

# Industry Brief

## DATA CENTER MARKET: A QUICK LOOK

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Key points:

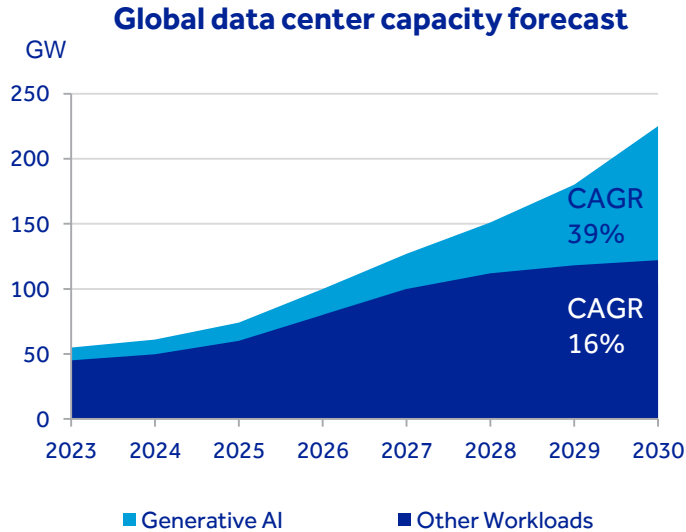
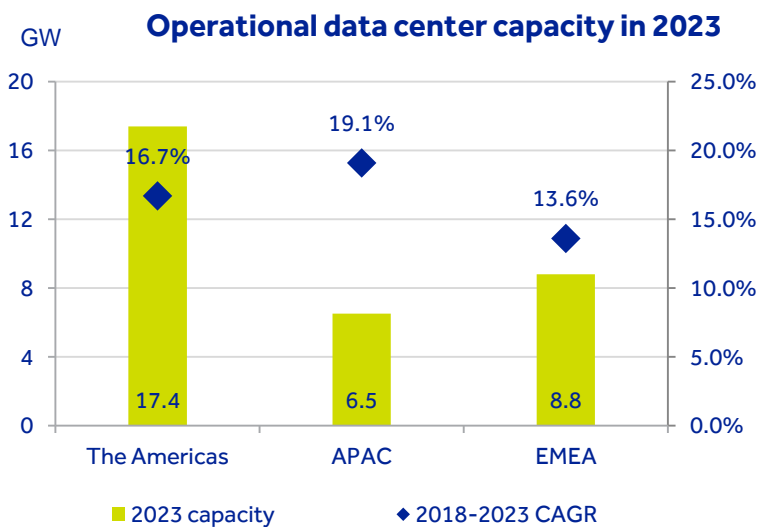
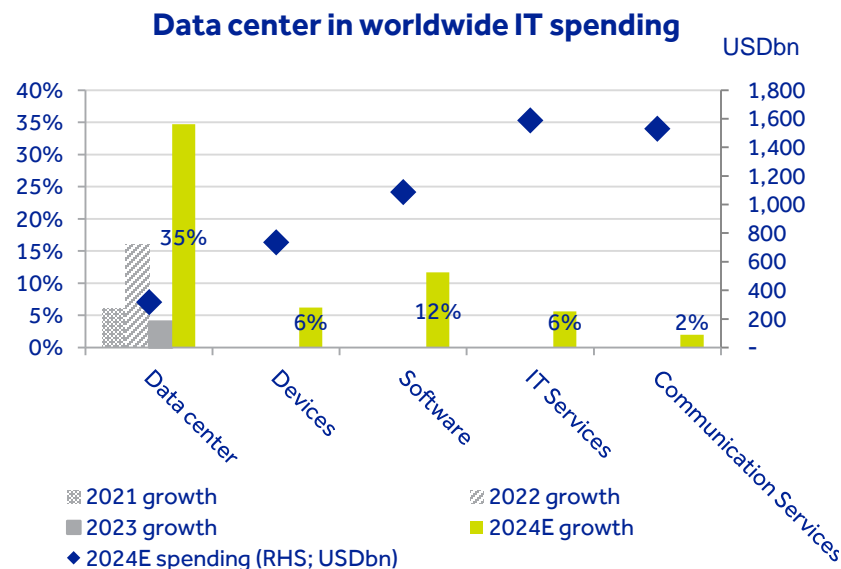
- The global data center market has been accelerated by the uprising of AI over recent years and is predicted to keep its momentum in the coming years.
- Due to restrictions in natural resources and inflating costs, investments in data centers are trending to move from established markets to secondary and tertiary markets including many countries in Asia Pacific (APAC).
- Vietnam is among five Southeast Asian countries that emerge as potential markets for data centers. However, the size is still humble.
- The consumption of land, power, water, etc. plays an enormous role in facilitating the industry growth but simultaneously provokes the challenge of balancing between growth and sustainability for industry members.

