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Q & A

Southeast Asia risks falling behind without AI-ready infrastructure

BY RAVINYAA RAVIMALAR

Artificial intelligence (AI) is expected to contribute US\$1 trillion to Southeast Asia's gross domestic product (GDP) by 2030, setting the region on course to becoming the world's fourth-largest economy.

However, the region risks falling behind if it does not urgently invest in one critical enabler, AI-ready infrastructure, says Piyush Jain, technology, media and telecommunications industry strategy, risk and transactions leader at Deloitte Southeast Asia, citing the firm's report, "Southeast Asia's data centres and AI infrastructure imperative: Capitalising on a once-in-a-generation opportunity".

With the development of next-generation generative AI (Gen AI) applications, including those with advanced image recognition capabilities, the potential to replace traditional sensors in many scenarios is growing. This shift is expected to have far-reaching implications across the automation, mobility and manufacturing sectors.

The report says powering these Gen AI applications are foundational models that require vast amounts of data for both training and inference. Supporting these foundational models demands that data centres and AI-ready infrastructure be built to specific and high-performance standards, which Southeast Asia's current infrastructure largely cannot meet.

To boost innovation, stay economically competitive and safeguard national security, governments in the region must address existing challenges and prioritise policies and investments. The goal is to encourage local companies, global tech leaders and investors to collaborate on building data centres and AI-ready infrastructure in their own countries.

For instance, in Malaysia, the government launched the National AI Office (NAIO) in August 2024 to accelerate AI adoption, foster innovation and ensure the ethical development of AI. A key goal is to enhance Malaysia's competitiveness, drive sustainable growth and position the country as a regional leader in AI.

In the following Q&A, Piyush tells *Digital Edge* how the region can keep up with the influx of data centres and AI-ready infrastructure.

Digital Edge: The report highlights the growing demand for data centres due to AI. Which specific AI applications or trends do you see as the primary drivers of this demand in Southeast Asia?

Piyush Jain: We see AI applications across three distinct user groups as drivers of data centre demand in Southeast Asia. The demand for consumer applications is driven primarily by large language models (LLMs) such as ChatGPT and Perplexity. Deloitte's *Generative AI in Asia-Pacific* report noted that Southeast Asia ranked second out of nine Asia-Pacific locations in terms of Gen AI. The applications are focused on the generation of text, code, images and videos, as well as AI-powered searches. In particular, we are seeing demand for engines embedded in existing digital assets that offer personalised

recommendations to consumers. For instance, tailored travel itineraries in a hotel's rewards app or personalised customer service chatbots.

For enterprises and businesses, there will be growing demand for AI agents supporting employees in their daily tasks. AI agents combining retrieval augmented generation (RAG)-based search models with open source LLMs that can search internal documents, chats and emails and provide output based on the knowledge base provided. This enables use cases such as generating business reports based on up-to-date and accurate data with minimal human intervention.

We also foresee a growth in apps in local vernacular languages running on locally developed LLMs. This is important in Southeast Asia, with its linguistic diversity and an under-representation of regional languages in LLMs commonly used today. Such apps can help to boost citizen engagement with governments and drive public sector objectives such as improved education in local communities.

What are some key regional differences in the adoption and development of AI and data centre infrastructure?

The key differences lie in terms of the source of demand and type of workloads across the region. Singapore and Malaysia, particularly Johor, are emerging as regional hubs for AI demand aggregation.

Indonesia is largely driven by domestic demand, except for Batam, which is positioned as an extension of the data centre hubs in Singapore and Johor. In Thailand, demand is led by both domestic AI use and regional aggregation for the northern parts of Southeast Asia, such as Vietnam, Cambodia and Myanmar.

In the Philippines, AI demand is largely driven by domestic use and is relatively geared towards enterprise-centric applications, instead of hyperscalers.

What specific regulations or incentives do you believe would be most effective for Southeast Asian governments to implement to encourage investment in data centres and AI infrastructure?

There are several measures that governments across the region can consider to encourage data centre and AI infrastructure investment. First, they can offer tax incentives in the form of tax breaks or exemptions for data centre investments, with Malaysia's

Digital Ecosystem Acceleration scheme and Investment Tax Allowance as an example.

Next, governments can consider streamlining regulatory frameworks by simplifying approval processes and providing clear guidelines for data centre operations. Policy stability and clarity will help attract global players to make major investment decisions.

