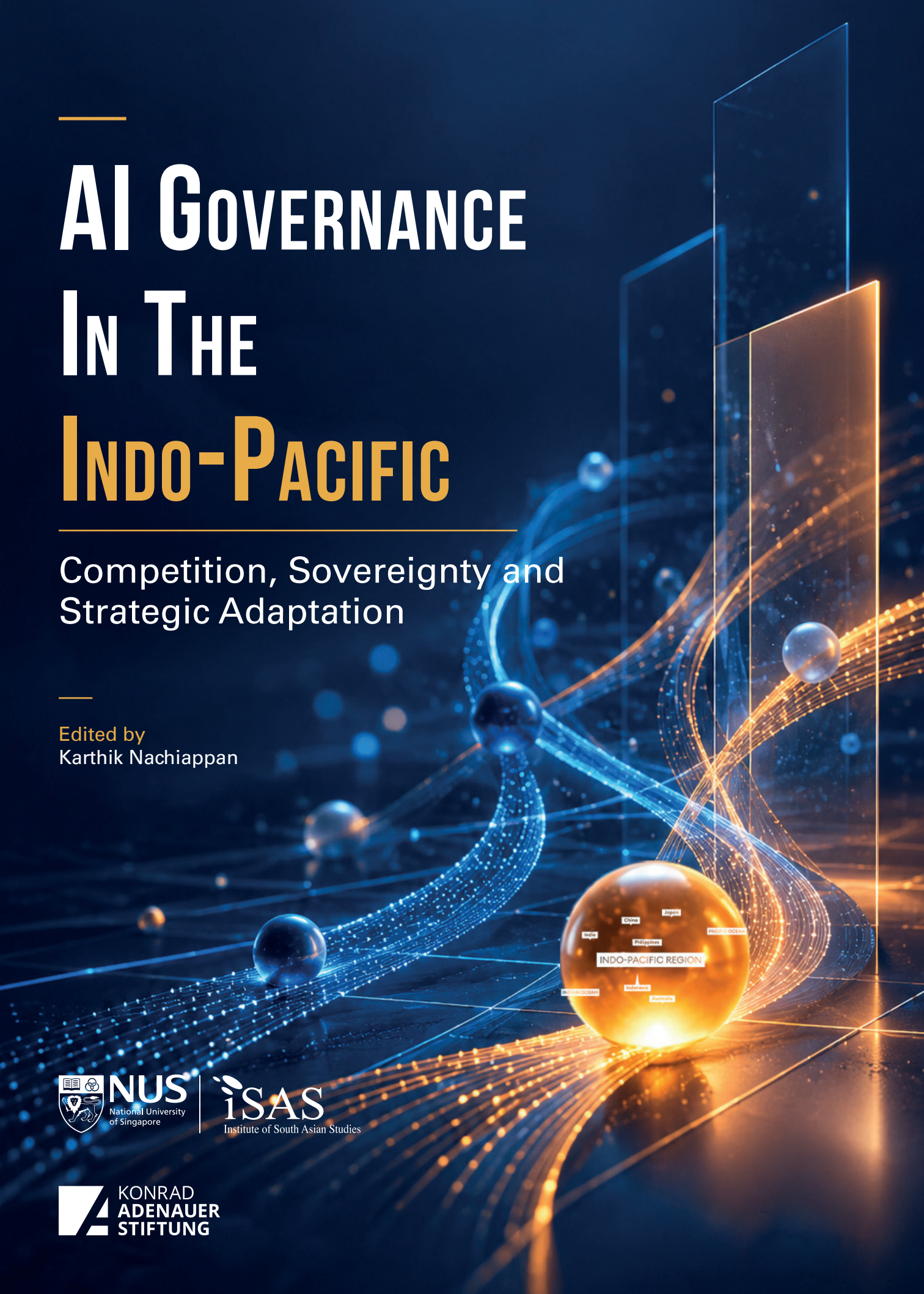
AI Governance In The Indo-Pacific

Competition, Sovereignty and Strategic Adaptation

Edited by
Karthik Nachiappan



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Foreword

Andreas Klein

Artificial intelligence (AI) is rapidly transforming economies, governance and international relations across the globe. In the Indo-Pacific in particular, the pace and scale of technological adoption, combined with geopolitical competition and institutional diversity, make AI governance a defining issue of our time. Governments across the region are increasingly deploying AI in areas such as public administration, economic development and security. At the same time, differing political systems and strategic priorities give rise to a wide range of regulatory approaches, making AI governance increasingly intertwined with geopolitical competition. Reflecting broader tensions between democratic and authoritarian governance models, as well as debates over digital sovereignty, AI has emerged as a key dimension of strategic competition, contributing to the development of competing regulatory ecosystems and shaping the future direction of global technology standards. As a result, the Indo-Pacific is not only a major driver of AI innovation but also a key arena with some of the world's largest digital markets in which global norms and standards for AI governance are being shaped, contested and implemented.

