 2H24F and to anchor earnings delivery in FY24F-25F.

Reiterate Add with a TP of RM3.91

- We retain our Add call with an RM3.91 SOP-based TP. We acknowledge that its share price is trading close to our TP. We like Suncon for its strong execution track record and first-mover advantage in the data centre space, 19% 3-year EPS CAGR over FY23-26F, and market-leading FY24-26F ROEs of 22-26%. Key downside risks: higher raw material cost environment and more competitive landscape for data centre jobs. Re-rating catalysts: the award of the Vietnam project and more data centre projects.

Financial Summary	Dec-22A	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Revenue (RMm)	2,155	2,671	3,598	4,865	5,444
Operating EBITDA (RMm)	221.0	245.3	305.1	406.7	458.4
Net Profit (RMm)	135.2	170.2	191.5	256.6	291.4
Core EPS (RM)	0.11	0.12	0.15	0.20	0.23
Core EPS Growth	17.1%	4.8%	27.5%	34.0%	13.5%
FD Core P/E (x)	34.20	32.64	25.59	19.09	16.82
DPS (RM)	0.05	0.06	0.07	0.10	0.11
Dividend Yield	1.39%	1.58%	1.95%	2.62%	2.97%
EV/EBITDA (x)	22.50	22.13	17.95	13.65	12.01
P/FCFE (x)	10.85	68.72	31.65	87.85	25.91
Net Gearing	(1.3%)	51.1%	51.1%	51.9%	42.4%
P/BV (x)	6.65	5.97	5.35	4.69	4.12
ROE	19.9%	19.3%	22.1%	26.2%	26.1%
EPS/Consensus EPS (x)			1.06	1.07	1.16

SOURCES: CGSI RESEARCH, COMPANY REPORTS

BY THE NUMBERS

Profit & Loss

(RMm)	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Total Net Revenues	**2,698**	**3,612**	**4,879**	**5,458**
Gross Profit	**588**	**652**	**757**	**812**
Operating EBITDA	**245**	**305**	**407**	**458**
Depreciation And Amortisation	(21)	(21)	(27)	(32)
Operating EBIT	**224**	**284**	**380**	**427**
Financial Income/(Expense)	(21)	(27)	(35)	(35)
Pretax Income/(Loss) from Assoc.	(14)	2	2	2
Non-Operating Income/(Expense)	0	0	0	0
Profit Before Tax (pre-EI)	**189**	**259**	**347**	**394**
Exceptional Items	25	0	0	0
Pre-tax Profit	**214**	**259**	**347**	**394**
Taxation	(43)	(67)	(90)	(102)
Exceptional Income - post-tax				
Profit After Tax	**171**	**191**	**257**	**291**
Minority Interests	(1)	0	0	0
Preferred Dividends				
FX Gain/(Loss) - post tax				
Other Adjustments - post-tax				
Net Profit	**170**	**191**	**257**	**291**
Recurring Net Profit	150	191	257	291
Fully Diluted Recurring Net Profit	**150**	**191**	**257**	**291**

Balance Sheet

(RMm)	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Total Cash And Equivalents	470	571	547	641
Total Debtors	1,596	1,922	2,599	2,908
Inventories	46	45	61	69
Total Other Current Assets	127	127	127	127
Total Current Assets	**2,239**	**2,666**	**3,334**	**3,745**
Fixed Assets	99	128	151	169
Total Investments	253	253	253	253
Intangible Assets	483	483	483	483
Total Other Non-Current Assets	9	9	9	9
Total Non-current Assets	**844**	**873**	**896**	**914**
Short-term Debt	438	438	438	438
Current Portion of Long-Term Debt				
Total Creditors	1,243	1,453	1,966	2,199
Other Current Liabilities	21	21	21	21
Total Current Liabilities	**1,702**	**1,912**	**2,425**	**2,658**
Total Long-term Debt	488	638	688	738
Hybrid Debt - Debt Component				
Total Other Non-Current Liabilities	0	0	0	0
Total Non-current Liabilities	**488**	**638**	**688**	**738**
Total Provisions	1	1	1	1
Total Liabilities	**2,191**	**2,551**	**3,114**	**3,397**
Shareholders' Equity	820	916	1,044	1,190
Minority Interests	72	72	72	72
Total Equity	**892**	**988**	**1,116**	**1,262**

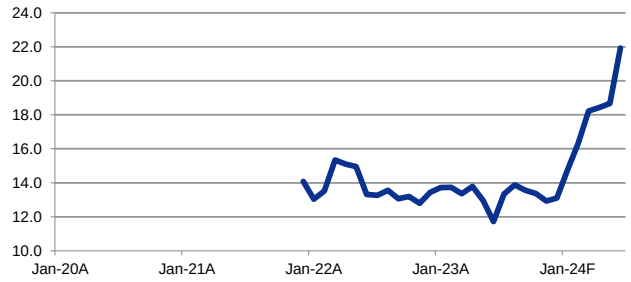
Cash Flow

(RMm)	Dec-23A	Dec-24F	Dec-25F	Dec-26F
EBITDA	245.3	305.1	406.7	458.4
Cash Flow from Invt. & Assoc.				
Change In Working Capital	(274.1)	(115.7)	(179.3)	(83.3)
(Incr)/Decr in Total Provisions				
Other Non-Cash (Income)/Expense	(62.1)	(40.0)	(46.7)	(49.0)
Other Operating Cashflow	(130.6)	0.0	0.0	0.0
Net Interest (Paid)/Received	(21.5)	(27.4)	(34.7)	(34.6)
Tax Paid	(42.8)	(67.3)	(90.2)	(102.4)
Cashflow From Operations	**(285.8)**	**54.8**	**55.8**	**189.1**
Capex	(17.7)	(50.0)	(50.0)	(50.0)
Disposals Of FAs/subsidiaries				
Acq. Of Subsidiaries/investments				
Other Investing Cashflow	(70.4)	0.0	0.0	0.0
Cash Flow From Investing	**(88.1)**	**(50.0)**	**(50.0)**	**(50.0)**
Debt Raised/(repaid)	445.2	150.0	50.0	50.0
Proceeds From Issue Of Shares	0.0	0.0	0.0	0.0
Shares Repurchased				
Dividends Paid	(70.9)	(95.7)	(128.3)	(145.7)
Preferred Dividends				
Other Financing Cashflow	(21.6)	41.7	48.4	50.7
Cash Flow From Financing	**352.7**	**95.9**	**(29.9)**	**(45.0)**
Total Cash Generated	(21.2)	100.8	(24.1)	94.1
Free Cashflow To Equity	**71.3**	**154.8**	**55.8**	**189.1**
Free Cashflow To Firm	**(326.0)**	**46.5**	**54.2**	**189.8**

Key Ratios

	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Revenue Growth	23.9%	34.7%	35.2%	11.9%
Operating EBITDA Growth	11.0%	24.4%	33.3%	12.7%
Operating EBITDA Margin	9.2%	8.5%	8.4%	8.4%
Net Cash Per Share (RM)	(0.35)	(0.39)	(0.45)	(0.41)
BVPS (RM)	0.63	0.71	0.81	0.92
Gross Interest Cover	4.68	6.83	7.85	8.42
Effective Tax Rate	20.0%	26.0%	26.0%	26.0%
Net Dividend Payout Ratio	53.3%	50.0%	50.0%	50.0%
Accounts Receivables Days	176.6	178.9	169.6	184.6
Inventory Days	8.64	5.68	4.73	5.11
Accounts Payables Days	186.8	166.6	151.4	163.6
ROIC (%)	38%	26%	31%	30%
ROCE (%)	16.0%	15.4%	18.3%	18.9%
Return On Average Assets	6.29%	6.61%	7.50%	7.33%

12-mth Fwd FD P/E (x) - Sunway Construction Group Bhd



Key Drivers

	Dec-23A	Dec-24F	Dec-25F	Dec-26F
New order wins	2,500.0	3,731.0	4,900.0	4,900.0
Construction revenue	2,381.0	3,346.4	4,557.7	5,056.6
Precast revenue	290.2	252.0	307.0	387.0
Construction EBIT margins	7.5	7.4	7.4	7.3
Precast EBIT margins	15.5	14.0	14.0	15.0

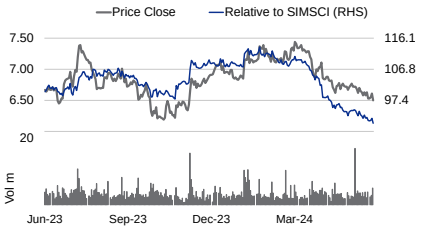
SOURCES: CGSI RESEARCH, COMPANY REPORTS

Singapore

ADD *(no change)*

Consensus ratings*:	Buy 10	Hold 1	Sell 2
Current price:			S$6.50
Target price:			S$8.98
Previous target:			S$8.98
Up/downside:			38.1%
CGSI / Consensus:			6.5%
Reuters:			KPLM.SI
Bloomberg:			KEP SP
Market cap:			US$8,675m
			S$11,739m
Average daily turnover:			US$16.27m
			S$22.01m
Current shares o/s			1,820m
Free float:			60.0%

Source: Bloomberg



Source: Bloomberg

Price performance	1M	3M	12M
Absolute (%)	-3.4	-9.5	-1.5
Relative (%)	-3.4	-17.2	-8.1

Major shareholders	% held
Temasek Holdings	21.3

Analyst(s)

LIM Siew Khee
T (65) 6210 8664
E siewkhee.lim@cgsi.com

Kenneth TAN
T (65) 6210 8678
E kenneth.tan@cgsi.com

Keppel Ltd

Focused on recurring income growth

- We believe KEP's position as both an operator and asset manager accords it multiple avenues to ride on data centre tailwinds.
- We think the pace of asset monetisation could improve ahead. Proceeds could accelerate KEP's asset-light business growth or drive higher dividends.
- Reiterate Add at an unchanged SOP-based TP of S$8.98. We see an opportunity to accumulate given recent weakness in share price.