Governments may also consider collaborating with private entities to develop infrastructure and share best practices, such as leveraging technical expertise and market-proven solutions that the private sector offers. For example, as part of Singapore's National AI Strategy 2.0, its government is working with companies to build AI centres of excellence, building capabilities across sectors.

Another important aspect would be developing an AI talent roadmap to address the skills gap in the market. Deloitte's *AI at a Crossroads* report found that in Malaysia, less than two-thirds of employees have the required skills and capabilities to use AI in an ethically and legally compliant way. It also found that a lack of talent or technical skills was a top-three barrier associated with AI implementation. Regional initiatives, such as Malaysia's National AI Roadmap and Singapore's National AI Strategy 2.0, provide reassurance to investors that their investments will be supported by a steady pipeline of ready AI professionals, amid a global talent shortage.

Finally, governments should consider strengthening the readiness of their physical infrastructure to support digital infrastructure. For example, Thailand recently announced a push to reduce its cost of power to strengthen its position as a hub for data centres and AI infrastructure. Investments in renewable energy will also help to meet the power demand and sustainability goals of major tech players looking to expand in the region.

What are some of the biggest challenges national players in Southeast Asia face in the data centre and AI infrastructure value chain?

A lack of a clear national roadmap on sovereign AI or sovereign cloud. This also includes adjacent topics such as data localisation requirements, as well as AI ethics and trust frameworks. Without a clear plan at the national level, this creates uncertainty on the part of investors in terms of the regulatory outlook, which may drive them to invest in jurisdictions that offer more clarity.

In other countries where the roadmap may be clear, the government may not have enough available capital to meet investors' needs. This is a major issue for data centres and AI infrastructure due to the enormous need for capital in this field — building a 100MW AI-ready data centre costs at least US\$1 billion.

Additionally, the lack of talent, physical infrastructure such as power and land, and a broader AI ecosystem to support AI infrastructure investment is another challenge. Export controls on next-gen chipsets and other AI infrastructure also make it difficult to embark on major investment decisions, especially

during this period of uncertainty.

As for Malaysia, the government has been actively developing its digital initiatives and AI roadmap, supported by its Digital Economy Blueprint, which provides guidelines for tax incentives and outlines its AI literacy initiatives. The government also launched the Green Lane Pathway initiative in 2023 to streamline power approvals, reducing the lead time to as short as 12 months for data centres.

The Malaysian government, as well as companies, have also embarked on strategic partnerships with global AI players to jointly develop data centres. Malaysia has also partnered with private sector leaders to nurture AI talent. For example, the AIforMYFuture programme launched in December 2024 together with Microsoft aims to help 800,000 Malaysians with AI skills by the end of 2025.

What should Malaysia focus on?

Power availability is a recurring theme, especially in areas such as Johor and Cyberjaya. Some estimates suggest that power demand from data centres in the next decade may outstrip Malaysia's available power supply. Data centres' power needs will balloon from 900MW to 1,400MW by 2029.

Malaysia needs to ramp up green energy adoption, given that it is increasingly a requirement by hyperscalers, many of whom have ambitious targets for net zero carbon emissions and 100% renewable energy use.

Along a similar vein, Malaysia needs to address its land and water availability challenges, including land acquisition bottlenecks in data centre clusters such as Johor and Selangor.

To strengthen its regional competitiveness, particularly with Indonesia (Batam) and Thailand positioning themselves as alternative AI hubs, Malaysia should continue to develop its domestic AI talent pool in areas such as data science and machine learning, while increasing its adoption across the public and private sectors.

What kind of digital infrastructure upgrades or developments are most critical for supporting AI and data centre growth across the region?

In general, Southeast Asia still has room to catch up in terms of AI readiness compared with the US, Western Europe or China. It is likely that Southeast Asia can close the gap in the next three to five years, provided that certain key milestones are achieved.

These include sustained AI infrastructure investments and attracting global players, building energy-efficient facilities with advanced cooling systems and increasing power generation, especially from renewable sources, to meet rising energy demands.

Agreements with international suppliers to secure hardware, such as graphics processing units (GPUs), will also be vital. In parallel, governments must expand science, technology, engineering and mathematics (STEM) education and industry-academia partnerships to boost local AI expertise. Incentives to attract global AI talent could further enhance capacity.

Lastly, strengthening regional initiatives for cross-border data flows and digital agreements can encourage regional joint ventures and help Southeast Asia integrate into the global AI and semiconductor supply chains.

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