Listed stocks related:

Ticker	Exchange	Market cap (VNDbn)	9M2024 net revenue (VNDbn)	9M2024 EBT (VNDbn)	PER Trailing 12M
FPT	HSX	224,338	45,241	8,111	29.6
CMG	HSX	10,409	3,978	201	31.9
VNZ	Upcom	10,058	6,892	-158	n/a

# The global data center market on an upward trajectory

- **Data centers have been in the spotlight over recent years for their outstanding expansion.** Data center spending is estimated to grow splendidly by 34.7% YoY in 2024, outpacing the previous years and other segments in Gartner’s Worldwide IT spending forecast updated in Oct 2024. Operational data center capacity was estimated to reach nearly 33 gigawatts (GW) in 2023 (according to DB Byte, Cushman & Wakefield), with a 2018-2023 CAGR of 16.7% in the Americas, 19.1% in APAC and 13.6% in EMEA (according to DB Byte).
- **The emergence of AI, especially generative AI, is believed to be a major driver** for this performance. Surging interest in AI deployment has accelerated demand for data center capacity that meets high computational power and power density required by AI workloads.
- **The global data center market is projected to retain its upward trajectory** in the coming years fueled by increasing demand for digital transformation, data-intensive services, more connected devices and exploitation of technological advances including AI, cloud computing, 5G network, etc. McKinsey expects that global data center capacity could grow at a CAGR of 22% in 2023-2030 in the mid-range scenario (i.e. from 55 GW in 2023, different from those of other research firms mentioned above, to 219 GW in 2030).



- **Expansion of data center supply depends on a number of indispensable factors including land, power, water, fiber connectivity, etc.** The availability of land, power, water, fiber connectivity, along with power expense, land price, environmental impacts, etc., could be either barriers or advantages for any entity – a resource consumer or resource provider – that seek opportunities from this field.
- Power occupies the preeminent tick as AI data centers are estimated to consume two to five times more electricity than that in hosting cloud applications, primarily because of higher power requirements for graphics processing units (GPUs) compared to traditional central processing units (CPUs), according to Savills. IDC estimates that electricity is by far the largest expense, accounting for 46% of total spending for enterprise data centers and 60% for service provider data centers. Despite different forecasts about the absolute consumption value, the consensus is data centers, especially AI data centers, will likely drive a substantial double-digit increase in electricity consumption in the coming years.

### Influential factors for establishing data centers



Source: The 2024 Global Data Center Market Comparison report - Cushman & Wakefield

IEA estimates total electricity consumption for data centers and crypto mining at 460 terawatt-hours (TWh) in 2022 (data centers captured about two-third, equivalent to around 1% of the global energy consumption) and could reach more than 1,000 TWh in 2026, roughly equivalent to the electricity consumption of Japan.

Gartner estimates the power required for data centers to run incremental AI-optimized servers will reach 500 TWh per year in 2027, which is 2.6 times the level in 2023.

IDC: AI data center energy consumption may grow at a CAGR of 44.7%, to 146.2 TWh by 2027 and global data center electricity consumption to more than double with a 5-year CAGR of 19.5% to 857 TWh in 2028 from 352TWh in 2023.