Both an operator and asset manager

- We believe KEP is a potential beneficiary of strong data centre demand within ASEAN, given its position as both an operator and asset manager.
- Within its data centre business, KEP develops and operates data centres for its private funds and listed associate KDC REIT (KDCREIT SP, Add). As at Jun 2024, KEP operates 32 data centres spread over 10 countries globally.
- Among the data centres managed, KEP owns majority stake in two data centre assets: Keppel DC Singapore 7 (KDC 7) and Keppel DC Singapore 8 (KDC 8). KDC 7 is fully leased out and operational, while KDC 8 is expected to commence in 3Q24F.
- KEP is in the process of commercialising its floating data centre, which the group has been developing since Apr 2023.
- Aside from its role as an operator, KEP also manages several private data centre funds (Alpha Data Centre Fund and Keppel DC Fund).

Expecting quicker FUM ramp-up; asset recycling to seed growth

- We expect quicker ramp-up of KEP's funds under management (FUM) in the coming quarters. This is premised on: 1) commencement of contribution from Aermont Capital (50% stake acquired in Apr 24), 2) launch of new funds across various asset classes (e.g. data centres, education, private credit), and 3) strong deal pipeline of c.S$14bn as at Apr 24, which could drive improved deal-making activities.
- We see longer-term recurring income growth from asset management as KEP works towards its FUM target of S$200bn by end-2030F (S$79bn as at end-Apr 24).
- We think the pace of asset monetisation could improve ahead as KEP executes on its long-term asset monetisation target of S$10bn-12bn by 2026F; possible opportunities we see include China property projects, stake in KDC 8, and M1. Recycled proceeds could be redeployed into the higher-margin asset management business or increase dividend payout, in our view.

Reiterate Add at an unchanged SOP-based TP of S$8.98

- Reiterate Add as we like KEP for its strong recurring income growth and sizeable divestment pipeline.
- Re-rating catalysts: strong infrastructure profits and growing recurring income in 1H24F results, sizeable divestments. Downside risks: weak macroeconomic conditions affecting fund performance, slow pace of capital recycling.

Financial Summary	Dec-22A	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Revenue (S$m)	6,620	6,966	6,930	6,888	6,850
Operating EBITDA (S$m)	772	1,297	1,483	1,536	1,558
Net Profit (S$m)	861	4,137	999	1,052	1,050
Core EPS (S$)	0.48	0.54	0.56	0.59	0.59
Core EPS Growth	(14.9%)	13.1%	3.7%	5.4%	(0.2%)
FD Core P/E (x)	13.58	12.01	11.57	10.98	11.01
DPS (S$)	0.33	0.34	0.36	0.38	0.41
Dividend Yield	5.08%	5.23%	5.59%	5.89%	6.24%
EV/EBITDA (x)	27.29	16.62	13.08	12.61	12.42
P/FCFE (x)	NA	NA	3.59	10.37	10.14
Net Gearing	75.9%	88.0%	66.1%	63.8%	61.9%
P/BV (x)	1.00	1.08	1.05	1.01	0.98
ROE	7.28%	8.64%	9.17%	9.36%	9.06%
EPS/Consensus EPS (x)			1.08	1.02	1.11

SOURCES: CGSI RESEARCH ESTIMATES, COMPANY REPORTS

BY THE NUMBERS

Profit & Loss

(S$m)	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Total Net Revenues	**6,966**	**6,930**	**6,888**	**6,850**
Gross Profit	**1,264**	**728**	**723**	**719**
Operating EBITDA	**1,297**	**1,483**	**1,536**	**1,558**
Depreciation And Amortisation	(221)	(252)	(279)	(313)
Operating EBIT	**1,076**	**1,231**	**1,257**	**1,246**
Financial Income/(Expense)	(263)	(289)	(282)	(275)
Pretax Income/(Loss) from Assoc.	322	343	356	361
Non-Operating Income/(Expense)	78	80	81	81
Profit Before Tax (pre-EI)	**1,214**	**1,365**	**1,412**	**1,412**
Exceptional Items		0	0	0
Pre-tax Profit	**1,214**	**1,365**	**1,412**	**1,412**
Taxation	(290)	(350)	(362)	(366)
Exceptional Income - post-tax	3,175			
Profit After Tax	**4,099**	**1,015**	**1,049**	**1,046**
Minority Interests	39	(17)	3	4
Preferred Dividends				
FX Gain/(Loss) - post tax				
Other Adjustments - post-tax				
Net Profit	**4,137**	**999**	**1,052**	**1,050**
Recurring Net Profit	962	999	1,052	1,050
Fully Diluted Recurring Net Profit	**962**	**999**	**1,052**	**1,050**

Balance Sheet

(S$m)	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Total Cash And Equivalents	1,266	3,837	4,267	4,683
Total Debtors	1,694	2,079	2,066	2,055
Inventories	2,516	2,772	2,755	2,740
Total Other Current Assets	890	890	890	890
Total Current Assets	**6,366**	**9,579**	**9,979**	**10,368**
Fixed Assets	902	904	880	821
Total Investments	0	0	0	0
Intangible Assets	1,534	1,534	1,534	1,534
Total Other Non-Current Assets	18,036	18,379	18,735	19,096
Total Non-current Assets	**20,472**	**20,818**	**21,149**	**21,451**
Short-term Debt	2,422	2,422	2,422	2,422
Current Portion of Long-Term Debt				
Total Creditors	2,586	4,158	4,133	4,110
Other Current Liabilities	1,131	2,351	2,343	2,335
Total Current Liabilities	**6,139**	**8,931**	**8,897**	**8,867**
Total Long-term Debt	8,538	8,938	9,338	9,738
Hybrid Debt - Debt Component				
Total Other Non-Current Liabilities	1,145	1,145	1,145	1,145
Total Non-current Liabilities	**9,683**	**10,083**	**10,483**	**10,883**
Total Provisions	0	0	0	0
Total Liabilities	**15,821**	**19,014**	**19,380**	**19,749**
Shareholders' Equity	10,709	11,058	11,427	11,752
Minority Interests	308	324	321	318
Total Equity	**11,017**	**11,383**	**11,748**	**12,070**

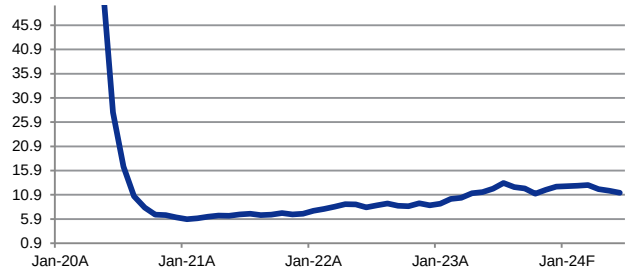
Cash Flow

(S$m)	Dec-23A	Dec-24F	Dec-25F	Dec-26F
EBITDA	1,297	1,483	1,536	1,558
Cash Flow from Invt. & Assoc.				
Change In Working Capital	(398)	2,151	(4)	(4)
(Incr)/Decr in Total Provisions				
Other Non-Cash (Income)/Expense	34	0	0	0
Other Operating Cashflow	(70)	80	81	81
Net Interest (Paid)/Received	(294)	(289)	(282)	(275)
Tax Paid	(116)	(350)	(362)	(366)
Cashflow From Operations	**453**	**3,075**	**969**	**995**
Capex	(921)	(255)	(255)	(255)
Disposals Of FAs/subsidiaries	(891)	0	0	0
Acq. Of Subsidiaries/investments	1	0	0	0
Other Investing Cashflow				
Cash Flow From Investing	**(1,811)**	**(255)**	**(255)**	**(255)**
Debt Raised/(repaid)	1,336	400	400	400
Proceeds From Issue Of Shares	0	0	0	0
Shares Repurchased				
Dividends Paid	(582)	(649)	(684)	(724)
Preferred Dividends				
Other Financing Cashflow				
Cash Flow From Financing	**754**	**(249)**	**(284)**	**(324)**
Total Cash Generated	(604)	2,571	430	416
Free Cashflow To Equity	**(22)**	**3,220**	**1,114**	**1,140**
Free Cashflow To Firm	**(994)**	**3,177**	**1,065**	**1,085**