As an export-oriented economy, Germany depends on open markets and interoperable regulatory frameworks.

For Germany, these developments carry significant economic, political and strategic implications. As an export-oriented economy, Germany depends on open markets and interoperable regulatory frameworks. Fragmentation in AI governance risks creating barriers to trade, limiting technological cooperation and weakening global standards. At the same time, Germany has a strong interest in promoting a rules-based international order and safeguarding democratic values in the digital age. Its engagement in the Indo-Pacific, therefore, reflects both economic interests and a broader commitment to strengthening partnerships with like-minded countries and shaping global governance debates.

Germany's own approach to AI governance illustrates this dual objective of fostering innovation while ensuring responsible use. Anchored in the European Union's (EU) regulatory framework – most notably the EU AI Act – Germany supports a risk-based, human-centric model that prioritises transparency, accountability and the protection of fundamental rights. Through its national AI strategy, investments in research and innovation and efforts to integrate AI into public administration and industry, Germany seeks to build trust in AI while maintaining competitiveness. In this sense, Germany positions itself not only as a regulatory actor but also as a proponent of interoperable and values-based AI governance at the international level. As a trusted middle power with experience in balancing technological innovation and the protection of fundamental rights, Germany is well positioned to serve as a bridge between Europe and Asia in advancing interoperable, responsible and internationally compatible approaches to AI governance.

Germany's own approach to AI governance illustrates this dual objective of fostering innovation while ensuring responsible use.

The Konrad Adenauer Stiftung (KAS) engages with AI governance in the Indo-Pacific as part of its broader mission to promote democracy, the rule of law, and international cooperation. Drawing on its extensive regional networks and longstanding partnerships across the Indo-Pacific, KAS convenes policymakers, experts, political actors and civil society representatives across political and ideological divides to address the opportunities and challenges posed by emerging technologies. Through policy dialogue, capacity-building initiatives and exchanges between Europe and Asia, KAS promotes mutual learning on regulatory approaches, supports democratic and responsible digital governance and contributes to the development of AI policy frameworks that balance innovation with ethical responsibility.

This Special Report aims to contribute to these ongoing discussions by examining how AI governance is evolving across the Indo-Pacific and by highlighting opportunities for cooperation with Germany and Europe. At a time when technological change is increasingly intertwined with geopolitical dynamics, strengthening dialogue and promoting shared principles will be essential to ensuring that AI development remains aligned with openness, human dignity and a stable international order.

AI Governance in the Indo-Pacific: Competition, Sovereignty and Strategic Adaptation

Karthik Nachiappan and Dandy Rafitrandi

AI is no longer simply a question of innovation policy or economic competitiveness; it now sits at the intersection of national security, industrial strategy, digital sovereignty and geopolitical influence.

Artificial intelligence (AI) governance is increasingly becoming a defining policy challenge for the Indo-Pacific countries, particularly as the region becomes a central arena for intensifying technological competition between the United States (US) and China. AI is no longer simply a question of innovation policy or economic competitiveness; it now sits at the intersection of national security, industrial strategy, digital sovereignty and geopolitical influence. At the same time, AI's rapid advancement is reshaping labour markets at a pace that governments are struggling to match, with millions of jobs forecast to be displaced as new roles emerge across sectors. How countries manage this transition, through reskilling, social protection and inclusive policy design, will be as consequential as any geopolitical calculation. Between 2020 and 2023, the US, China, Japan and the European Union (EU) collectively accounted for nearly 80 per cent of global AI patents, underscoring the concentration of technological capabilities among major powers and the strategic importance of AI.[1]

Across the region, governments are grappling not only with how to regulate AI systems but also how to position themselves within a global economy increasingly shaped by competition over semiconductors, cloud infrastructure, compute capacity, digital standards, data governance and platform ecosystems. While much of the global AI debate remains dominated by Washington, Beijing and Brussels, countries across South and Southeast Asia are developing distinct governance approaches that reflect their own developmental priorities, institutional capacities and strategic preferences.[2] Together, the essays in this report examine how states in Southeast Asia are navigating the opportunities and risks presented by AI amid mounting US-China technological rivalry.

1 "Identifying Emerging AI Technologies Using Patent Data", OECD (2025), https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/09/identifying-emerging-ai-technologies-using-patent-data_5c8da861/d17e9a1a-en.pdf.

