# Counterpoint Southeast Asia

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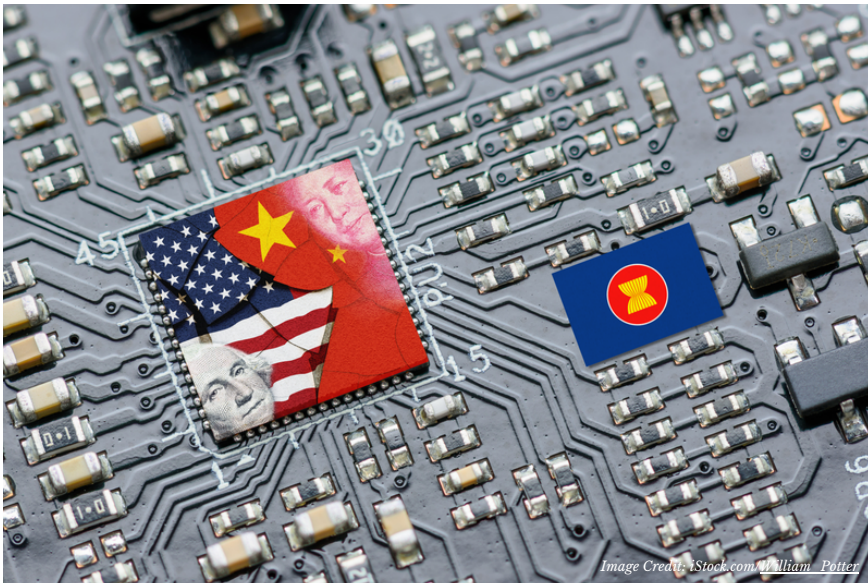
## Will ASEAN Seek Alignment or Independence When Pursuing Emergent Technologies?

**By Miguel Alberto Gomez**

In 2017, Russian President Vladimir Putin asserted that "whoever becomes the leader in this sphere [read artificial intelligence] will become the ruler of the world." Fast forward seven years and claims surrounding the transformative potential of emerging and disruptive technologies (EDT) persist. This is unsurprising, especially when considering how these technologies have and continue to transform societies across the globe. Whereas innovations such as the combustion engine revolutionised transportation over a century ago, the advent of technologies such as cyberspace and artificial intelligence (AI) manifests more pervasively as these touch almost every aspect of modern life—from communication to healthcare.

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**Counterpoint Southeast Asia** is published regularly by the Centre on Asia and Globalisation at the National University of Singapore's Lee Kuan Yew School of Public Policy. It seeks to answer major questions of strategic significance for Southeast Asia by bringing in diverse voices from around the region. Each issue will tackle one question from three different perspectives.

Nevertheless, optimistic depictions obscure the realities faced by states when pursuing EDTs as a means of advancing social, economic, political, and military goals. These technologies require substantial material and human expertise. For instance, developing large language models (LLMs) requires copious amounts of data and significant computational power to run algorithms developed by skilled computer scientists. This situation highlights the widening development gaps between states—hinting at a future of haves and have-nots.

Relatedly, availing of EDTs is not solely subject to economic and scientific constraints. The resurgence of great power competition, notably involving the United States and China, further risks access by small and middle powers to these technologies and their constituent components. For example, the United States issued the CHIPS and Science Act to strengthen the domestic semiconductor industry while restricting its availability to adversaries. This and other related legislation and policies may adversely impact other regions' access to these critical technologies.

The Association of Southeast Asian Nations (ASEAN) and its member states are not immune to these constraints. With the region viewing these technologies as socio-economic enablers, there is significant interest in building regional capabilities in this space. At a regional level, these aspirations are reflected in public statements and policy documents that emphasise the importance of these technologies. Relatedly, member states continue to expand their capabilities in areas such as AI and cyberspace. Nevertheless, these transformations occur while significant capability gaps exist between these states amid simmering tensions between the United States and China.

Faced with these realities, it is necessary to ask whether *ASEAN will seek alignment or independence when pursuing emergent technologies*. As such, the Centre on Asia and Globalisation (CAG) invited four analysts for its 10th Counterpoint Southeast Asia (CSA) public webinar on 12 March 2024: Jassie Hsi Cheng (CAG), Fitriani Bintang Timur (Center for Strategic and International Studies), Deryk Matthew N. Baladjay (De La Salle University), and Elina Noor (Carnegie Endowment for International Peace).