# With a foreseeable rise in consumption of resources

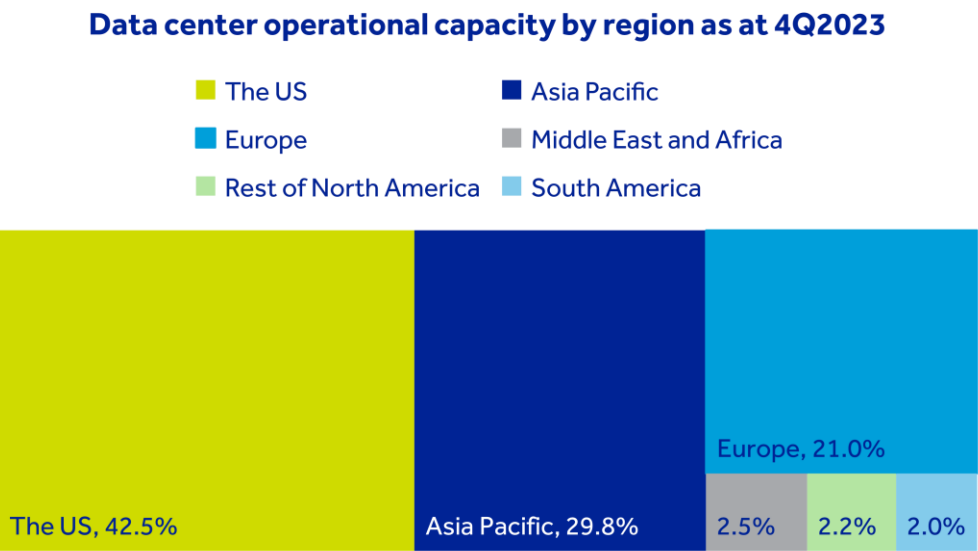
- Land availability and land price are also considered critical factors as operators, especially hyperscalers, aim to have enough space for their facilities and/or to be ready for future expansion and/or renewable energy projects, accompanied by benefits in terms of renting prices. Cushman & Wakefield's observation indicated that many major markets such as Singapore, New York/New Jersey, Frankfurt, Hong Kong and Silicon Valley have faced restricted land bank, causing Singapore and Hong Kong to fall out of the Global Top Ten Established Markets Ranking.
- **Sustainability is taken into account as the main challenge in the global DC landscape given growing concerns about environmental impacts in exchange for promising growth.** To mitigate the impacts as well as cope with limitation in resources, the industry players foster new technologies/solutions to reduce water use in cooling systems, boost contribution of renewable power and optimize data center efficiency.