Key Ratios

	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Revenue Growth	5.2%	(0.5%)	(0.6%)	(0.6%)
Operating EBITDA Growth	68.1%	14.3%	3.6%	1.5%
Operating EBITDA Margin	18.6%	21.4%	22.3%	22.8%
Net Cash Per Share (S$)	(5.45)	(4.23)	(4.21)	(4.21)
BVPS (S$)	6.02	6.22	6.43	6.61
Gross Interest Cover	3.28	3.45	3.58	3.61
Effective Tax Rate	23.9%	25.6%	25.7%	25.9%
Net Dividend Payout Ratio	63.1%	65.0%	65.0%	69.0%
Accounts Receivables Days	76.8	99.6	109.8	109.8
Inventory Days	162.3	156.0	163.6	163.6
Accounts Payables Days	171.4	199.0	245.4	245.4
ROIC (%)	4.86%	5.63%	6.27%	6.11%
ROCE (%)	5.53%	6.17%	6.08%	5.85%
Return On Average Assets	4.10%	4.56%	4.33%	4.20%

12-mth Fwd FD P/E (x) - Keppel Ltd



Key Drivers

	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Revenue growth (%)	5.2%	-0.5%	-0.6%	-0.6%
EBIT margin (%)	5.9%	8.8%	9.4%	10.1%

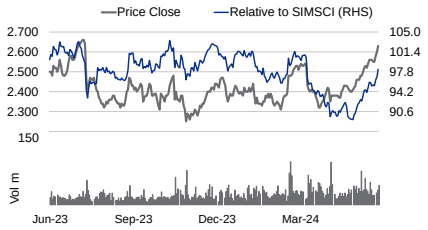
SOURCES: CGSI RESEARCH, COMPANY REPORTS

Singapore

ADD *(no change)*

Consensus ratings*:	Buy 16	Hold 1	Sell 0
Current price:			S$2.63
Target price:			S$2.90
Previous target:			S$2.90
Up/downside:			10.3%
CGSI / Consensus:			-6.8%
Reuters:			STEL.SI
Bloomberg:			ST SP
Market cap:			US$32,091m
			S$43,429m
Average daily turnover:			US$55.39m
			S$74.90m
Current shares o/s			16,569m
Free float:			48.0%

Source: Bloomberg



Source: Bloomberg

Price performance	1M	3M	12M
Absolute (%)	9.1	4.4	4.8
Relative (%)	9.1	-3.3	-1.8

Major shareholders	% held
Temasek Holdings	52.0
Capital Group	3.4
Blackrock	1.8

Analyst(s)

Kenneth TAN
T (65) 6210 8678
E kenneth.tan@cgsi.com

LIM Siew Khee
T (65) 6210 8664
E siewkhee.lim@cgsi.com

SingTel

Positioning for growth

- We think Singtel is positioning itself well for strong data centre demand via 1) greenfield data centre developments, and 2) platform investments.
- We see a healthy earnings growth trajectory ahead for FY25-26F, backed by EBIT recovery (from concerted cost cuts) and associate profits growth.
- Reiterate Add with an unchanged SOP-based TP of S$2.90. Growing DC business could position Singtel well for longer-term re-rating potential.

Accelerating growth of the DC business

- We see Singtel as a beneficiary of growing data centre demand in the ASEAN region.
- Singtel has been notably accelerating its exposure to foreign DC markets over the past 1-2 years via 1) greenfield data centre developments (via JVs with local partners) in Malaysia (64MW), Thailand (20MW) and Indonesia (17MW), and 2) a minority stake investment in ST Telemedia Global Data Centres (STT GDC).
- We see multiple growth drivers benefitting the data centre business from 2026F onwards, including 1) the commencement of 58 MW AI-ready DC Tuas in Singapore, 2) ramp up of GPU-as-a-service business, 3) launch of overseas data centres, and 4) increased contribution from STT GDC.
- Backed by multiple drivers, we see room for Singtel's data centre EBITDA to rise to double digit proportion of group EBITDA over the medium term (next 3-5 years).

Cost cuts to drive EBIT recovery, while dividend yields are decent

- We see scope for further EBIT growth ahead for both Optus and Singapore, backed by the group's target of S$200m opex cuts p.a. from FY25-26F.
- Optus should benefit from streamlining of its enterprise business, an improving pricing competitive landscape, and notable headcount cuts (FY24: -12% yoy). For Singapore, while the mobile competitive landscape remains tough, we expect cost cutting efforts and synergies realised from integration of its consumer/enterprise business to drive healthy margin expansion ahead.
- Steady dividend hikes via value-realisation dividends (VRD) of 3-6 Scts p.a. provide healthy FY25F yield of 6-7%, by our estimates. Our estimate of 16.1 Scts (82% core payout ratio + 4 VRD Scts) implies a decent yield of 6.1%.

Reiterate Add; ramp-up in DC profits could drive a re-rating

- We believe Singtel is positioning itself well to capture longer-term growth from strong data centre demand. As the data centre business gains scale from 2026F onwards, we think rising data centre profits could drive a longer-term re-rating for Singtel.
- Reiterate Add as we see healthy FY25-26F earnings growth backed by EBIT recovery and associate profits growth. Valuation is inexpensive at 9x CY25F EV/EBITDA, approximately 1 s.d. below the group's 10-year historical mean.
- Re-rating catalysts: strong traction in data centre profits, meaningful cost savings driving margin recovery and material asset monetisation. Downside risks: mobile competitive pressure escalation and prolonged forex headwinds.

Financial Summary	Mar-22A	Mar-23A	Mar-24A	Mar-25F	Mar-26F
Revenue (S$m)	15,339	14,624	14,128	14,403	14,915
Operating EBITDA (S$m)	3,767	3,686	3,597	3,731	3,901
Operating EBITDA Margin	24.6%	25.2%	25.5%	25.9%	26.2%
Net Profit (S$m)	1,948	2,225	795	2,441	2,707
Core EPS (S$)	0.12	0.12	0.14	0.15	0.16
Core EPS Growth	10.1%	6.8%	10.1%	8.0%	10.9%
FD Core P/E (x)	22.49	21.15	19.20	17.78	16.04
DPS (S$)	0.09	0.15	0.15	0.16	0.18
Dividend Yield	3.54%	5.67%	5.70%	6.12%	6.81%
EV/EBITDA (x)	9.70	10.20	9.54	9.61	9.08
P/FCFE (x)	19.19	18.44	7.64	18.66	12.31
Net Gearing	21.9%	22.9%	14.6%	17.1%	14.4%
ROE	7.0%	7.6%	8.9%	9.8%	11.0%
EPS/Consensus EPS (x)				0.94	0.91

SOURCES: CGSI RESEARCH, COMPANY REPORTS

BY THE NUMBERS

Profit & Loss

(S$m)	Mar-23A	Mar-24A	Mar-25F	Mar-26F
Total Net Revenues	**14,624**	**14,128**	**14,403**	**14,915**
Gross Profit	**3,686**	**3,597**	**3,731**	**3,901**
Operating EBITDA	**3,686**	**3,597**	**3,731**	**3,901**
Depreciation And Amortisation	(2,574)	(2,444)	(2,463)	(2,526)
Operating EBIT	**1,112**	**1,153**	**1,268**	**1,375**
Financial Income/(Expense)	(359)	(303)	(319)	(310)
Pretax Income/(Loss) from Assoc.	2,287	2,338	2,496	2,742
Non-Operating Income/(Expense)	172	(1,466)	0	0
Profit Before Tax (pre-EI)	**3,212**	**1,722**	**3,445**	**3,807**
Exceptional Items				
Pre-tax Profit	**3,212**	**1,722**	**3,445**	**3,807**
Taxation	(978)	(919)	(995)	(1,091)
Exceptional Income - post-tax				
Profit After Tax	**2,234**	**804**	**2,450**	**2,716**
Minority Interests	(8)	(9)	(9)	(9)
Preferred Dividends				
FX Gain/(Loss) - post tax				
Other Adjustments - post-tax				
Net Profit	**2,225**	**795**	**2,441**	**2,707**
Recurring Net Profit	2,053	2,261	2,441	2,707
Fully Diluted Recurring Net Profit	**2,053**	**2,261**	**2,441**	**2,707**