**Jassie Hsi Cheng** argues that while EDTs are critical, the bloc is not forced into alignment as we typically understand the term to mean. Instead, alignment within ASEAN suggests increased cooperation between its member states to develop the necessary capabilities and regulatory regimes. Relatedly, the strategic and material realities do not preclude continued collaboration between ASEAN and its extra-regional partners, as is reflected by the programmes and engagements that have been and continue to be developed.

At the national level, **Fitriani Bintang Timur** and **Deryk Matthew N. Baladjay** echo a comparable but more nuanced sentiment

from the perspective of Indonesia and the Philippines. Fitriani Bintang Timur notes that while Indonesia has seen significant advances in this area, its actions are fundamentally shaped by a need for an active and independent foreign policy supporting its domestic, regional, and global interests. As such, Indonesia favours strategic flexibility wherever and whenever it can find it and is not opposed to cooperation in pursuing its goals. The Philippines, as argued by Deryk Matthew N. Baladjay, shares a similar mindset but is fundamentally constrained by material constraints and geopolitical realities that it faces. This highlights a stark reality both within and outside the region—that flexibility appears to be the prerogative of stronger states. Furthermore, both perspectives raise questions about whether a unified regional approach towards EDTs is attainable given possibly conflicting state-level interests and varying capabilities.

Lastly, **Elina Noor** offers a contrasting but necessary perspective on the discussion—pivoting from the usual geopolitical narratives. In the race towards EDTs, its impact on the environment and people is often left by the wayside. She argues that the computational resources required for technologies such as AI constitute a severe drain on the environment. Similarly, the human cost associated with the data needed for these technologies, such as psychological trauma, is often overshadowed by utopian visions of human progress.

While this iteration of Counterpoint Southeast Asia raises more questions than it answers, it draws much-needed attention to this issue in hopes of starting a critical dialogue among stakeholders both within and outside the region.

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# No Country Can Dominate Us, and None Is Dominated: Southeast Asia's Pragmatic Approach to Artificial Intelligence

By Jassie Hsi Cheng



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*ASEAN does not adhere to traditional alignments when exploring emerging technologies. Instead, countries within the region engage in both internal and external cooperation to foster capabilities.*

The complexity of the Association of Southeast Asian Nations (ASEAN)'s position in its pursuit of emerging technologies goes beyond a simple binary choice between alignment and independence. ASEAN's distinctive stance lies in its strategic balance, which prioritises cooperation and autonomy. As the technological tensions between major powers intensify, a consensus of neutrality appears to be actively signalled by ASEAN member states (AMS). For instance, when questioned at the **2020 Singapore Tech Forum** about whether the city-state would be forced to choose a side, Singapore Prime Minister Lee Hsien Loong responded decisively, stating, "We try our best to keep our links to both sides," referring to the United States (US) and the People's Republic of China (PRC or China).

This strategic non-alignment is a fundamental principle of ASEAN's foreign policy, as outlined in the **ASEAN Security Community Plan of Action**. The term "non-alignment," historically linked to the Cold War and often associated with formal military alliances, has evolved to include broader political and strategic positioning vis-à-vis regional developments, including technological advancements and cooperation. ASEAN's approach to emerging technologies is consistent with this principle, aiming to bolster capabilities through a diversity of internal and external partnerships rather than through exclusive alliances.

Currently, the region is actively pursuing advancements in artificial intelligence (AI), a transformative technology with implications for every societal sector and the potential reshaping of warfare and national security. These efforts include the development of large language models (LLMs), which are propelling generative AI systems such as ChatGPT. However, as the rivalry between the two global AI powerhouses, the US and the PRC, escalates, Southeast Asia's reliance on their technology—particularly in data,

talent, and hardware essential for AI solutions—could lead to challenges and vulnerability. To address these challenges, AMS are actively forging ahead with robust cooperation efforts with each other and with external partners (Table 1).