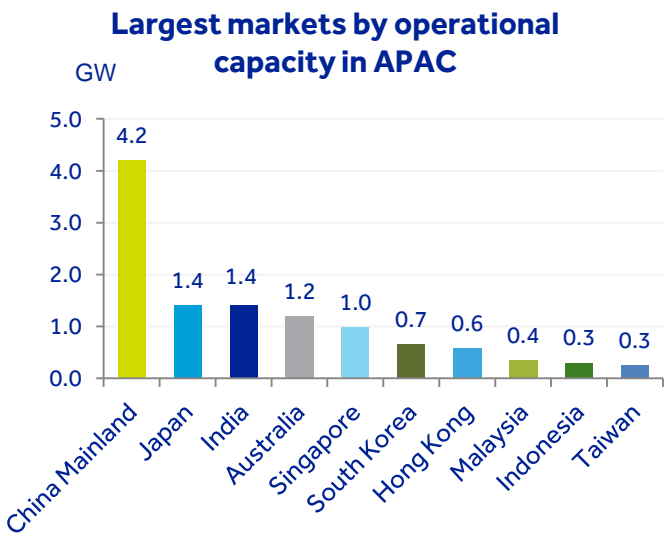
Source: ESDS

# A move beyond traditional hubs gains traction

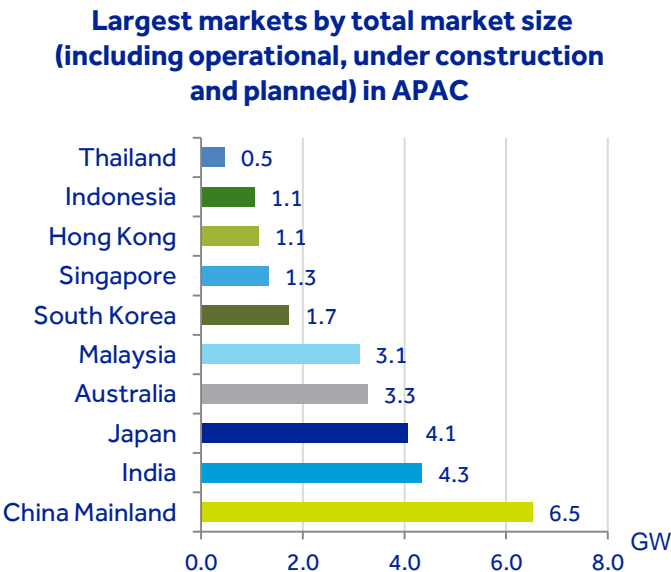
- **The US has been a global superpower and the market leader** capturing a share of approximately 43% of global operational supply as at 4Q2023, followed by Asia Pacific (~30%) and Europe (21%), according to DB Byte and Mapletree.
- **A gradual move to secondary and tertiary markets due to restrictions in primary markets' resources has been spurred by data center operators.** Whilst the US and many of European markets are relatively mature, APAC – whose operational capacity jumped at a CAGR of 19.1% versus 16.7% in the Americas and 13.6% in EMEA in 2018-2023 – is still favored for less strained resources and lower development costs. According to Cushman & Wakefield, the operational capacity of APAC data center market reached nearly 12GW with about 1.3GW of new supply in 1H2024, the largest addition in recent time. Six out of 14 markets in the region accounted for 85% of the regional operational capacity. Chinese Mainland (4.2GW), Japan (1.4GW), India (1.4GW), Australia (1.2GW), Singapore (0.98GW), South Korea (0.65GW) have not only the highest operational capacity but also robust development pipeline and planned capacity. Malaysia and India are the fast growing markets in development pipeline, implying extended growth in the next coming years.



Source: DB Byte; Mapletree; ACBS

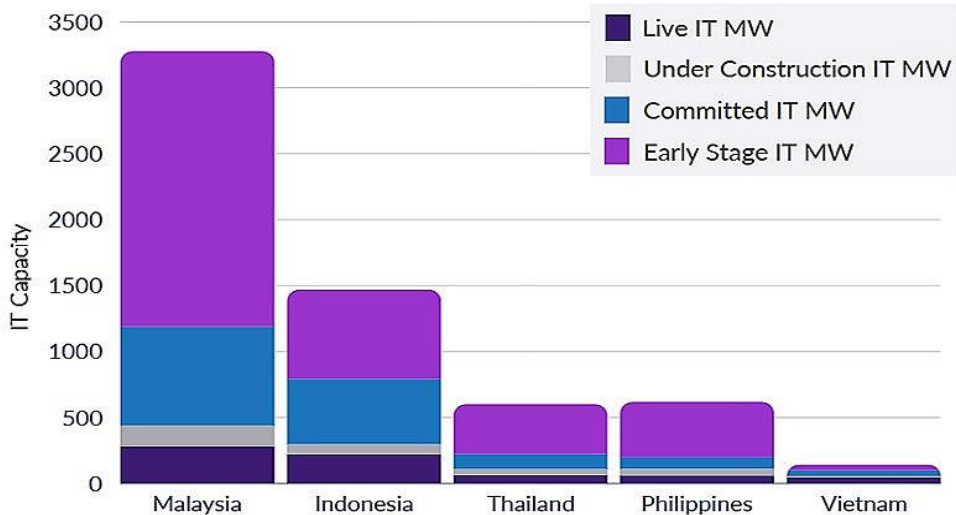


Source: Cushman & Wakefield; ACBS



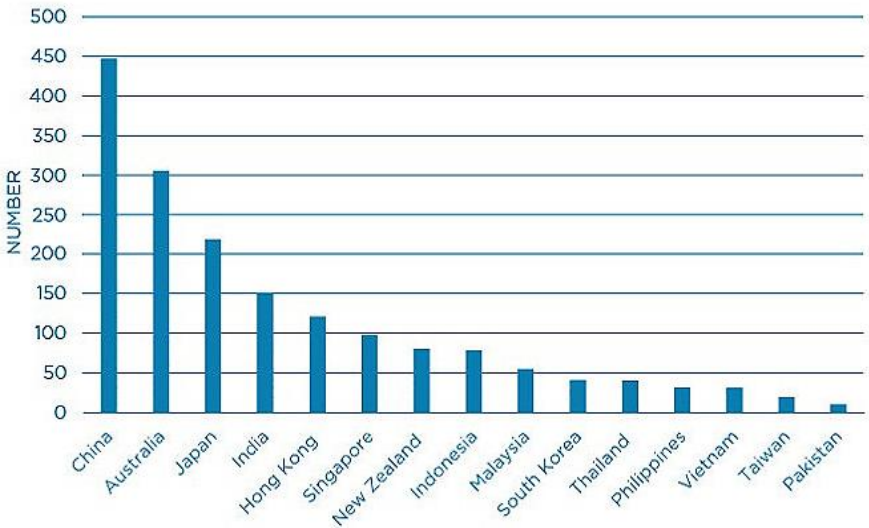
# Vietnam: a tiny spot in the industry map