Balance Sheet

(S$m)	Mar-23A	Mar-24A	Mar-25F	Mar-26F
Total Cash And Equivalents	1,668	4,605	3,765	4,213
Total Debtors	5,013	5,006	5,051	5,210
Inventories	346	301	313	313
Total Other Current Assets	1,556	448	448	448
Total Current Assets	**8,583**	**10,360**	**9,577**	**10,185**
Fixed Assets	10,385	10,047	10,384	10,447
Total Investments	11,788	12,758	11,840	11,581
Intangible Assets	10,990	8,227	9,632	9,454
Total Other Non-Current Assets	4,785	4,807	4,807	4,807
Total Non-current Assets	**37,947**	**35,838**	**36,663**	**36,289**
Short-term Debt	471	24	24	24
Current Portion of Long-Term Debt				
Total Creditors	5,310	5,406	5,439	5,578
Other Current Liabilities	2,518	2,219	2,219	2,219
Total Current Liabilities	**8,299**	**7,649**	**7,682**	**7,821**
Total Long-term Debt	7,142	8,225	7,991	7,755
Hybrid Debt - Debt Component				
Total Other Non-Current Liabilities	5,074	5,359	5,767	6,178
Total Non-current Liabilities	**12,217**	**13,584**	**13,758**	**13,933**
Total Provisions	0	0	0	0
Total Liabilities	**20,516**	**21,234**	**21,440**	**21,754**
Shareholders' Equity	25,998	24,928	24,761	24,679
Minority Interests	16	37	39	41
Total Equity	**26,014**	**24,965**	**24,800**	**24,720**

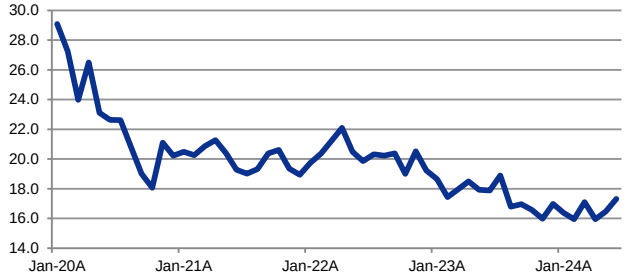
Cash Flow

(S$m)	Mar-23A	Mar-24A	Mar-25F	Mar-26F
EBITDA	3,686	3,597	3,731	3,901
Cash Flow from Invt. & Assoc.	(1,653)	(1,827)	(1,362)	(1,783)
Change In Working Capital	270	(70)	85	(24)
(Incr)/Decr in Total Provisions				
Other Non-Cash (Income)/Expense				
Other Operating Cashflow	3,762	3,867	3,065	3,259
Net Interest (Paid)/Received	(416)	(444)	(460)	(445)
Tax Paid	(352)	(347)	(341)	(282)
Cashflow From Operations	**5,298**	**4,776**	**4,718**	**4,626**
Capex	(2,162)	(2,150)	(2,098)	(1,861)
Disposals Of FAs/subsidiaries				
Acq. Of Subsidiaries/investments	1,553	662	1,500	1,000
Other Investing Cashflow	(1,693)	1,735	(1,560)	(2)
Cash Flow From Investing	**(2,302)**	**247**	**(2,157)**	**(863)**
Debt Raised/(repaid)	(641)	662	(234)	(236)
Proceeds From Issue Of Shares				
Shares Repurchased				
Dividends Paid	(1,964)	(2,146)	(2,608)	(2,789)
Preferred Dividends				
Other Financing Cashflow	(336)	(509)	(467)	(452)
Cash Flow From Financing	**(2,941)**	**(1,993)**	**(3,309)**	**(3,478)**
Total Cash Generated	55	3,030	(748)	286
Free Cashflow To Equity	**2,355**	**5,685**	**2,326**	**3,527**
Free Cashflow To Firm	**3,412**	**5,467**	**3,021**	**4,209**

Key Ratios

	Mar-23A	Mar-24A	Mar-25F	Mar-26F
Revenue Growth	(4.66%)	(3.40%)	1.95%	3.56%
Operating EBITDA Growth	(2.16%)	(2.41%)	3.73%	4.56%
Operating EBITDA Margin	25.2%	25.5%	25.9%	26.2%
Net Cash Per Share (S$)	(0.36)	(0.22)	(0.26)	(0.22)
BVPS (S$)	1.58	1.51	1.50	1.50
Gross Interest Cover	2.67	2.60	2.76	3.09
Effective Tax Rate	30.5%	53.3%	28.9%	28.7%
Net Dividend Payout Ratio	88%	361%	107%	103%
Accounts Receivables Days	128.0	129.8	127.4	125.6
Inventory Days	10.28	11.25	10.51	10.38
Accounts Payables Days	182.0	186.2	185.5	182.5
ROIC (%)	2.90%	3.25%	4.25%	4.27%
ROCE (%)	3.34%	3.87%	4.27%	4.63%
Return On Average Assets	5.18%	2.20%	5.79%	6.34%

12-mth Fwd FD P/E (x) - SingTel



Key Drivers

	Mar-23A	Mar-24A	Mar-25F	Mar-26F
Singapore total mobile subs (m)	4.3	4.6	4.9	5.1
Optus total mobile subs (m)	10.4	10.5	10.6	10.8
Singapore blended mobile ARPU (S$/mth/sub)	26.4	25.2	25.5	25.4
Optus blended mobile ARPU (A$/mth/sub)	31.0	31.6	31.8	32.0

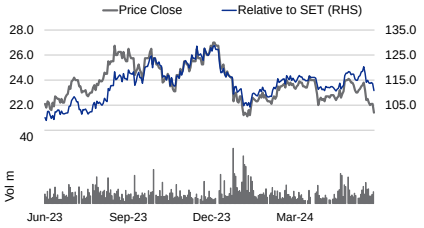
SOURCES: CGSI RESEARCH, COMPANY REPORTS

Thailand

ADD *(no change)*

Consensus ratings*:	Buy 16	Hold 1	Sell 0
Current price:			THB21.40
Target price:			THB30.75
Previous target:			THB30.75
Up/downside:			43.7%
CGSI / Consensus:			6.9%
Reuters:			AMATA.BK
Bloomberg:			AMATA TB
Market cap:			US$669.8m
			THB24,610m
Average daily turnover:			US$3.27m
			THB119.6m
Current shares o/s			1,150m
Free float:			71.1%

Source: Bloomberg



Source: Bloomberg

Price performance	1M	3M	12M
Absolute (%)	-10.5	-10.1	-4.5
Relative (%)	-4.7	-4.6	11.1

Major shareholders	% held
Kromadit family	21.9
Thai NVDR	10.5
The Bank of New York Mellon	5.0

Analyst(s)

Pornthipa RAYABSANGDUAN
T (66) 2 761 9229
E pornthipa.ra@cgsi.com

Amata Corporation

Key beneficiary of strong FDI

- We believe the electronics, EV, data centre and renewable energy industries will be key drivers of industrial estate demand in Thailand in 2024-26F.
- We forecast Amata's FY24F core net profit to rise 27.1% yoy on strong growth in land transfers and utilities revenue and land sales gross margin to widen.

FDI inflows are key drivers

- We forecast FDI inflows in Thailand to reach a new high of THB639.6bn in 2024F, up 127% from THB281.9bn in 2019, benefitting from supply chain relocation among electronics and automotive manufacturers as well as the entry of potential data centre operators.
- We expect the regulatory environment to stay supportive as the Thai government aims to attract foreign investment in strategic industries, such as, according to Thailand's Board of Investment, electronics (upstream and smart electronics), automotive and parts (EV and battery), digital (hyperscale data centres) and Bio-Circular-Green (BCG).
- Amata's existing data centre customers include NTT Global Data Centers (not listed), located in the Amata Chonburi Industrial Estate. According to Amata, NTT is also planning to expand with the construction of the Bangkok 3 (BKK3) Data Centre in Amata City Chonburi Industrial Estate at a tentative investment of US$90m.
- Based on Thailand's total potential new capacity of 576MW (derived from the sum of 44MW in new capacity under construction, 132MW in committed new capacity and 400MW in early stage capacity, according to DC Byte's forecasts), we believe there is upside of 1,000-2,000 rai p.a. to our land sales forecasts for industrial estate players over 2024-2030F.