Singapore, in particular, has emerged as a prime example of strategic neutrality in navigating this landscape. It has effectively positioned itself as a hub for tech companies from both East and West, including Tencent, Alibaba, ByteDance, Google, Amazon and Microsoft. These companies bring in talent

**Table 1: Regional AI-Related Agreements**

| Agreement | Details Specific to AI | Countries Involved |
|---|---|---|
| ASEAN Digital Economy Framework Agreement (**DEFA**) | To establish mechanisms for regulatory cooperation for relevant standards and regulations to keep up with technological innovations in emerging topics such as AI. | AMS |
| Australia-Singapore **MoU** on Cooperation on Artificial Intelligence | To cooperate on AI capabilities, including new AI technologies, talent development and ethical standards to support the positive commercial application of AI in the digital economy. | Singapore, Australia |
| Memorandum of Cooperation (**MOC**) on Digital Government Transformation | To exchange information about digital government frameworks and best practices, covering topics such as digital identities, AI and cloud services. | Singapore, Japan |
| ROK-Singapore **MoU** on Cooperation on Artificial Intelligence | To enhance practical collaboration to promote the responsible development and use of AI. | Singapore, Republic of Korea |
| Korea-Singapore Digital Partnership Agreement (**KSDPA**) | To identify cross-border opportunities to facilitate business innovation and collaborations on AI ethics and governance. | Singapore, Republic of Korea |
| US-Singapore Partnership for Growth and Innovation (**PGI**) | To develop interoperable AI governance frameworks and support industry's adoption of ethical AI. | Singapore, US |
| ASEAN-China **MoU** on Cooperation in Communications, Digital and Technology (2024-2029) | To maintain collaboration in areas aimed at improving the compatibility, integrity, and security of ICT systems. This includes initiatives such as mutual recognition arrangements for telecommunications equipment, aligning and standardising data exchange protocols, preventing cybercrime, and ensuring data protection. | ASEAN, China |

Source: ASEAN, Singapore's Ministry of Trade and Industry (selected and compiled by the author).

and resources crucial for developing AI. Another example is Singapore's decision last year to award **data centre contracts** to four entities: two are Chinese-backed (GDS and a consortium of ByteDance and Australian operator AirTrunk) and two are American companies (Equinix and Microsoft). This decision reflects the delicate act of balancing national interests with the economic imperatives of a global digital economy.

Malaysia is also playing a similar game, strategically positioning itself as a central hub for data centres, enticing investments by offering various incentives, including tax breaks. China's GDS Holdings is already operating in Malaysia's southern state of Johor. The Malaysian government is also courting major tech giants like Microsoft and Google to establish operations in the country. Beyond companies from the US and China, Japan's NTT Data has inaugurated its sixth data centre in Cyberjaya's science park, showcasing Malaysia's inclusive strategy and its keen interest in attracting a wide array of international industry players. What we learn from the region is that governments are shifting towards a pragmatic and realistic stance on emerging technologies, prioritising the tangible benefits that these international players bring, and not necessarily looking at it from a geopolitical point of view.

In this context, it is crucial not to underestimate the dynamic contributions of ASEAN countries, which are often overshadowed by the prominence of the US and China in the AI sector. Dismissing

ASEAN's role would be a grave oversight, given the region's burgeoning tech landscape and ambitious initiatives. For instance, the ASEAN Digital Economic Framework Agreement (**DEFA**) is poised to potentially double the region's digital economy to US$2 trillion by 2030. Leading the charge, Singapore announced in February 2024 that it would make a substantial investment of US$743 million (equivalent to over 1 billion Singapore dollars) into AI research and development over the next five years. Complementing Singapore's efforts, five other ASEAN member states—**Vietnam, Malaysia, Indonesia, Thailand, and the Philippines**—have each launched their own AI policy initiatives. These have been established over the past five years.

Early in 2024, ASEAN demonstrated a strong commitment to responsible AI development with the release of the **ASEAN Guide on AI Governance and Ethics** in February, signalling a move to set its own standards rather than adopting those of the European Union. Concurrently, member states such as **Malaysia**, which plans to introduce an AI code of ethics and governance guidelines by April, **Indonesia**, which anticipates the launch of AI regulations by the end of 2024, and **the Philippines**, which intends to propose an ASEAN legal framework for AI by 2026, are actively working to establish guidelines and regulations to prevent AI misuse. Recognising the urgency of addressing the AI readiness gap among AMS, ASEAN has also put mechanisms such as the DEFA in place to promote regional digital integration, which is

essential for **narrowing the digital divide**.