- Besides established markets such as Australia, China, Japan, and Singapore, etc., the Southeast Asian region is speeding up (CAGR of 70% in 2018-2023 according to DB Byte) thanks to global and local players showing interests in establishing and enhancing their presence, combined with the region’s rising demand for digital transformation and building digital economies. As per DB Byte’s note, Singapore has been a traditional hub in the region; however room for further growth is now hampered by limited land bank and power.
- Meanwhile, Malaysia, Indonesia, Thailand, Philippines and Vietnam (SEA-5) emerge as the next promising markets. DB Byte estimates that the SEA-5 market owns a total capacity of 6GW (1Q2024) consisting of both operational and pipeline deployments; in which, the most prominent is Malaysia whereas Vietnam is still nascent as a frontier market.



Source: DB Byte, 1Q2024

Number of data centers of Vietnam compared to APAC, 1Q2024



Source: Cloudscene; Savills

Hyperscale demand

X: live and announced region/local/zone

	Malaysia	Indonesia	Thailand	Philippines	Vietnam
Microsoft	X	X			
aws	X	X	X	X	X
Google Cloud	X	X	X		
Alibaba Cloud	X	X	X	X	
HUAWEI		X	X		
Tencent Cloud		X	X		

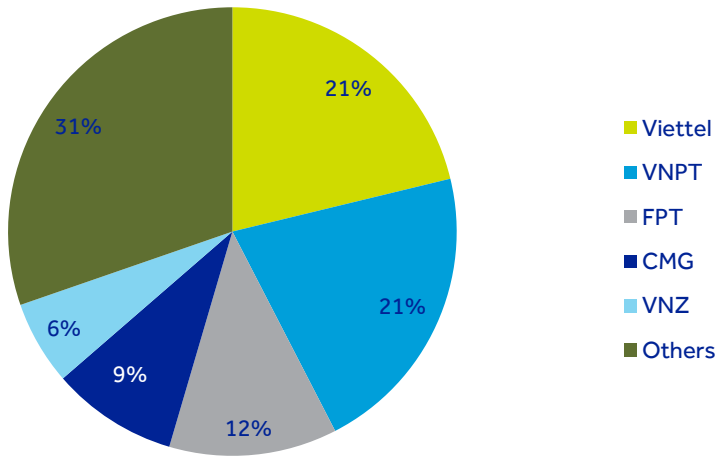
Source: DB Byte; ACBS; as of 1Q2024



# Vietnam: speeding up to seize the global trend

- **Vietnam has an estimated capacity of about 80MW as of 1Q2024** with 33 data centers and a total of 49 service providers, according to Savills and Cloudscene. Hanoi and Ho Chi Minh City dominate with 15 and 16 established facilities, respectively.
- **The leading operators holding 70% market share (by number of DC) are local tech and telecom companies** including Viettel, VNPT, FPT Telecom (UpCom: **FOX**) – member of FPT Corp (HSX: **FPT**), CMC Telecom – member of CMC Corp (HSX: **CMG**) and VNG Corp (UpCom: **VNZ**).
- **Despite a much lower market size in comparison with regional peers at present, Vietnam is speeding up** to strengthen its position and seize opportunities from rising demand for AI. The government’s exhortation and companies’ investments in AI deployment and its infrastructure were highlights in 2024.

Vietnam data center distribution by operators, YE2024



Source: Cloudscene; ACBS

Dec 2024: Vietnamese government and Nvidia signed a cooperation agreement on the establishment of an artificial intelligence (AI) research and development center and an AI data center in Vietnam to incite AI deployment and expand local job opportunities.