Land transfers to pick up in 2Q-3Q24F

- We expect Amata's land transfers to rise in 2Q24F vs. 151 rai in 1Q24 and 85 rai in 2Q23. Management guided that 50% of its THB12bn backlog in Thailand will be recognised as revenue in 2024F, which secures 92.4% of our FY24F revenue forecast.
- As at end-1Q24, AMATA had 2,053 rai land available for sale and 12,938 rai pending for development. It has launched two expansion projects – Amata City Rayong Nong Lalok or Thai Chinese Rayong 2 (gross area: 1,547 rai) in 2023 and Amata City Chonburi 2 (ACC2) in Banbueng (gross area of 2,213 rai) in 1Q24.
- We believe Amata will be able to achieve our FY24F presales forecast of 1,700 rai as we expect stronger hoh presales in Thailand and Vietnam in 2H24F, driven by demand in the electronics, automotive and EV-related, and manufacturing industries.
- Upside could come from the potential sale of a big land plot of c.300 rai to an electronics manufacturer. We exclude this from our forecasts given lack of details on when the sale will be closed.

Reiterate Add with a target price of THB30.75

- We reiterate Add and SOP-based TP of THB30.75 (13.1x FY25F P/E, -0.37 s.d. from its 5-year mean). Re-rating catalysts: higher-than-expected land presales. Downside risks: delays in land handover by the Vietnam government and political instability in Thailand.

Financial Summary	Dec-22A	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Total Net Revenues (THBm)	6,502	9,517	14,156	16,089	19,397
Operating EBITDA (THBm)	2,511	2,882	4,245	4,850	5,836
Net Profit (THBm)	2,341	1,885	2,348	2,703	3,115
Core EPS (THB)	1.42	1.61	2.04	2.35	2.71
Core EPS Growth	39.6%	13.5%	27.1%	15.1%	15.2%
FD Core P/E (x)	15.12	13.33	10.48	9.10	7.90
DPS (THB)	0.60	0.65	0.80	0.92	1.06
Dividend Yield	2.80%	3.04%	3.72%	4.28%	4.94%
EV/EBITDA (x)	14.96	13.63	10.38	9.40	8.02
P/FCFE (x)	40.7	15.1	532.8	15.3	27.9
Net Gearing	55.3%	60.0%	71.1%	69.0%	64.4%
P/BV (x)	1.26	1.21	1.12	1.04	0.96
ROE	8.8%	9.3%	11.1%	11.9%	12.6%
EPS/Consensus EPS (x)			1.03	1.03	1.01

SOURCES: CGSI RESEARCH, COMPANY REPORTS

BY THE NUMBERS

Profit & Loss

(THBm)	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Total Net Revenues	**9,517**	**14,156**	**16,089**	**19,397**
Gross Profit	**3,713**	**5,512**	**6,378**	**7,845**
Operating EBITDA	**2,882**	**4,245**	**4,850**	**5,836**
Depreciation And Amortisation	(430)	(630)	(662)	(695)
Operating EBIT	**2,452**	**3,616**	**4,188**	**5,141**
Financial Income/(Expense)	(602)	(658)	(696)	(733)
Pretax Income/(Loss) from Assoc.	1,064	801	873	877
Non-Operating Income/(Expense)	(48)	88	90	91
Profit Before Tax (pre-EI)	**2,866**	**3,847**	**4,455**	**5,376**
Exceptional Items				
Pre-tax Profit	**2,866**	**3,847**	**4,455**	**5,376**
Taxation	**(463)**	**(609)**	**(681)**	**(877)**
Exceptional Income - post-tax	38	0	0	0
Profit After Tax	**2,441**	**3,237**	**3,774**	**4,499**
Minority Interests	(556)	(889)	(1,071)	(1,384)
Pref. & Special Div	0	0	0	0
FX Gain/(Loss) - post tax				
Other Adjustments - post-tax				
Net Profit	**1,885**	**2,348**	**2,703**	**3,115**
Recurring Net Profit	1,847	2,348	2,703	3,115
Fully Diluted Recurring Net Profit	**1,847**	**2,348**	**2,703**	**3,115**

Balance Sheet

(THBm)	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Total Cash And Equivalents	2,032	1,247	1,866	1,614
Properties Under Development				
Total Debtors	625	1,231	1,399	1,687
Inventories	15,127	13,172	14,572	15,972
Total Other Current Assets	2,520	2,055	2,097	2,170
Total Current Assets	**20,304**	**17,705**	**19,934**	**21,443**
Fixed Assets	2,239	1,108	1,036	951
Total Investments	**12,076**	**14,522**	**15,605**	**16,672**
Intangible Assets	0	0	0	0
Total Other Non-Current Assets	22,969	25,496	27,296	29,096
Total Non-current Assets	**37,284**	**41,126**	**43,937**	**46,718**
Short-term Debt	1,263	1,245	1,245	1,245
Current Portion of Long-Term Debt	4,722	4,722	4,722	4,722
Total Creditors	1,903	1,729	1,942	2,310
Other Current Liabilities	7,459	2,638	2,685	2,722
Total Current Liabilities	**15,347**	**10,334**	**10,594**	**10,999**
Total Long-term Debt	11,487	15,296	17,245	17,722
Hybrid Debt - Debt Component				
Total Other Non-Current Liabilities	5,028	5,068	5,110	5,154
Total Non-current Liabilities	**16,514**	**20,364**	**22,355**	**22,876**
Total Provisions	0	0	0	0
Total Liabilities	**31,861**	**30,697**	**32,949**	**33,875**
Shareholders' Equity	**20,418**	**21,934**	**23,652**	**25,633**
Minority Interests	5,309	6,199	7,270	8,654
Total Equity	**25,727**	**28,133**	**30,922**	**34,287**

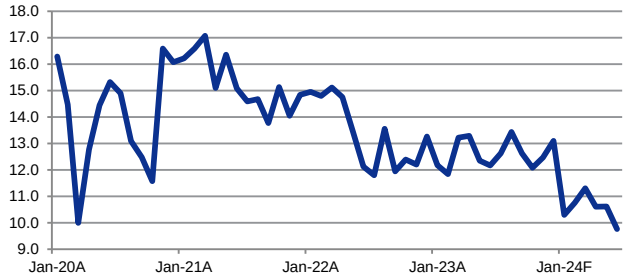
Cash Flow

(THBm)	Dec-23A	Dec-24F	Dec-25F	Dec-26F
EBITDA	2,882	4,245	4,850	5,836
Cash Flow from Invt. & Assoc.				
Change In Working Capital	(2,481)	(3,181)	(1,351)	(1,355)
Straight Line Adjustment				
(Incr)/Decr in Total Provisions				
Other Non-Cash (Income)/Expense				
Other Operating Cashflow	38	170	179	187
Net Interest (Paid)/Received	(687)	(740)	(785)	(828)
Tax Paid	(463)	(609)	(681)	(877)
Cashflow From Operations	**(711)**	**(115)**	**2,213**	**2,962**
Capex	(798)	(3,776)	(2,600)	(2,600)
Disposals Of FAs/subsidiaries				
Disposals of Investment Properties				
Acq. Of Subsidiaries/investments				
Other Investing Cashflow	701	146	42	44
Cash Flow From Investing	**(97)**	**(3,631)**	**(2,558)**	**(2,556)**
Debt Raised/(repaid)	2,433	3,791	1,949	477
Proceeds From Issue Of Shares	0	0	0	0
Shares Repurchased				
Dividends Paid	(747)	(832)	(985)	(1,134)
Preferred Dividends				
Other Financing Cashflow				
Cash Flow From Financing	**1,685**	**2,960**	**964**	**(658)**

Key Ratios

	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Revenue Growth	46.4%	48.7%	13.7%	20.6%
Operating EBITDA Growth	14.7%	47.3%	14.3%	20.3%
Operating EBITDA Margin	30.3%	30.0%	30.1%	30.1%
Net Cash Per Share (THB)	(13.43)	(17.40)	(18.56)	(19.20)
BVPS (THB)	17.75	19.07	20.57	22.29
Gross Interest Cover	3.57	4.89	5.33	6.21
Effective Tax Rate	16.1%	15.8%	15.3%	16.3%
Net Dividend Payout Ratio	40.5%	35.4%	36.4%	36.4%
Accounts Receivables Days	18.98	23.99	29.83	29.03
Inventory Days	723.2	599.1	521.4	482.5
Accounts Payables Days	99.6	76.9	69.0	67.2
ROIC (%)	6.17%	8.48%	8.66%	9.85%
ROCE (%)	6.17%	7.99%	8.26%	9.34%
Return On Average Assets	5.48%	6.47%	7.06%	7.70%

12-mth Fwd FD P/E (x) - Amata Corporation



Key Drivers

	Dec-23A	Dec-24F	Dec-25F	Dec-26F
Land presales (rai)	1,854.0	1,700.0	1,650.0	1,550.0
Land transfers (rai)	788.0	1,293.0	1,606.0	1,910.0
Gross margin from real estate sales (%)	47.5%	50.7%	50.1%	49.3%
SG&A-to-revenue ratio (%)	13.3%	13.4%	13.6%	13.9%

SOURCES: CGSI RESEARCH, COMPANY REPORTS

DISCLAIMER

The content of this report (including the views and opinions expressed therein, and the information comprised therein) has been prepared by and belongs to CGS International. Reports relating to a specific geographical area are produced and distributed by the corresponding CGS International entity as listed in the table below.