2 See this volume.

The accelerating competition between the US and China increasingly orders the global AI landscape. The US retains significant advantages across frontier AI models, advanced semiconductors, hyperscale cloud infrastructure and private-sector innovation ecosystems.[3] Over 80 per cent of frontier AI models come from fewer than 10 laboratories, with the US alone accounting for nearly US$286 billion (S$365.15 billion) in private AI investment in 2025.[4] So far, the Donald Trump administration in the US has prioritised market dynamism, investment and technological acceleration, even as national security concerns increasingly shape export controls, investment screening and restrictions on technology transfers to China.[5] Beijing sees AI as a strategic technology central to economic modernisation, military-civil fusion, social governance and long-term geopolitical influence.[6]

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China has combined state-backed industrial policy, regulatory supervision and massive investments in digital infrastructure to build AI capabilities while exporting technological ecosystems abroad through companies such as Huawei, Alibaba, Tencent and DeepSeek.[7] The EU's AI governance approach emphasises a rights-based framework centred on digital sovereignty, transparency, accountability and risk regulation, exemplified by the EU AI Act's effort to establish comprehensive rules for the development and deployment of artificial intelligence.[8]

3 RAND notes that the United States maintains leadership "across the entire AI stack from chips to models to cloud infrastructure". See Heim, Lennart, *Understanding the Artificial Intelligence Diffusion Framework* (RAND, 2026). Also see Haag, Alex. 'The State of AI Competition in Advanced Economies, US Federal Reserve, 6 October 2025, https://www.federalreserve.gov/econres/notes/feds-notes/the-state-of-ai-competition-in-advanced-economies-20251006.html?utm_source=chatgpt.com.

4 Artificial Intelligence Index Report 2025, Stanford University, https://hai.stanford.edu/assets/files/hai_ai_index_report_2025.pdf.

5 The Trump administration's AI approach has emphasised deregulation, rapid infrastructure buildout and maintaining US technological dominance in competition with China. See The White House, *Winning the Race: America's AI Action Plan* (Washington DC: White House, July 2025).

6 Kania, Elsa, *The PLA's AI Strategy: Soldiers, Scholars and Strategic Competition in China's Intelligentized Future* (Washington DC: Center for a New American Security, 2020). CNAS Report.

7 State Council of the People's Republic of China, *New Generation Artificial Intelligence Development Plan* (2017). The policy frames AI as central to national competitiveness, economic transformation, national security and military modernisation. https://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm.

8 The EU AI Act establishes comprehensive rules for the development and deployment of artificial intelligence. See European Union, *Regulation Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act)*, 2024. EU AI Act, https://eur-lex.europa.eu/eli/reg/2024/1689/oj?utm_source=chatgpt.com.

For the Southeast Asian countries, this competition presents opportunities and dilemmas. The region has become an increasingly important site for AI-related investment, data centre construction, semiconductor production, cloud expansion and digital infrastructure deployment. US frontier AI firms such as Microsoft, Google, Nvidia and Amazon Web Services (AWS) are expanding investments across Southeast Asia while Chinese AI companies like Huawei and Alibaba maintain dominant positions in telecommunications infrastructure, digital platforms, e-commerce ecosystems and smart city technologies.[9] These partnerships provide the Southeast Asian countries with access to capital, compute capacity and technical expertise, supporting broader digital transformation goals. However, growing dependence on these foreign firms raises concerns surrounding technological dependence, regulatory influence, data governance and long-term digital sovereignty. Governments are attempting to capture the economic benefits of both ecosystems while avoiding dependence on either.

Unlike the US and China, most Southeast Asian countries are generally not pursuing frontier AI dominance.

This strategic balancing invariably shapes the region's evolving approaches to AI governance. Unlike the US and China, most Southeast Asian countries are generally not pursuing frontier AI dominance. Instead, governments are focused on adoption, deployment and ecosystem development, using AI to improve productivity, strengthen public service delivery, attract investment and enter higher-value technologically advanced sectors. Yet, the very infrastructure underpinning these ambitions is entangled with and shaped by geopolitical competition. Questions around semiconductor supply chains, cloud infrastructure, data governance, cybersecurity and digital standards increasingly compel governments to navigate difficult trade-offs between openness, sovereignty, security and economic growth.

9 Microsoft, Google, AWS and Nvidia have announced major cloud, AI and data-centre investments across Southeast Asia between 2024-2026. Google, Temasek and Bain & Company, e-Conomy SEA 2025: From Digital Decade to AI Reality (2025), e-Conomy SEA 2025 Report, https://www.temasek.com.sg/en/news-and-resources/resources/reports/e-conomy-sea-2025?utm_source=chatgpt.com.

The essays in this Special Report illustrate how these dynamics are unfolding across national and regional contexts. Malaysia's approach reflects a pragmatic effort to maximise economic opportunities emerging from AI while maintaining strategic flexibility. As Farlina Said argues, Malaysia's long-standing industrial policies, semiconductor base and pro-investment digital framework provide important foundations for AI adoption. However, Malaysia remains integrated into external technology ecosystems and must balance deep economic ties with the US and China. Kuala Lumpur has welcomed investments from American hyperscalers such as AWS, Microsoft and Google while remaining open to Chinese firms and partnerships involving Huawei. In this sense, Malaysia's AI governance reflects its broader foreign policy orientation of non-alignment and diversified engagement.