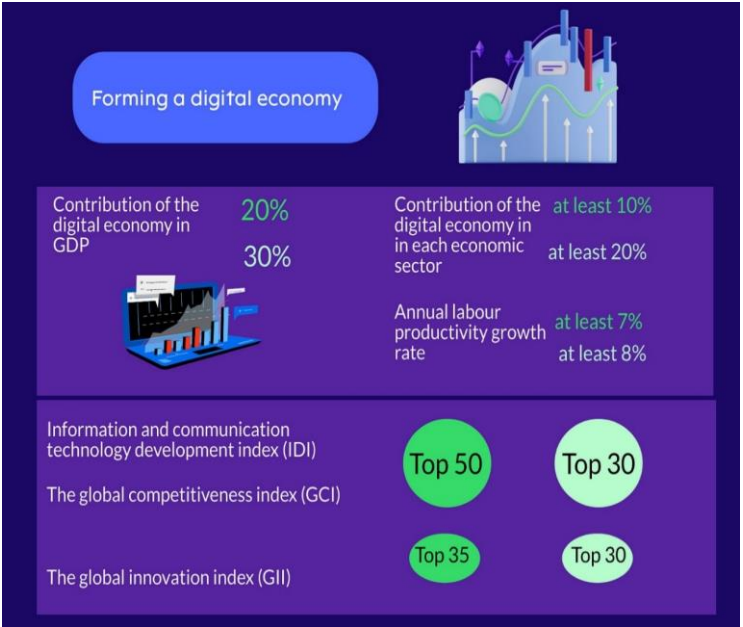
April 2024: FPT Corp. announced a strategic partnership with NVIDIA to drive the advancement of AI and cloud computing, planning to invest USD200m to establish AI Factories. Nov 2024: introducing AI Factories in Vietnam and Japan; the latter offers three main groups - FPT AI Infrastructure (offers GPU cloud services), FPT AI Studio (offers intelligent tools for building, pre-training, and fine-tuning AI models in depth), and FPT AI Inference.

Jun 2024: GreenNode, a business unit of VNG Corp, launched an AI-ready hyperscale data center in Bangkok, Thailand, ready to deliver robust AI Cloud services and GPU infrastructure.



## Outlook:

- **Vietnam is reckoned potential to lure more investments into data centers** given the country’s objectives to be a digital hub in the region, propel digital transformation and digital economy, coupled with regulatory catalysts (e.g. the 2023 Telecom Law, taking effect from July 1<sup>st</sup>, 2024, loosen regulations on foreign ownership and investments in data centers; Decree No.53/2022/ND-CP guiding Cybersecurity Law on data localization requires all local service providers (including foreign invested enterprises established under Vietnamese laws) who carry out activities of collecting/exploiting/analyzing/processing certain types of data on telecom networks, internet and value-added services in Vietnam’s cyberspace to store such data in Vietnam, etc.).