This report is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation.

By accepting this report, the recipient hereof represents and warrants that he is entitled to receive such report in accordance with the restrictions set forth below and agrees to be bound by the limitations contained herein (including the "Restrictions on Distributions" set out below). Any failure to comply with these limitations may constitute a violation of law. This publication is being supplied to you strictly on the basis that it will remain confidential. No part of this report may be (i) copied, photocopied, duplicated, stored or reproduced in any form by any means; or (ii) redistributed or passed on, directly or indirectly, to any other person in whole or in part, for any purpose without the prior written consent of CGS International.

The information contained in this research report is prepared from data believed to be correct and reliable at the time of issue of this report. CGS International may or may not issue regular reports on the subject matter of this report at any frequency and may cease to do so or change the periodicity of reports at any time. CGS International has no obligation to update this report in the event of a material change to the information contained in this report. CGS International does not accept any obligation to (i) check or ensure that the contents of this report remain current, reliable or relevant, (ii) ensure that the content of this report constitutes all the information a prospective investor may require, (iii) ensure the adequacy, accuracy, completeness, reliability or fairness of any views, opinions and information, and accordingly, CGS International, its affiliates and related corporations shall not be liable in any manner whatsoever for any consequences (including but not limited to any direct, indirect or consequential losses, loss of profits and damages) of any reliance thereon or usage thereof. In particular, CGS International disclaims all responsibility and liability for the views and opinions set out in this report.

Unless otherwise specified, this report is based upon sources which CGS International considers to be reasonable. Such sources will, unless otherwise specified, for market data, be market data and prices available from the main stock exchange or market where the relevant security is listed, or, where appropriate, any other market. Information on the accounts and business of company(ies) will generally be based on published statements of the company(ies), information disseminated by regulatory information services, other publicly available information and information resulting from our research.

Whilst every effort is made to ensure that statements of facts made in this report are accurate, all estimates, projections, forecasts, expressions of opinion and other subjective judgments contained in this report are based on assumptions considered to be reasonable as of the date of the document in which they are contained and must not be construed as a representation that the matters referred to therein will occur. Past performance is not a reliable indicator of future performance. The value of investments may go down as well as up and those investing may, depending on the investments in question, lose more than the initial investment. No report shall constitute an offer or an invitation by or on behalf of CGS International or any of its affiliates to any person to buy or sell any investments.

CGS International, its affiliates and related corporations and/or their respective directors, associates, connected parties and/or employees may own or have positions in securities of the company(ies) covered in this research report or any securities related thereto and may from time to time add to or dispose of, or may be materially interested in, any such securities. Further, CGS International, its affiliates and their respective related corporations do and seek to do business with the company(ies) covered in this research report and may from time to time act as market maker or have assumed an underwriting commitment in securities of such company(ies), may sell them to or buy them from customers on a principal basis and may also perform or seek to perform significant investment banking, advisory, underwriting or placement services for or relating to such company(ies) as well as solicit such investment, advisory or other services from any entity mentioned in this report.

CGS International or its affiliates may enter into an agreement with the company(ies) covered in this report relating to the production of research reports. CGS International may disclose the contents of this report to the company(ies) covered by it and may have amended the contents of this report following such disclosure.

The analyst responsible for the production of this report hereby certifies that the views expressed herein accurately and exclusively reflect his or her personal views and opinions about any and all of the issuers or securities analysed in this report and were prepared independently and autonomously. No part of the compensation of the analyst(s) was, is, or will be directly or indirectly related to the inclusion of specific recommendations(s) or view(s) in this report. The analyst(s) who prepared this research report is prohibited from receiving any compensation, incentive or bonus based on specific investment banking transactions or for providing a specific recommendation for, or view of, a particular company. Information barriers and other arrangements may be established where necessary to prevent conflicts of interests arising. However, the analyst(s) may receive compensation that is based on his/their coverage of company(ies) in the performance of his/their duties or the performance of his/their recommendations and the research personnel involved in the preparation of this report may also participate in the solicitation of the businesses as described above. In reviewing this research report, an investor should be aware that any or all of the foregoing, among other things, may give rise to real or potential conflicts of interest. Additional information is, subject to the duties of confidentiality, available on request.

Reports relating to a specific geographical area are produced by the corresponding CGS International entity as listed in the table below. The term "CGS International" shall denote, where appropriate, the relevant entity distributing or disseminating the report in the particular jurisdiction referenced below, or, in every other case except as otherwise stated herein, CGS International Securities Pte. Ltd. and its affiliates, subsidiaries and related corporations.

Jurisdiction	CGS International Entity	Regulated by
Hong Kong	CGS International Securities Hong Kong Limited	Securities and Futures Commission Hong Kong
Indonesia	PT CGS International Sekuritas Indonesia	Financial Services Authority of Indonesia
Malaysia	CGS International Securities Malaysia Sdn. Bhd. (formerly known as CGS-CIMB Securities Sdn. Bhd.)	Securities Commission Malaysia
Singapore	CGS International Securities Singapore Pte. Ltd.	Monetary Authority of Singapore
South Korea	CGS International Securities Hong Kong Limited, Korea Branch	Financial Services Commission and Financial Supervisory Service
Thailand	CGS International Securities (Thailand) Co. Ltd.	Securities and Exchange Commission Thailand

Other Significant Financial Interests:

(i) As of June 19, 2024 CGS International has a proprietary position in the securities (which may include but not be limited to shares, warrants, call warrants and/or any other derivatives) in the following company or companies covered or recommended in this report:

(a) Amata Corporation, Gamuda, Keppel Ltd, Malaysian Resources Corp, Muhibbah Engineering, SingTel, Sunway Bhd, WCT Holdings

(ii) Analyst Disclosure: As of EFAGenReportDate|, the analyst(s) who prepared this report, and the associate(s), has / have an interest in the securities (which may include but not be limited to shares, warrants, call warrants and/or any other derivatives) in the following company or companies covered or recommended in this report:

(a) -

This report does not purport to contain all the information that a prospective investor may require. Neither CGS International nor any of its affiliates make any guarantee, representation or warranty, express or implied, as to the adequacy, accuracy, completeness, reliability or fairness of any such information and opinion contained in this report. Neither CGS International nor any of its affiliates nor their related corporations shall be liable in any manner whatsoever for any consequences (including but not limited to any direct, indirect or consequential losses, loss of profits and damages) of any reliance thereon or usage thereof.

This report is general in nature and has been prepared for information purposes only. It is intended for circulation amongst CGS International's clients generally and does not have regard to the specific investment objectives, financial situation and the particular needs of any specific person who may receive this report. The information and opinions in this report are not and should not be construed or considered as an offer, recommendation or solicitation to buy or sell the subject securities, related investments or other financial instruments or any derivative instrument, or any rights pertaining thereto.

Investors are advised to make their own independent evaluation of the information contained in this research report, consider their own individual investment objectives, financial situation and particular needs and consult their own professional and financial advisers as to the legal, business, financial, tax and other aspects before participating in any transaction in respect of the securities of company(ies) covered in this research report.

The securities of such company(ies) may not be eligible for sale in all jurisdictions or to all categories of investors.

Restrictions on Distributions

Australia: Despite anything in this report to the contrary, this research is provided in Australia by CGS International Securities Singapore Pte. Ltd. ("CGS SG") and CGS International Securities Hong Kong Limited ("CGS HK"). This research is only available in Australia to persons who are "wholesale clients" (within the meaning of the Corporations Act 2001 (Cth) and is supplied solely for the use of such wholesale clients and shall not be distributed or passed on to any other person. You represent and warrant that if you are in Australia, you are a "wholesale client". This research is of a general nature only and has been prepared without taking into account the objectives, financial situation or needs of the individual recipient. CGS SG and CGS HK do not hold, and are not required to hold an Australian financial services license. CGS SG and CGS HK rely on "passporting" exemptions for entities appropriately licensed by the Monetary Authority of Singapore (under ASIC Class Order 03/1102) and the Securities and Futures Commission in Hong Kong (under ASIC Class Order 03/1103).

Canada: This research report has not been prepared in accordance with the disclosure requirements of Dealer Member Rule 3400 – Research Restrictions and Disclosure Requirements of the Investment Industry Regulatory Organization of Canada. For any research report distributed by CIBC, further disclosures related to CIBC conflicts of interest can be found at https://researchcentral.cibcwm.com .

