Guest Column

Emergent Technologies and Great Power Competition: Implications for ASEAN

By Elina Noor


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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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