The recent **tentative AI cooperation** between the US and China marks a significant development. However, it is important to acknowledge Southeast Asia's role in shaping AI development, driven by their own ambitions, ideas and cultures rather than merely by great power rivalry. ASEAN's collective message is clear: no country can dominate us, and none is dominated. This reinforces the importance of collaboration and autonomy in navigating emerging technologies. As such, the region's pivotal position in geopolitics and technology is essential, as it has the potential to shape the global AI landscape.

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# Indonesia's Approach to Navigating Global Dynamics in New Tech Acquisition

By Fitriani Bintang Timur


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*Indonesia's collaborative approach towards emerging technologies echoes ASEAN's. Nevertheless, it balances its aspirations with strategic ideals that prioritise sovereignty and independence.*

Indonesia's embrace of emerging technologies, particularly artificial intelligence (AI), stems from the recognition of their potential to fuel economic development. Projections suggest that AI could contribute approximately **US$366** billion to Indonesia's GDP by 2030, benefiting its population of 280 million and streamlining the delivery of increasingly digitalised government services. In the acquisition of new technology, just like other countries, Indonesia is faced with the dilemma of choosing between acquiring it from the United States (US), China or elsewhere. There is a widespread perception that where new technologies are acquired from will have long-term implications, impacting sustainability of technology access, availability of expertise, technology transfer, training opportunities and investment. To navigate this dilemma, Indonesia took note of its past and its practical needs.

**Historical Factor and Foreign Alignment**

Rooted in its post-colonial history under Dutch and British rule, as well as facing Western embargoes in the 1990s over human rights issues with Timor Leste, Indonesia places a high value on independence and sovereignty. This stance, shaped by past experiences, is reflected in its "independent and active" **foreign policy doctrine**, which emphasises non-alignment, strategic autonomy, and collaboration with Global South countries. This doctrine, reminiscent of the Cold War era, guides Indonesia's active engagement in international forums like the United Nations, Non-Aligned Movement, and Association of Southeast Asian Nations (ASEAN), where it advocates for confidence-building measures and capacity-building in the face of emerging technologies.

Indonesia's foreign policy doctrine serves as a decisive factor in its pursuit of technological independence. The country actively collaborates with major global AI players to

gain access to advanced technologies crucial for technical progress and economic development. Partnerships with leading companies in AI technology, such as **Huawei**, **Google**, Microsoft, Nvidia, and Cisco, have facilitated technology transfer and upskilling initiatives. Additionally, Indonesia incentivises AI investors by offering golden visas or residency permits, as demonstrated by the granting of such status to OpenAI CEO Sam Altman in **2023**, aimed at fostering the growth of the country's AI ecosystem. These collaborations serve as strategic entry points for Indonesia to transition from being solely an end user to becoming a manufacturer in the AI sector, enabling it to tap into the global supply chain.

A forthcoming study by CSIS Indonesia will show that while Indonesia engages with various international partners for its technological needs, it relies heavily on China as its primary hardware supplier. Major telecommunications infrastructure projects, such as Base Transceiver Stations (BTS), are predominantly awarded to Chinese firms like Huawei and ZTE due to their competitive pricing and technological capabilities. Conversely, in the software domain, the US remains the key provider, offering Indonesia software solutions and digital platforms. This dual partnership highlights Indonesia's pragmatic approach, balancing economic considerations with strategic imperatives.

However, Indonesia is acutely aware of the risks associated with over-reliance on foreign technology, particularly from major powers that are currently engaged in competition.

For instance, limitations on semiconductor sales by the US to China have implications for Indonesia's economy, as noted in the 2023 **report** by Ministry of Finance, prompting a more cautious approach to technology adoption and collaboration decisions.

To mitigate dependency on these major powers, Indonesia has diversified its pool of advanced technology suppliers. In addition to engagements with Chinese and American firms, Indonesia has forged partnerships with other international players. For example, procurement of **thirteen AI-enabled Ground Master 400 Alpha** surveillance radars from French company Thales and **twelve reconnaissance drones** from Turkish Aerospace exemplifies this diversification strategy. These acquisitions entail technology transfer, logistical support and training programs aimed at enhancing Indonesia's indigenous technological expertise.