China: For the purpose of this report, the People's Republic of China ("PRC") does not include the Hong Kong Special Administrative Region, the Macau Special Administrative Region or Taiwan. The distributor of this report has not been approved or licensed by the China Securities Regulatory Commission or any other relevant regulatory authority or governmental agency in the PRC. This report contains only marketing information. The distribution of this report is not an offer to buy or sell to any person within or outside PRC or a solicitation to any person within or outside of PRC to buy or sell any instruments described herein. This report is being issued outside the PRC to a limited number of institutional investors and may not be provided to any person other than the original recipient and may not be reproduced or used for any other purpose.

France: Only qualified investors within the meaning of French law shall have access to this report. This report shall not be considered as an offer to subscribe to, or used in connection with, any offer for subscription or sale or marketing or direct or indirect distribution of financial instruments and it is not intended as a solicitation for the purchase of any financial instrument.

Germany: This report is only directed at persons who are professional investors as defined in sec 31a(2) of the German Securities Trading Act (WpHG). This publication constitutes research of a non-binding nature on the market situation and the investment instruments cited here at the time of the publication of the information.

The current prices/yields in this issue are based upon closing prices from Bloomberg as of the day preceding publication. Please note that neither the German Federal Financial Supervisory Agency (BaFin), nor any other supervisory authority exercises any control over the content of this report.

Hong Kong: This report is issued and distributed in Hong Kong by CGS HK which is licensed in Hong Kong by the Securities and Futures Commission for Type 1 (dealing in securities) and Type 4 (advising on securities) activities. Any investors wishing to purchase or otherwise deal in the securities covered in this report should contact the Head of Sales at CGS HK. The views and opinions in this research report are our own as of the date hereof and are subject to change. If the Financial Services and Markets Act of the United Kingdom or the rules of the Financial Conduct Authority apply to a recipient, our obligations owed to such recipient therein are unaffected. CGS HK has no obligation to update its opinion or the information in this research report.

This publication is strictly confidential and is for private circulation only to clients of CGS HK.

CGS HK does not make a market on other securities mentioned in the report.

Indonesia: This report is issued and distributed by PT CGS International Sekuritas Indonesia ("CGS ID"). The views and opinions in this research report are our own as of the date hereof and are subject to change. CGS ID has no obligation to update its opinion or the information in this research report. This report is for private circulation only to clients of CGS ID. Neither this report nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable Indonesian capital market laws and

regulations.

This research report is not an offer of securities in Indonesia. The securities referred to in this research report have not been registered with the Financial Services Authority (Otoritas Jasa Keuangan) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market law and regulations.

Ireland: CGS International is not an investment firm authorised in the Republic of Ireland and no part of this document should be construed as CGS International acting as, or otherwise claiming or representing to be, an investment firm authorised in the Republic of Ireland.

Malaysia: This report is distributed in Malaysia by CGS International Securities Malaysia Sdn. Bhd. (formerly known as CGS-CIMB Securities Sdn. Bhd.) ("CGS MY") solely for the benefit of and for the exclusive use of our clients. Recipients of this report are to contact CGS MY, at Level 29, Menara Aras Raya, No. 11, Jalan Raja Laut, 50350 Kuala Lumpur, Malaysia, in respect of any matters arising from or in connection with this report. CGS-CIMB Malaysia has no obligation to update, revise or reaffirm its opinion or the information in this research report after the date of this report.

New Zealand: In New Zealand, this report is for distribution only to persons who are wholesale clients pursuant to section 5C of the Financial Advisers Act 2008.

Singapore: This report is issued and distributed by CGS SG. CGS SG is a capital markets services licensee under the Securities and Futures Act 2001. Accordingly, it is exempted from the requirement to hold a financial adviser's licence under the Financial Advisers Act, 2001 ("FAA") for advising on investment products, by issuing or promulgating research analyses or research reports, whether in electronic, print or other form. CGS SG is subject to the applicable rules under the FAA unless it is able to avail itself to any prescribed exemptions.

Recipients of this report are to contact CGS SG, 10 Marina Boulevard, Marina Bay Financial Centre Tower 2, #09-01, Singapore 018983 in respect of any matters arising from, or in connection with this report. CGS SG has no obligation to update its opinion or the information in this research report. This publication is strictly confidential and is for private circulation only. If you have not been sent this report by CGS SG directly, you may not rely, use or disclose to anyone else this report or its contents.

If the recipient of this research report is not an accredited investor, expert investor or institutional investor, CGS SG accepts legal responsibility for the contents of the report without any disclaimer limiting or otherwise curtailing such legal responsibility. If the recipient is an accredited investor, expert investor or institutional investor, the recipient is deemed to acknowledge that CGS SG is exempt from certain requirements under the FAA and its attendant regulations, and as such, is exempt from complying with the following:

(a) Section 34 of the FAA (obligation to disclose product information);

(b) Section 36 (duty not to make recommendation with respect to any investment product without having a reasonable basis where you may be reasonably expected to rely on the recommendation) of the FAA;

(c) MAS Notice on Information to Clients and Product Information Disclosure [Notice No. FAA-N03];

(d) MAS Notice on Recommendation on Investment Products [Notice No. FAA-N16];

(e) Section 45 (obligation on disclosure of interest in specified products), and

(f) any other laws, regulations, notices, directive, guidelines, circulars and practice notes which are relates to the above, to the extent permitted by applicable laws, as may be amended from time to time, and any other laws, regulations, notices, directive, guidelines, circulars, and practice notes as we may notify you from time to time. In addition, the recipient who is an accredited investor, expert investor or institutional investor acknowledges that as CGS SG is exempt from Section 36 of the FAA, the recipient will also not be able to file a civil claim against CGS SG for any loss or damage arising from the recipient's reliance on any recommendation made by CGS SG which would otherwise be a right that is available to the recipient under Section 36 of the FAA .

CGS SG, its affiliates and related corporations, their directors, associates, connected parties and/or employees may own or have positions in specified products of the company(ies) covered in this research report or any specified products related thereto and may from time to time add to or dispose of, or may be materially interested in, any such specified products. Further, CGS SG, its affiliates and its related corporations do and seek to do business with the company(ies) covered in this research report and may from time to time act as market maker or have assumed an underwriting commitment in specified products of such company(ies), may sell them to or buy them from customers on a principal basis and may also perform or seek to perform significant investment banking, advisory, underwriting or placement services for or relating to such company(ies) as well as solicit such investment, advisory or other services from any entity mentioned in this report.

CGS SG does not make a market on other specified products mentioned in the report.

South Korea: This report is issued and distributed in South Korea by CGS International Securities Hong Kong Limited, Korea Branch ("CGS KR") which is licensed as a cash equity broker, and regulated by the Financial Services Commission and Financial Supervisory Service of Korea. In South Korea, this report is for distribution only to professional investors under Article 9(5) of the Financial Investment Services and Capital Market Act of Korea ("FSCMA").

Spain: This document is a research report and it is addressed to institutional investors only. The research report is of a general nature and not personalised and does not constitute investment advice so, as the case may be, the recipient must seek proper advice before adopting any investment decision. This document does not constitute a public offering of securities.

CGS International is not registered with the Spanish Comision Nacional del Mercado de Valores to provide investment services.

Sweden: This report contains only marketing information and has not been approved by the Swedish Financial Supervisory Authority. The distribution of this report is not an offer to sell to any person in Sweden or a solicitation to any person in Sweden to buy any instruments described herein and may not be forwarded to the public in Sweden.

Switzerland: This report has not been prepared in accordance with the recognized self-regulatory minimal standards for research reports of banks issued by the Swiss Bankers' Association (Directives on the Independence of Financial Research).

Thailand: This report is issued and distributed by CGS International Securities (Thailand) Co. Ltd. ("CGS TH") based upon sources believed to be reliable (but their accuracy, completeness or correctness is not guaranteed). The statements or expressions of opinion herein were arrived at after due and careful consideration for use as information for investment. Such opinions are subject to change without notice and CGS TH has no obligation to update its opinion or the information in this research report.

Corporate Governance Report (CGR): (Thai CGR and Anti-Corruption of Thai Listed Companies - Click here)

The disclosure of the survey result of the Thai Institute of Directors Association ("IOD") regarding corporate governance is made pursuant to the policy of the Office of the Securities and Exchange Commission. The survey of the IOD is based on the information of a company listed on the Stock Exchange of Thailand and the Market for Alternative Investment disclosed to the public and able to be accessed by a general public investor. The result, therefore, is from the perspective of a third party. It is not an evaluation of operation and is not based on inside information.

The survey result is as of the date appearing in the Corporate Governance Report of Thai Listed Companies. As a result, the survey result may be changed after that date. CGS TH does not confirm nor certify the accuracy of such survey result.