Indonesia's trajectory similarly reflects the pressures of operating amid competing ecosystems. Fitriani and Pieter Pandie reveal how Jakarta prioritises AI deployment for development and state capacity rather than pursuing frontier technological leadership. Yet, Indonesia's digital infrastructure remains deeply intertwined with external ecosystems; American firms support Indonesia's AI ecosystem through cloud infrastructure and capacity-building partnerships while Huawei maintains a dominant position in telecommunications infrastructure. This balancing mirrors Indonesia's broader foreign policy approach of hedging between competing powers to preserve strategic flexibility and developmental opportunities. Nevertheless, institutional fragmentation and limited domestic technological capacity constrain Jakarta's ability to translate AI adoption into effective and coordinated governance.

Indonesia's trajectory similarly reflects the pressures of operating amid competing ecosystems.

Regionally, the Association of Southeast Asian Nations' (ASEAN) AI governance initiatives seek to preserve agency and relevance amid intensifying technological fragmentation and competition. Jose Enriquez's essay highlights how ASEAN's soft-law approach could reduce regulatory fragmentation and promote interoperability while accommodating uneven national capacities across Southeast Asia. ASEAN's governance frameworks deliberately avoid alignment with any singular external model; instead, they selectively draw from multiple approaches that emphasise development, flexibility and inclusivity. This preference reflects broader Southeast Asian concerns that intensifying US-China competition could fragment digital ecosystems, complicate cross-border governance and constrain policy autonomy.

The city-state remains and will likely remain deeply connected to the US technology 'stack' while simultaneously preserving economic ties with China.

Singapore occupies a pivotal position in Southeast Asia. Manoj Harjani argues that the city-state has leveraged strong state capacity, public investment and ecosystem coordination to position itself as a global AI hub. However, Singapore also sits at the intersection of geopolitical tensions shaping AI supply chains, semiconductors, cloud infrastructure and digital governance. The city-state remains and will likely remain deeply connected to the US technology 'stack' while simultaneously preserving economic ties with China. Singapore's governance approach, emphasising trusted regulation, international partnerships and industry-led standards, reflects an effort to remain globally connected without being too drawn into this technological bifurcation.

While these essays provide important insights into national AI strategies, governance frameworks and geopolitical positioning, they pay relatively less attention to the practical and societal disruptions that widespread AI adoption could cause across Southeast Asia. Much of the regional policy conversation still privileges questions of competitiveness, investment attraction, infrastructure development and ecosystem building over the downstream consequences of AI deployment. Yet, governments across the region will increasingly confront difficult policy questions surrounding labour displacement, workforce transitions, educational adaptation, misinformation, online harms and the societal effects of algorithmic systems deployed at scale.

The socio-economic effects of generative AI models on industries, digital labour platforms and the service-sector, areas particularly important for Southeast Asian economies, remain relatively underexplored. In terms of jobs and skills, Singapore's 2026 Budget earmarks funding to train a large cohort of workers in AI-related competencies as roles across industries are redesigned.[10] Malaysia faces more immediate pressure, with a significant share of jobs projected to be disrupted within the decade, even as the majority of Malaysian businesses remain at basic levels of digitalisation.[11] Indonesia, for its part, has increasingly promoted AI as a baseline capability for national competitiveness and has advocated for its integration into the national education curriculum as part of broader efforts to prepare its workforce for digital transformation.[12]

10 Government of Singapore. 'Budget 2026: Priorities', https://www.gov.sg/budget2026/.

11 FMT Malaysia, "AI impact on jobs in M'sia depends on adoption, reskilling, says World Bank", 14 May 2026, https://www.freemalaysiatoday.com/category/nation/2026/05/14/ai-impact-on-jobs-in-msia-depends-on-adoption-reskilling-says-world-bank.

12 PWC, "AI Adoption in Indonesia", https://www.pwc.com/id/en/media-centre/press-release/2026/english/hopes-and-fears-2025.html.

Similarly, the environmental and energy implications of AI expansion, especially the rapid growth of data centres and compute-intensive infrastructure, are likely to become more politically salient in resource-constrained countries. Moreover, questions around surveillance, civil liberties, state use of AI-enabled monitoring tools and the concentration of power among major technology firms generally receive relatively limited coverage. In practice, the challenge for Southeast Asian governments may not simply be governing AI per se but managing the broader social, political and economic disruptions AI systems could generate over time.

Looking ahead, the intensifying geopolitical competition between the US and China could further constrain the flexibility and autonomy many Southeast Asian countries currently seek to preserve. Thus far, most governments have attempted to hedge, drawing on American investments, cloud infrastructure and frontier AI capabilities while developing and retaining economic and technological partnerships with Chinese firms. Regionally, the expected finalisation of the ASEAN Digital Economy Framework Agreement could create greater space for a more integrated regional digital and AI economy by facilitating cross-border digital trade, regulatory cooperation, data governance frameworks and digital infrastructure connectivity.[13] However, maintaining this balance may become more difficult. Export controls on advanced semiconductors, restrictions on compute access, competing standards regimes, data governance disputes and growing scrutiny over trusted vendors could force governments and firms into difficult choices. For the Southeast Asian countries, the challenge will not simply be governing AI but navigating and leveraging a fragmented technological order without sacrificing economic competitiveness, developmental priorities, or strategic space.