**Practical Needs**

In practice, Indonesia's quest for technological independence is shaped by its domestic circumstances. The "**National Strategy for Artificial Intelligence**," published in 2020, outlines the country's objective to transition from a natural resource-based economy to an innovation-driven nation by harnessing advanced technologies such as machine learning, robotics, Internet of Things, augmented reality, and 3D printing. This strategy entails the development of AI applications across key sectors including services, bureaucratic

reform, education and research, food security, mobility, and smart cities.

However, Indonesia faces challenges in balancing competing demands with limited resources, necessitating careful allocation and strategic prioritisation of investments in technological infrastructure and human capital development. Despite the government's limited budget for innovation, depicted by a modest increase in R&D expenditure from 0.25 to 0.28 percent of GDP between 2016 and 2020 according to **World Bank data**, alternative financing approaches have been explored. The Quad Helix collaboration, involving government, industry, academia, and community partnerships, is one of Indonesia's efforts in this regard. The adoption of AI by **198 local start-ups** as of December 2023 bodes well for the development of national technological capacity.

To address talent development concerns, Indonesia promotes education in science, technology, engineering and mathematics (STEM) fields to bolster the number of AI-skilled workers. Based on **2021** data, AI-skilled workers comprised 39 percent in the information and communication sector, 28 percent in corporate services, and 27 percent in financial services. The establishment of Robotics and Artificial Intelligence Study Programs at the university level, branching out from existing Computer Science Programs, is seen as a viable solution to enhance the country's technological capabilities.

For enhancing infrastructure and data management, the government is currently constructing **four national data centres** to support AI-assisted digitalisation spread across strategic locations of West Java, Batam, Labuan Bajo and the new Capital Nusantara. Despite initiatives such as the launch of the SATRIA-1 satellite and the construction of around **five thousand** 4G Base Transceiver Stations (BTS), challenges persist in ensuring connectivity, particularly in **remote** areas. However, the development of BTS has been marred by **corruption allegations** involving government officials and vendors, highlighting issues of transparency and accountability.

In the realm of AI ethics, Indonesia is playing catch up through issuing guiding policies. In December 2023, the **Ministry of Communication and Informatics** (MOCI) and the **Financial Services Authority** (OJK) published AI ethical guidance for their respective purviews. These documents emphasise guiding norms of AI, including inclusivity, security, transparency, credibility, accountability, and the protection of personal data. However, frameworks for AI applications in socio-political contexts remain underdeveloped, as evidenced by the lack of regulations over the use of AI in the lead up to the **February 2024** Indonesian general elections, which contributed to the spread of disinformation.

## Future Outlook

Faced with the dilemma of technological acquisition from major powers, Indonesia's

pragmatic approach seeks to balance economic considerations with strategic ideals while prioritising its sovereignty and independence. Looking ahead, maintaining strategic partnerships both domestically and internationally will be pivotal as Indonesia strives to harness the transformative power of technology for the benefit of its people and its future prosperity.

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# The Philippines in the Face of Great Power Technological Competition

By Deryk Matthew N. Baladjay

*The Philippines' approach towards emerging technologies is acutely constrained by domestic and geopolitical realities. It must carefully navigate both issues in pursuit of its strategic interests.*

The Philippines' journey into the digital age is marked by both promise and complexity, as illustrated by President Ferdinand Marcos Jr.'s directive for the digitalisation of vital government services. This mandate underscores the transformative power of digitalisation in reshaping economies, politics, and more broadly, international relations. However, it also highlights the intricate challenges associated with managing cross-border data and technology flows, enforcing intellectual property rights, and safeguarding consumer welfare. These challenges are domestic and regional in nature, reflecting the complexity and interconnectivity of contemporary digital issues. Given its long history with the United States (US) and the recent surge in Chinese influence, this is especially true of the Philippines—wedged in the middle of the China-US competition. It is incumbent upon the Philippines to utilise strategic planning, international collaboration, and domestic capacity building. These are essential in striking a balance between embracing technological advancements and safeguarding national interests.

## Navigating the Digital Silk Road

The digital sector, propelled by robust government support, serves as a significant driver of the Philippines' economic vitality. With the Internet economy estimated at US\$7.5 billion in 2020 and projected to reach US\$28 billion by 2025, the government's backing plays a crucial role in fostering growth and sustainability in the digital landscape. However, the expansion of Chinese technology in the Philippines through China's economic program Belt and Road Initiative (BRI), particularly its cyber-branch, the Digital Silk Road (DSR), has added a new layer of complexity. The Philippines joined the BRI and the DSR in part to have a cheaper alternative to Western technology and to further accelerate internal technological innovation. Yet, the economic benefits are outweighed by concerns over

data security, privacy, misinformation, and the long-held issue of economic dependency on a foreign entity.