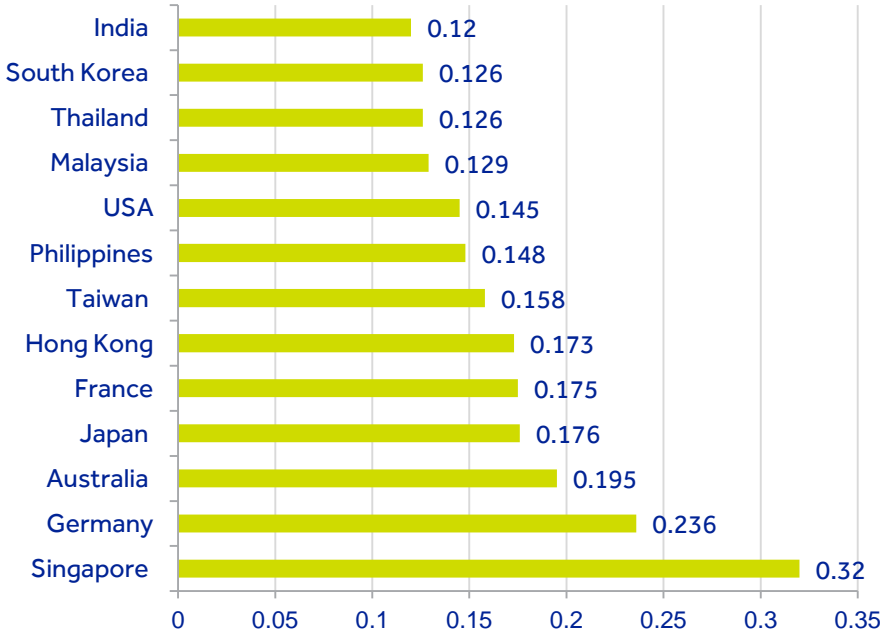
Source: <https://en.baochinhphu.vn>

# Vietnam: speeding up to seize the global trend

## Outlook:

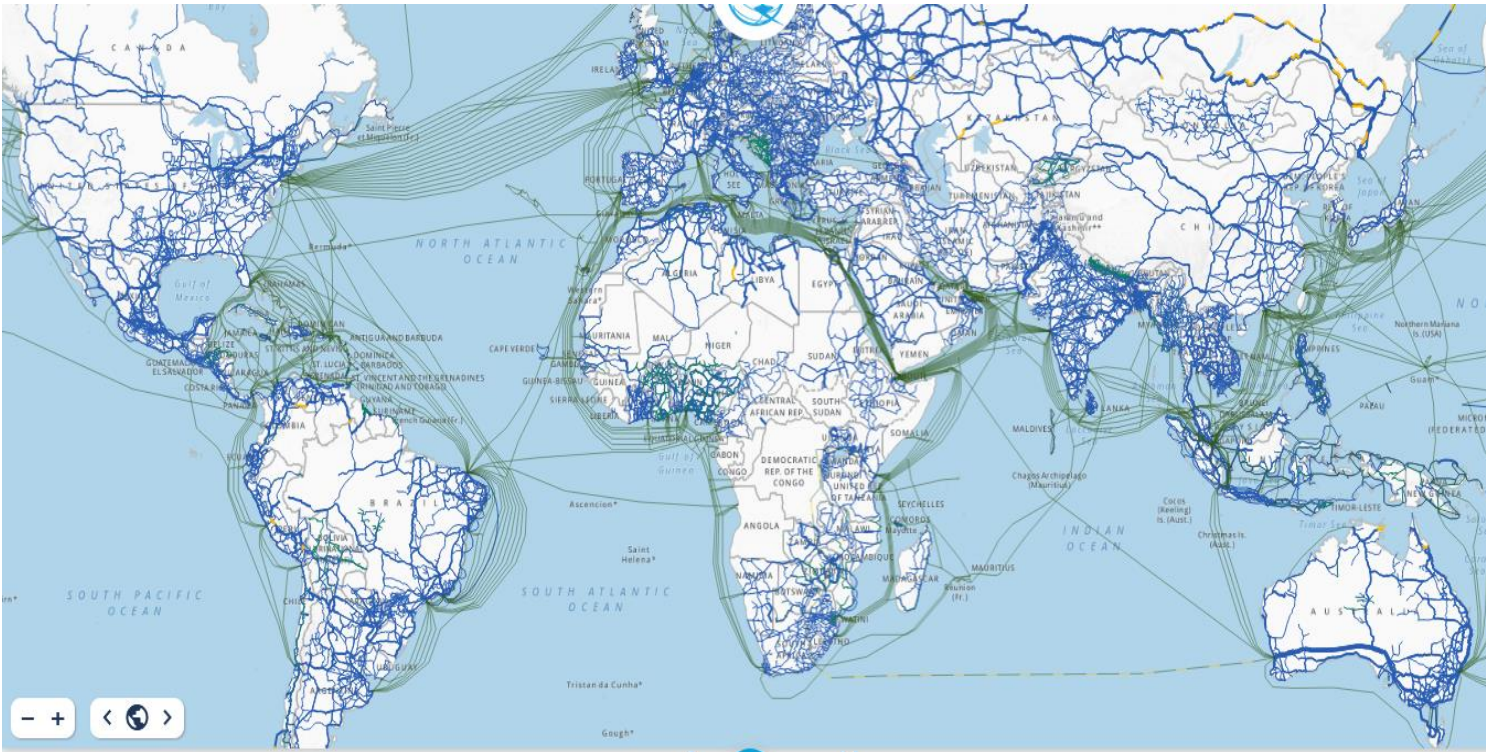
- Lower costs, introduction of 5G network and expansion of fiber connectivity could underpin the country's DC growth perspective. However, similar to other destinations, the growth rate will be steered by the likelihood to satisfy requirements on power, land and water supply with stability besides other factors. Furthermore, balancing between growth and sustainability matters.
- Vietnamese market value is forecast to achieve USD1.04bn by 2028**, up from USD561m in 2022, translating to a CAGR of 10.7% as per Savills' update in May 2024.