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13 Chair's Statement of the 48th ASEAN Summit, https://asean2026.gov.ph/post/view/?title=chair-s-statement-of-the-48th-asean-summit.

Rather than simply absorbing external technologies or regulatory approaches, governments across the region are attempting to craft hybrid governance models shaped by domestic developmental priorities and institutional realities.

These essays demonstrate that AI governance in Southeast Asia is increasingly intertwined with broader questions of geopolitical rivalry, economic transformation and strategic autonomy. Rather than simply absorbing external technologies or regulatory approaches, governments across the region are attempting to craft hybrid governance models shaped by domestic developmental priorities and institutional realities. Yet, their room for manoeuvre may narrow as US-China competition deepens across AI systems, digital infrastructure, semiconductors and technological standards.

As a result, AI governance in the Indo-Pacific is unlikely to converge around a single universal framework. Instead, the region is witnessing the emergence of fragmented and overlapping governance ecosystems marked by varying levels of openness, regulation and external dependence. The Southeast Asian countries will continue navigating difficult trade-offs between innovation and sovereignty, economic pragmatism and strategic risks while attempting to preserve autonomy in an increasingly contested technological order. Collectively, these essays highlight how AI governance is inseparable from questions of economic security and geopolitical competition.

Malaysia's AI Journey

Farlina Said

This essay examines Malaysia's artificial intelligence (AI) strategy, rooted in long-standing industrial and digital policies, emphasising pragmatic governance, investment attraction and ecosystem development. It highlights structural strengths alongside capability gaps in talent, research and development (R&D) and data, arguing that Malaysia's key challenge lies in balancing technological dependence with ambitions for sovereignty and effective AI governance.

Malaysia's AI strategy builds off three decades of information technology policies and five decades of industrial policies to ensure Malaysia leverages semiconductor depth, pro-investment digital policy and pragmatic governance approaches to develop an AI economy. Malaysia's Ministry of Digital estimates that AI could contribute an additional 0.8 to 1.2 per cent to national gross domestic product (GDP) by 2030, equivalent to roughly RM13 billion (S$4.18 billion) to RM20 billion (S$8.43 billion) annually.[1] Meanwhile, Malaysia's Prime Minister Anwar Ibrahim has emphasised AI's socio-economic benefits as catalysts of productivity gains for the labour force and government services.

Despite the optimism, Malaysia has its work cut out for it if it is to achieve its AI goals. Stanford's Global Vibrancy tool tracking AI activity ranks Malaysia 26 out of 36 countries – below Singapore and Australia. The ranking system awarded Malaysia for responsible AI efforts and in internet speed but, in contrast, to ambitions, the country has produced few AI publications, citations, grants and open-source projects.[2] This may stem from talent and skills incompatibility for the AI economy and low meaningful AI adoption by micro, small and medium enterprises (MSMEs). Malaysia will also grapple with dependence on foreign technology operators and services, which will test notions of AI sovereignty.

Malaysia will also grapple with dependence on foreign technology operators and services, which will test notions of AI sovereignty.

1 Tan, T, Vethasalam, R, and Lee, B, "AI is key in increasing productivity, says PM", *The Star* , 5 March 2025, https://www.thestar.com.my/news/nation/2025/03/05/ai-is-key-in-increasing-productivity-says-pm; and "PM Directs Ministers to Expedite Shift to Online Processes", *Bernama*, 5 January 2026, https://bernama.com/en/news.php?id=2508949; and "AI could add up to RM20b to Malaysia's economy by 2030, says Digital Ministry", *MalayMail*, 4 December 2025, https://www.malaymail.com/news/malaysia/2025/12/04/ai-could-add-up-to-rm20b-to-malaysias-economy-by-2030-says-digital-ministry/200668.

2 Stanford University (2026), "Which countries are leading in AI?", https://hai.stanford.edu/ai-index/global-vibrancy-tool.

Structural Strengths

Malaysia is now the world's sixth-largest semiconductor exporter and accounts for roughly 13 per cent of global assembly, testing and packaging activities.