Efficiently handling the intricacies of the BRI and DSR presents significant challenges for the Philippines. These include the lack of institutional capacity, cybersecurity risks, and the need to ensure equitable distribution of economic benefits. All of these are highly reliant on comprehensive legislation to harmonise efforts in both the public and private sector to commensurately meet new and existing challenges.

**Upkeep of Domestic Regulation in the Face of Technological Competition**

The Philippines' digitisation efforts involve a comprehensive whole-of-government approach. Collaboration among various government agencies is essential for effective planning and implementation. However, outdated legislation and regulatory frameworks hinder progress in digital transformation. Despite pioneering legislation such as the Electronic Commerce Act and the Data Privacy Act, the Philippines lags in ensuring that its laws remain relevant and updated, posing challenges in addressing the evolving digital landscape.

China's BRI and DSR initiatives have presented economic opportunities alongside national security concerns. Ever since 2013, countries, particularly India and the US, have expressed concern over the fiscal and financial aspects of China's initiatives all over the world. This has been evidently true in recent years as participant developing economies (e.g., Malaysia, Pakistan, Ghana, and Zambia) have all suffered an increase in debt alongside vulnerability and susceptibility to Chinese influence. China's involvement in the Philippines' critical infrastructure projects, telecommunications, energy, and surveillance technology raises questions about data privacy, cybersecurity, and potential geopolitical implications. Concerns about China's authoritarian tendencies and its influence on technology standards further complicate the situation, prompting discussions on potential security risks associated with Chinese investments and partnerships.

The Philippines, like other developing economies, nurtured an economic reliance on China under the administration of former President Rodrigo Duterte. The rationale included a cheaper source of technology and a means to peacefully calm geopolitical activity in contested waters. However, Beijing remained a security threat with its continuation, and indeed escalation, of incursions in Philippine territory, inevitably affecting the stability of economic relations. The intended calming effect of economic concessions could not quell the brewing maritime disputes between Manila and Beijing.

Subsequently, the current Philippine foreign policy under President Marcos Jr. signals a departure from this strategy, with efforts to reinvigorate relations with the US through consistent high-level exchanges and military defense cooperation. This policy includes strengthening relations with middle powers to garner assistance in becoming less

dependent on a single foreign entity and achieving technological self-reliance. However, Manila has not altogether abandoned economic channels with Beijing.

**Connectivity, Regulations, and Competency**

Transforming the Philippine digital domain, especially in the face of China-US competition, requires remedying several shortcomings in its digital infrastructure. Addressing the Philippines' connectivity challenges is crucial for bridging the digital divide and fostering inclusive growth. Diverse technologies, including fixed lines, wireless mobile, satellite internet, and underwater cables are needed to ensure widespread access to high-quality internet services. However, inadequate funding for infrastructure investment remains a significant obstacle that must be addressed through strategic partnerships and innovative financing mechanisms. This will also include a shift in priorities, particularly with economic partnerships. One of the chief reasons for the Philippines' participation in the BRI was for extensive public infrastructure.

Updating and modernising regulatory frameworks are essential to support the Philippines' digitalisation initiatives and to adapt to emerging technologies. Antiquated regulations and bureaucratic processes deter potential investors and competitors, impeding the country's digital development. Collaborating with foreign and domestic stakeholders to create and update legislation tailored to the Philippines' digital growth is imperative.

Improving digital literacy is crucial to empower users and mitigate security risks in an increasingly digital environment. Government-led initiatives and collaborations with educational institutions and the private sector are essential for promoting digital literacy and responsible digital practices among various demographics.

**Conclusion**

China, it seems, is winning the economic endurance game by advancing a comprehensive suite of services and bargains *sans* the US. Although the security sector expresses concern over the outpouring of Chinese technologies, the public widely benefited from the increase in cheaper alternatives. This has stimulated economic growth and domestic spending in the interim. However, the Philippines shares with other BRI-participating states the dilemma of combating sole dependence on the Chinese economy while safeguarding economic growth and national security. It is difficult for any of these states to address the challenges due to the lack of cheap alternatives and an underdeveloped digital domain. The US and the broader West will need to match China along these lines.