Electricity prices for business in some countries, March 2024 (USD/kWh)



Source: <https://www.globalpetrolprices.co/>; ACBS

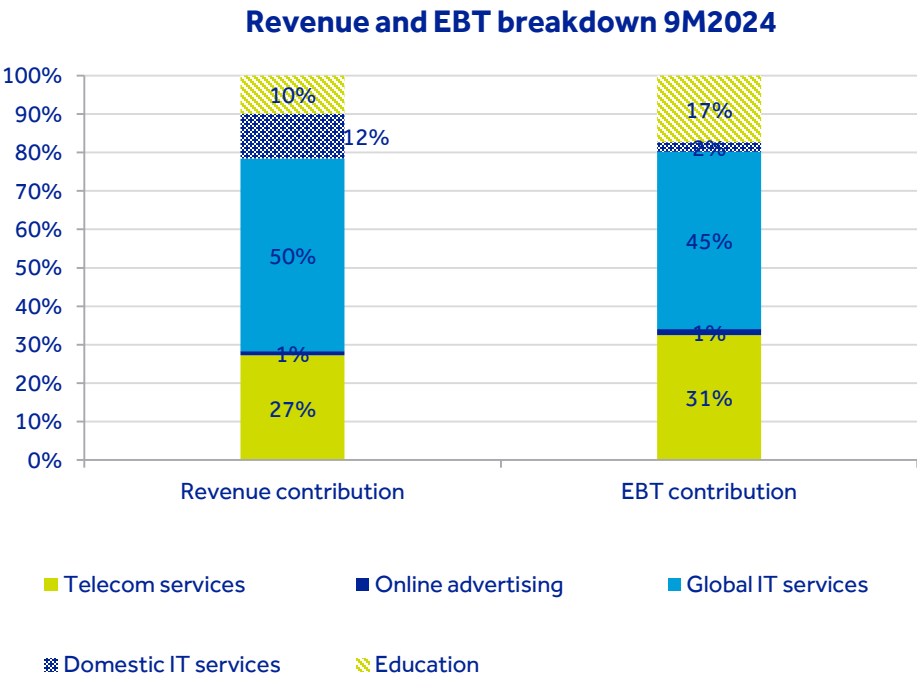
Connectivity map around the globe



Source: ITU

# Stock representative: FPT Corp (HSX: FPT)

- The Vietnamese leading technology company in Vietnam providing various IT services for both domestic and global markets. The global IT services and telecom services segments are the company’s two largest pillars.
- Telecom services (Internet services; private channels; data centers; VoIP phones; value-added telecommunications services; inter-provincial and international connections; IoT services) contributed 27% and 31% of the company’s net revenue and EBT.
- One of five largest data center operators in Vietnam owning three data centers and another one is planned to go into operation in 2025.
- The company aims to boost growth of the telecom segment by value-added services and other businesses (data center, Pay TV, etc.) as fixed broadband internet service has approached the maturation phase. However, we think that a structural change could hardly take place in one to two coming years because the sub-segments need time to amplify their shares in the segmented revenue, especially from the current level of just 3% earned by data center service.
- For AI Factories, in addition to Vietnam, FPT launched a facility in Japan, where demand for AI is projected to elevate remarkably. The investments will be disbursed into many stages in line with the market demand. However, it may take time for Vietnamese players in general and FPT in particular to realize significant contribution from these investments. FPT expects these facilities may generate revenue of USD100m (equivalent to 3% of FPT’s 2025F revenue - ACBS) with an EBITDA margin of 50% in 2025, which is going to be booked in the domestic IT services segment.



Source: FPT; ACBS

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