Malaysia has decades of pro-digital policies, aimed at stimulating internet access, attracting investment in the broader information technology sectors. From 1970, a New Economic Policy sought to address economic gaps by expanding Malaysia's overall economic base, prompting a push into heavy industries and manufacturing.[3] These were the seeds for Malaysia's entry into the semiconductor value chain. After Intel established its first production facility outside the United States (US) in Penang in 1972, Malaysia introduced free trade zones, fiscal incentives and various campaigns to attract large semiconductor companies to expand operations.[4] Malaysia is now the world's sixth-largest semiconductor exporter and accounts for roughly 13 per cent of global assembly, testing and packaging activities.[5] Malaysia has ambitions to move up the value chain into integrated circuit design, having launched an integrated design park in 2024 to consolidate access to infrastructure, design equipment and electronic design automation tools.

Meanwhile, policies to ease access to the internet began in the 1990s as part of transforming Malaysia into a knowledge-based economy. Efforts under Vision 2020 reformed the education sector and developed infrastructure while a 'One Home-One PC' allowed workers to withdraw from their retirement fund to purchase a personal computer.[6] Increasing privatisation of internet access saw a rise in the number of internet service providers, which corresponded with increased coverage across Malaysia. By 2023, internet access reached 99 per cent in urban areas and 95.3 per cent in rural areas.[7] High-speed 5G connectivity – critical for data-intensive computing – covered 82 per cent of populated areas

3 Mohamad, D S, *The Malaysia Economy – The Way Forward* (New York City, 25 September 1991).

4 Intel Corporation (n.d.), "International Expansion for Assembly: Intel Penang - A Quick Success", Intel: https://www.intel.com/content/www/us/en/history/virtual-vault/articles/intel-penang.html#:~:text=In%201972%2C%20Intel%20launched%20its,of%20the%20company's%20manufacturing%20chain.

5 MIDA (n.d.), "Beyond Assembly Lines: Powering Malaysia's Rise in Semiconductor and High-Tech Frontiers", MIDA, https://www.mida.gov.my/beyond-assembly-lines-powering-malaysias-rise-in-semiconductor-and-high-tech-frontiers/.

6 Mustapha, Ramlee and Abdullah, Abu (2004), "Malaysia Transitions Toward a Knowledge-Based Economy", *The Journal of Technology Studies*, pp. 51-61, ERIC, https://files.eric.ed.gov/fulltext/EJ905143.pdf.

7 "Statistics on ICT Use and Access By Individuals and Households", Department of Statistics Malaysia, 24 April 2025, https://www.dosm.gov.my/portal-main/release-content/ict-use-and-access-by-individuals-and-households-survey-report-2024.

by 2025.[8] Complementing increasing internet access are data centre investments (RM144.4 billion [S$46.47 billion] between 2021 and June 2025) from key investments by Amazon Web Services (AWS), Microsoft and Google.[9]

Governance Model

To support and regulate its expanding digital ambitions, Malaysia introduced a series of legal and policy frameworks, including the Computer Crimes Act (1997), the Communications and Multimedia Act (1998), the National Cyber Security Policy (2008) and the Personal Data Protection Act (2010). This regulatory architecture was further strengthened in 2024 with the passage of the Cyber Security Act and the Online Safety Act. Malaysia's body of regulations identifies thresholds for crimes and misuse while assigning investigative powers to respective government agencies.

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Yet, to balance innovation and regulation, Malaysia often pursues a principles-based approach. Thresholds of misdemeanours could be identified by law, but exact practices will be introduced through agile guidelines and executive orders. Guidelines can be introduced by sectors, such as the Personal Data Code of Practice for Data Protection for the licensees under the Communications and Multimedia Act or presented by appointed committees such as the online safety committee.

As Malaysia pursues deployment of emerging technologies, establishing an effective governance framework for AI has proved challenging. The National AI Office (NAIO), launched in 2024, was tasked with coordinating efforts across ministries and shaping Malaysia's overall approach to AI governance. The NAIO has since convened working groups focused on AI security, governance frameworks and legislative development.[10] An upcoming AI Action Plan could strengthen the nurturing of global Malaysian talent, expand AI adoption across strategic sectors such as the public and healthcare sectors, enhance data and data-processing

8 MIDA. (n.d.), "Beyond Assembly Lines: Powering Malaysia's Rise in Semiconductor and High-Tech Frontiers", op. cit.; and "Fahmi: Malaysia's internet coverage hits almost 99pc, 5G reaches 82pc in populated areas", *Malay Mail*, 13 August 2025, https://www.malaymail.com/news/malaysia/2025/08/13/fahmi-malaysias-internet-coverage-hits-almost-99pc-5g-reaches-82pc-in-populated-areas/187431.

9 Bank Negara Malaysia, 2025, "From Bytes to Bucks: The Economics of Data Centres in Malaysia (2025)", BNM, https://www.bnm.gov.my/documents/20124/19910400/qb25q3_en_box1.pdf.