However, China's expansive role in the Philippines is not a foregone conclusion; nor is the broader narrative of geopolitical contestation between Beijing and Washington in the Philippines. Manila finds itself perfectly wedged between the two major powers' struggle for strategic dominance,

especially in the cyber- and technological domains. Both powers have a strategic interest in the Philippines and can be leveraged. Manila will need to actively demand its need and put on the table what it cannot accommodate between the two major powers. Additionally, collaboration with foreign partners, strategic planning, and updating regulatory frameworks are essential for navigating the complexities of the digital domain. ASEAN is one such platform.

But the broader concern for the Philippines, and for other countries, rests on resilience and self-reliance. It can only do so by equipping itself with the necessary tools and mechanisms to harness the benefits of digitalisation while safeguarding national interests and ensuring digital security in an increasingly interconnected yet polarised world.

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# Emergent Technologies and Great Power Competition: Implications for ASEAN

By Elina Noor

*Image Credit: iStock.com/nuwatphoto*

*The geopolitical dimensions of emerging technologies overshadow the equally relevant human and environmental costs. ASEAN should take the necessary steps to recognise and address these corresponding issues.*

In Southeast Asia, the giddy optimism accompanying every type and turn of technological innovation—from 5G to electric vehicles—has been matched only by the anxiety of great power competition derailing the region's transformation. This bipolarity is unsurprising. After all, the member states of the Association of Southeast Asian Nations (ASEAN) sit on the entire spectrum of the demand and supply chains of technology. As trading economies, they also adhere to international rules and standards governing the exchange of products and services. They stand to either capitalise from, or be incapacitated by, the decisions of Washington, Beijing, or Brussels.

However, to frame technological developments in Southeast Asia solely—even primarily—through the lens of great power competition would be a mistake. For stakeholders in ASEAN, centring this perspective within our own consciousness **reduces** our countries, individually, and the

region, collectively, to derivatives of near or distant power centres. For many outside the region, it arrogates the **assumption** that states are either unaware of, complacent about, or deliberately dismissive of the risks of aligning their technology choices with any one power (read: China). This was starkly clear during the rollout of the Trump administration's Clean Network Initiative, which found ideological reincarnation under the Biden administration's proposal for an alliance of tech democracies.

The fallacy of viewing Southeast Asia through a techno-competitive prism glosses over textured realities on the ground. As elsewhere, the technological landscape in Southeast Asia is a robust exchange of local and foreign players; a heaving ecosystem of government, industry, researchers, activists, and lawyers, all with differing though sometimes converging interests. In the case of artificial intelligence (AI), for instance, several

remarkable natural language processing developments in the last few months deserve attention. In December 2023, Alibaba's DAMO Academy released two large language models, SeaLLM and SeaLLM-Chat, specifically designed to process text requests in eight regional languages, up to nine times longer than existing LLMs for non-Latin languages. In the same month, Singapore announced plans to launch a similarly-tailored LLM trained on eleven regional languages. AI Singapore's open-source Southeast Asian Languages in One Network (Sea-Lion) LLM will also incorporate linguistic nuances particular to the region. A number of similar initiatives in Indonesia and Vietnam exclusively focused on local languages and linguistic nuances have also since been announced.

With 40 percent of models today produced by US-based companies, and many existing models trained on the English language (even self-reporting a US bias), the development of Southeast Asian-focused LLMs is a nascent yet purposeful move to computationally capture the linguistic distinctions of the region's diverse and nearly 700 million-strong population. And although these regional LLMs would not have been possible without the developmental frameworks created in the United States, these LLMs are a response to the under-representation of low-resource languages in machine-learning construction. They are also an assertion of agency in an ecosystem otherwise dominated by the languages, worldview, and resources of the global minority.

However, silhouetting discussions around emerging technologies against the backdrop of great power competition distracts regional policymakers from centring the most important constituents of tech—people and the planet—and obfuscates the undervaluation of both in the pursuit of AI optimisation.