Score Range:	90 - 100	80 – 89	70 - 79	Below 70	No Survey Result
Description:	Excellent	Very Good	Good	N/A	N/A

United Arab Emirates: The distributor of this report has not been approved or licensed by the UAE Central Bank or any other relevant licensing authorities or governmental agencies in the United Arab Emirates. This report is strictly private and confidential and has not been reviewed by, deposited or registered with UAE Central Bank or any other licensing authority or governmental agencies in the United Arab Emirates. This report is being issued outside the United Arab Emirates to a limited number of institutional investors and must not be provided to any person other than the original recipient and may not be reproduced or used for any other purpose. Further, the information contained in this report is not intended to lead to the sale of investments under any subscription agreement or the conclusion of any other contract of whatsoever nature within the territory of the United Arab Emirates.

United Kingdom and European Economic Area (EEA): In the United Kingdom and European Economic Area, this material is also being distributed by CGS International Securities UK Ltd. ("CGS UK"). CGS UK is authorized and regulated by the Financial Conduct Authority and its registered office is at 53 New Broad Street, London EC2M 1JJ. The material distributed by CGS UK has been prepared in accordance with CGS International's policies for managing conflicts of interest arising as a result of publication and distribution of this material. This material is for distribution only to, and is solely directed at, selected persons on the basis that those persons: (a) are eligible counterparties and professional clients of CGS UK; (b) have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Order"), (c) fall within Article 49(2)(a) to (d) ("high net worth companies, unincorporated associations etc") of the Order; (d) are outside the United Kingdom subject to relevant regulation in each jurisdiction, material(all such persons together being referred to as "relevant persons"). This material is directed only at relevant persons and must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this material relates is available only to relevant persons and will be engaged in only with relevant persons.

This material is categorised as non-independent for the purposes of CGS UK and therefore does not provide an impartial or objective assessment of the subject matter and does not constitute independent research. Consequently, this material has not been prepared in accordance with legal requirements designed to promote the independence of research and will not be subject to any prohibition on dealing ahead of the dissemination of research. Therefore, this material is considered a marketing communication.

United States: This research report is distributed in the United States of America by CGS International Securities USA, Inc, a U.S. registered broker-dealer and an affiliate of CGS MY, CGS SG, CGS ID, CGS TH and CGS HK and is distributed solely to persons who qualify as "U.S. Institutional Investors" as defined in Rule 15a-6 under the Securities and Exchange Act of 1934. This communication is only for Institutional Investors whose ordinary business activities involve investing in shares, bonds, and associated securities and/or derivative securities and who have professional experience in such investments. Any person who is not a U.S. Institutional Investor or Major Institutional Investor must not rely on this communication. The delivery of this research report to any person in the United States of America is not a recommendation to effect any transactions in the securities discussed herein, or an endorsement of any opinion expressed herein. CGS International Securities USA, Inc. ("CGS US"), is a FINRA/SIPC member and takes responsibility for the content of this report. For further information or to place an order in any of the above-mentioned securities please contact a registered representative of CGS US.

CGS International Securities USA, Inc. does not make a market on other securities mentioned in the report.

CGS US has not managed or co-managed a public offering of any of the securities mentioned in the past 12 months.

CGS US has not received compensation for investment banking services from any of the company mentioned in the past 12 months.

CGS US neither expects to receive nor intends to seek compensation for investment banking services from any of the company mentioned within the next 3 months.

United States Third-Party Disclaimer: If this report is distributed in the United States of America by Raymond James & Associates, Inc ("RJA"), this report is third-party research prepared for and distributed in the United States of America by RJA pursuant to an arrangement between RJA and CGS International Securities Pte. Ltd. ("CGSI"). CGSI is not an affiliate of RJA. This report is distributed solely to persons who qualify as "U.S. Institutional Investors" or as "Major U.S. Institutional Investors" as defined in Rule 15a-6 under the Securities and Exchange Act of 1934, as amended. This communication is only for U.S. Institutional Investors or Major U.S. Institutional Investor whose ordinary business activities involve investing in shares, bonds, and associated securities and/or derivative securities and who have professional experience in such investments. Any person who is not a U.S. Institutional Investor or Major U.S. Institutional Investor must not rely on this communication. The delivery of this report to any person in the U.S. is not a recommendation to effect any transactions in the securities discussed herein, or an endorsement of any opinion expressed herein. If you are receiving this report in the U.S from RJA, a FINRA/SIPC member, it takes responsibility for the content of this report. For further information or to place an order in any of the above-mentioned securities please contact a registered representative of CGS US or RJA. https://raymondjames.com/InternationalEquityDisclosures

Other jurisdictions: In any other jurisdictions, except if otherwise restricted by laws or regulations, this report is only for distribution to professional, institutional or sophisticated investors as defined in the laws and regulations of such jurisdictions.

Distribution of stock ratings and investment banking clients for quarter ended on 31 March 2024 634 companies under coverage for quarter ended on 31 March 2024		
	Rating Distribution (%)	Investment Banking clients (%)
Add	65.5%	1.3%
Hold	24.1%	0.2%
Reduce	10.4%	0.3%

Recommendation Framework

Stock Ratings	Definition:
Add	The stock's total return is expected to exceed 10% over the next 12 months.
Hold	The stock's total return is expected to be between 0% and positive 10% over the next 12 months.
Reduce	The stock's total return is expected to fall below 0% or more over the next 12 months.

The total expected return of a stock is defined as the sum of the: (i) percentage difference between the target price and the current price and (ii) the forward net dividend yields of the stock. Stock price targets have an investment horizon of 12 months.

Sector Ratings	Definition:
Overweight	An Overweight rating means stocks in the sector have, on a market cap-weighted basis, a positive absolute recommendation.
Neutral	A Neutral rating means stocks in the sector have, on a market cap-weighted basis, a neutral absolute recommendation.
Underweight	An Underweight rating means stocks in the sector have, on a market cap-weighted basis, a negative absolute recommendation.

Country Ratings	Definition:
Overweight	An Overweight rating means investors should be positioned with an above-market weight in this country relative to benchmark.
Neutral	A Neutral rating means investors should be positioned with a neutral weight in this country relative to benchmark.
Underweight	An Underweight rating means investors should be positioned with a below-market weight in this country relative to benchmark.

#03c

International Network

Asia

China
Unit 802 AZIA Center
1233 Lujiazui Ring Road
Pudong New District
Shanghai 200120
T: +86 (21) 6194-0212 / +86 (21) 6194-0218

Hong Kong
25/F, The Gloucester Tower
The Landmark, 15 Queen's Road
Central, Hong Kong
T: +852 2868-0380
F: +852 2537-1928

India
CIMB Securities (India) Private Limited
603 , Platina
G Block ; Bandra Kurla Complex
Bandra (East)
Mumbai 400 051, India
T: +91 (22) 6602-5252

Indonesia
The Indonesia Stock Exchange Building
Tower II, 20th Floor
Jl. Jend. Sudirman, Kav. 52-53
Jakarta 12190
T: +62 (21) 515-1330
F: +62 (21) 515-1335

Malaysia
Level 17, Menara CIMB
Jalan Stesen Sentral 2
Kuala Lumpur Sentral
50470 Kuala Lumpur.
T: +60 (3) 2261 8888
F: +60 (3) 2261 8899

Singapore
50 Raffles Place
#01-01
Singapore Land Tower (S048623)
T: +65 6225-1228
F: +65 6224-6906

South Korea
CIMB Securities Limited, Korea Branch
15F, S-Tower, 116 Shinmun-ro 1-ga
Jongro-gu, Seoul 110-700
T: +82 (2) 6730-6000
F: +82 (2) 6730-6183

Sri Lanka
Level 33, West Tower
World Trade Center
Echelon Square
Colombo 01

Thailand
132 Sindhorn Tower 3, 12th Floor
Wireless Road, Lumpini, Pathumwan
Bangkok 10330
T: +66 (2) 841-9000
F: +66 (2) 657-9240

Vietnam
CIMB Securities International Ltd.
90 Pasteur Street
District 1, HCMC
Vietnam
T: +84 839146925
F: +84 839 146924

Philippines
SB Equities, Inc.
(a strategic partner with CIMB Securities)
18F Security Bank Centre
6776 Ayala Ave.
Makati 0719
T: +63 (2) 891-1243 / +63 (2) 891-1258
F: +63 (2) 813-3349

Sri Lanka
John Keells Stock Brokers (Pvt) Ltd
(a strategic partner with CIMB Securities)
130 Glennie Street
Colombo 00200
T: +94 (0) 11 230 6271
F: +94 (0) 11 234 2068

Europe

United Kingdom
(2719607)
27 Knightsbridge
London, SW1X 7YB
T: +44 (20) 7201-2199
F: +44 (20) 7201-2191

Americas

USA
(52-1971703)
7 Times Square #1605
New York, NY 10036
T: +1 (212) 616 8600
F: +1 (212) 616 8639