10 "NAIO Forms Working Groups to Advance Malaysia's AI Agenda", *Bernama*, 14 February 2025, https://www.bernama.com/en/news.php?id=2392643.

infrastructure, promote responsible AI governance and attract investment and financing.[11]

Malaysia's AI Roadmap 2021-2025 outlines seven core principles for AI development, including reliability, safety and control, accountability and the pursuit of human well-being.[12] These ideas are further elaborated in the National Guidelines on AI Governance and Ethics, which incorporate local normative references such as the *Rukun Negara*, including the supremacy of the Constitution, the rule of law, courtesy, morality and human dignity, as guiding considerations in the development and deployment of AI.[13] Looking ahead, further institutional consolidation is anticipated in 2026, including the introduction of dedicated AI legislation, a digital trust and data strategy and the establishment of a data commission.

Malaysia's approach to technology adoption appears agnostic, with cost and practicality serving as key considerations.

Malaysia's approach to technology adoption appears agnostic, with cost and practicality serving as key considerations. For instance, it is willing to explore platforms such as DeepSeek while simultaneously welcoming data-centre investments from a wide range of international partners such as AWS, AirTrunk and Microsoft. Given strong economic drivers, AI governance choices are also shaped by trade priorities, a logic that can be traced back to the Multimedia Super Corridor's 10 Bill of Guarantees and continues today under the tax-exempt status offered through the Malaysia Digital initiative.[14] Malaysia's economic priorities also emphasise cross-border harmonisation, especially as Malaysia seeks to become a digital hub for the Association of Southeast Asian Nations (ASEAN) member states, leading Malaysia to champion the ASEAN AI Safety Network and support for the Hiroshima AI Process and the 2024 Responsible AI in the Military Domain Summit.[15]

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11 Ibid; "Pemberitahuan pertanyaan lisan dewan negara mesyuarat kedua 2025, penggal kempat parlimen kelima belas. Dewan negara mesyuarat kedua 2025, penggal kempat parlimen kelima belas", p. 30, Malaysia Parliament, (2025), https://www.parlimen.gov.my/files/jindex/pdf/JLDN04092025.pdf; and "Pemberitahuan Pertanyaan Lisan Dewan Negara Mesyuarat Kedua 2025, Penggal Keempat Parlimen Kelima Belas. Dewan Negara Mesyuarat Kedua 2025, Penggal Keempat Parlimen Kelima Belas", p. 50, Parlimen Malaysia. (2025), https://www.parlimen.gov.my/files/jindex/pdf/JLDN25082025.pdf.

12 "Malaysia National Artificial Intelligence Roadmap 2021-2025", Ministry of Science, Technology and Innovation, August 2021, https://mastic.mosti.gov.my/publication/artificial-intelligence-roadmap-2021-2025/.

13 "The National Guidelines on AI Governance and Ethics", Ministry of Science, Technology and Innovation, September 2024, https://mastic.mosti.gov.my/publication/the-national-guidelines-on-ai-governance-ethics/.

14 "Guidelines on Malaysia Digital Status", MDEC, 30 June 2022, https://mdec.my/static/pdf/Malaysia-Digital-MD-Status-Guidelines_Effective-30-June-2022.pdf.

15 UNESCO (n.d.), "Malaysia", Global AI Ethics and Governance Observatory, https://www.unesco.org/ethics-ai/en/malaysia; and "Capability Gap in Defence Sector Affects Malaysia, Developing Nations – Khaled", *Bernama*, 10 September 2024, AI https://bernama.com/en/news.php?id=2339039.

Capability Gaps

Despite ambitions, Malaysia remains in the early stages of cultivating domestic talent, R&D capacity and a robust data ecosystem. A study by Malaysia's national agency, TalentCorp stated that 620,000 jobs are expected to be highly impacted by AI, digital and the green economy by 2029.[16] This is further compounded by trends of job vacancies and supply constraints where AI-related roles such as software developers, application programmers and data professionals are listed in Malaysia's critical occupations list, appearing most of the year, if not every year since 2015.[17] Meanwhile, Malaysia's firms tend to utilise basic applications for AI which may unlock productivity but are not intended for strategic growth of firms.[18] Largely, SMECorp's 2024 report states that over 60 per cent of businesses in Malaysia are still at basic levels of digitalisation despite 93.1 per cent access to the Internet.[19] To address this, Malaysia formed the MyMahir National AI Council for Industry aimed at conducting impact studies for affected roles and emerging jobs and introducing platforms that allow companies to assess their AI preparedness although further challenges relating to innovation and adoption remain.[20]

Meanwhile, Malaysia's firms tend to utilise basic applications for AI which may unlock productivity but are not intended for strategic growth of firms.

AI is driven by research and proprietary knowledge. However, Malaysia is affected by low R&D activity and a fragmented data ecosystem. Malaysia's R&D has dipped since 2016 with gross expenditure for R&D veering far from 3.5 per cent of GDP by 2030 goals at 1.04 per cent in 2018, 0.95 per cent in 2020 and 1.01 per cent in 2022.[21] The trend can be attributed to a few factors, such as MSMEs accounting for 96.1 per cent of all business establishments in Malaysia in 2024, where only a small

16 "Impact Study of Artificial Intelligence, Digital and Green Economy on the Malaysian Workforce Volume 1". TalentCorp, 2024, https://www.talentcorp.com.my/images/uploads/publication/192/Impact-Study-of-Artificial-Intelligence-Digital-and-Green-Economy-on-the-Malaysian-Workforce-Volume-1-1750748111.pdf.