As much as AI benefits people and the environment by predicting the most efficient traffic routes or the next earthquake, it is also data-, labour-, and resource-intensive. The AI ledger must account for the intangible costs of extraction, commodification, as well as power asymmetries not only between countries but also in relation to industry giants. For this realisation to take root within Southeast Asia, and for a push for change to take place, there must first be a broader and longer-term consideration of technology beyond the dominant economic lens.

It is worth reflecting on the nature of data and motivations for its collection. Data is a social construct. For example, the categorisation of a person's ethnicity, religion, or nationality in official surveys is the result of decisions made at the personal and bureaucratic levels. Data on biospheric changes is calculated from interactions among living and non-living beings in the earth's ecosystem. Biometric data of a person's iris or voice tells a story about genes, family, and lineage. So, while the basis of AI algorithms might be rational (i.e., a combination of math and "if...then" statements), the fundamental premise of AI is

relational. Understanding data—and its web of meaningful ties—compels a critical look at the quality of data made available for training; the purpose of scraping, platforming, or selling data; and the adequacy of existing data governance frameworks to redress inequities, not just to facilitate commerce.

Data to train algorithms requires constant human review. It is mind-numbingly tedious, at best (e.g., teaching AI systems to distinguish between a pedestrian and a bicycle) and indelibly traumatic, at worst. Reports of content moderators in **Kenya**, **India**, **and the Philippines** reviewing hundreds of items a day, including the worst instances of humanity—murders, sexual violence, bestiality—for wages ranging from demeaning to decent with little to no access to counselling testify to the latter. That most of this work is contracted out to the majority world where labour is cheaper evinces the long, continuing reach of colonialism. Asked another way, what price dignity?

On resources, experts have **persuasively argued** that accurately calculating the environmental impact of AI must necessarily trace its complete life cycle. Producing an AI system entails extracting raw materials, manufacturing, and transporting parts. Testing or using the system results in varying levels of energy consumption or diversion and greenhouse gas emissions, depending on the AI application. Finally, how the system is dismantled, recycled, and/or discarded will generate its own environmental impact. While there are **approximations** of energy

and water usage to operate data centres, for example, obtaining precise figures for specific locations can be **challenging**.

Calculating the environmental impact of an AI system or structure over its entire life cycle borrows from existing international standards (ISO 14040 and 14044) and the International Telecommunication Union's information and communication technology-specific life cycle assessment methodology. There exist, therefore, ready, credible templates for use or adaptation. For ASEAN states on the frontline of the climate emergency, the environmental impact of the region's digital economy can no longer be treated as an externality.

If the last few centuries of Southeast Asia's history have taught us anything, it is that great power competition should be assumed. While a consideration, it should not be a distraction. The region could instead (re)imagine a digital future uniquely its own; one that meaningfully orients its people and the environment at the core. In practice, this could mean drawing on hardware and computational capacity from the major powers, but asking critical questions about the resource spectrum required to build such capacity. It could mean plugging into existing international regulations on data while socialising alternative data governance frameworks being developed in the global majority. Above all, it should mean rethinking the technical, policy, and legal models of technological development by collaborating more with innovators in Africa,

Latin America, and elsewhere, rather than copying and pasting extractive patterns from the past.

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## OTHER CAG PUBLICATIONS

- *Don't Make Us Choose Sides: Southeast Asian Perspectives of U.S. Strategy and Presence in the Region* by Drew Thompson (Centre on Asia and Globalisation, March 2024)
- *Strengthening Cyber Resilience in Southeast Asia* by Jassie Hsi Cheng and Mae Chow (Fulcrum, November 6, 2023)
- *ASEAN Economy Cannot Afford Business as Usual* by Julia Tijaja and Denis Hew (Fulcrum, August 16, 2023)
- *Is it realistic to achieve the ASEAN Economic Community (AEC) by 2025?* by Denis Hew (Hinrich Foundation, June 27, 2023)
- *Partnership or Polarization? Southeast Asian Security between India and China* edited by Evan Laksmana and Byron Chong (Contemporary Southeast Asia, August 2023)
- *Asian conceptions of international order: what Asia wants* edited by Kanti Prasad Bajpai and Evan Laksmana (International Affairs, 2023)
- *Introduction: Explaining Cooperation and Rivalry in China-India Relations* by Brandon Yoder and Kanti Prasad Bajpai (Journal of Contemporary China 32 (141) (May 2023): 353-368)