17 "MyMAHIR Malaysia Critical Occupations List 2024/2025", TalentCorp, 2025, https://www.talentcorp.com.my/images/uploads/publication/204/MyMahir-Malaysia-Critical-Occupations-List-MyCOL20242025-1773385490.pdf.

18 "AI Adoption in Malaysia rises 35 pct this year – Amazon Web Services", *Bernama*, 4 November 2025, https://www.bernama.com/en/news.php?id=2487285.

19 "MSME Insights 2024/2025 Adopt, Evolve, Thrive: Scaling up MSMEs", SMECorp, 2025, https://smecorp.gov.my/images/Publication/MSME_Insights/2024_25/Main_Report/Full_Version.pdf.

20 "TalentCorp and MyDigital launch MyMahir National AI Council for Industry to accelerate workforce readiness", Ministry of Human Resources, 23 May 2025, https://www.talentcorp.com.my/resources/press-releases/talentcorp-and-mydigital-launch-mymahir-national-ai-council-for-industry-to-accelerate-workforce-readiness/.

21 MASTIC (n.d.), "Research and Development Indicators", https://mastic.mosti.gov.my/statistic/research-and-development-rd-indicators/.

percentage of small and medium enterprises invest in R&D due to cost constraints.[22]

Strategic Positioning

Dependence on foreign technologies can be inevitable in an AI value chain dominated by the US followed by China. Malaysia may be caught in the dilemma between reaping rewards swiftly through adoption of available AI solutions and investing resources for the development of indigenous models. Malaysia has a small number of indigenously developed large language models such as Intelek Luhur Malaysia Untukmu and Malaysia Large Language Model (MaLLaM) built on and for Malaysia's language diversity.[23] The models could be further integrated into other systems such as banks or chatbot services.

At the same time, light open-source models which allow custom weights could be a third option to developing indigenous AI.

However, Malaysia's realities indicate that there will be levels of technology dependencies on external sources. MaLLaM, for instance, was trained on Nvidia A100 GPUs, Azure Cloud and AWS – hardware developed across the globe or are headquartered in other countries.[24] At the same time, light open-source models which allow custom weights could be a third option to developing indigenous AI. Malaysia has co-developed solutions through shared international laboratories such as NurAI customised on and built from DeepSeek's model.[25] However, NurAI is found to espouse responses that can be traced to China's official narratives unless corrected.[26] DeepSeek's open-source model may seem a solution to strengthen sovereignty, yet the model may not be culturally attuned, which could impact sovereignty calculations.

Amid geopolitical competition, Malaysia may be hard-pressed to pick a stack of innovation. Malaysia's largest trading partner is China while

22 "Profile of MSMEs in 2015-2024", Department of Statistics Malaysia, August 2025, https://smecorp.gov.my/index.php/en/policies/2020-02-11-08-01-24/profile-and-importance-to-the-economy; and Birruntha, S, "SME Corp says only small percentage of SMEs invest in R&D due to lack of financial resources" *New Straits Times*, 13 June 2024, https://www.nst.com.my/business/corporate/2024/06/1063083/sme-corp-says-only-small-percentage-smes-invest-rd-due-lack.

23 Yong, J. (2025), "ILMU: Deep dive into Malaysia's first homegrown LLM with Prof Chan", *W Media*, https://w.media/ilmu-deep-dive-into-malaysias-first-homegrown-llm-with-prof-chan/.

24 Zolkepli, H. et al. (29 January 2024), "MaLLaM – Malaysia Large Language Model", ARXIV, https://arxiv.org/html/2401.14680v2; "Malaysian startup Mesolitica launches first Bahasa Malaysia generative AI model on Amazon platform", *Bernama*, 3 December 2024, https://www.nst.com.my/news/nation/2024/12/1143125/malaysian-startup-mesolitica-launches-first-bahasa-malaysia-generative.

25 Colville, A. (2025), "The Chinese Province Reshaping AI in Southeast Asia", *China Media Project*, https://chinamediaproject.org/2025/12/12/the-chinese-province-reshaping-ai-in-southeast-asia/.

26 Ibid.

holding deep investment in critical sectors such as semiconductor from the US. Malaysia's partnership with China exists at a government-to-government and a business-to-business level where the latter have also seen partnership between Huawei and local start-ups to use Huawei's chips or to develop AI and ML solutions in the telecommunications sector.[27] Meanwhile, investments by US-based companies AWS, Microsoft and Google spanning different timeframes to 2038 total RM49.1 billion (S$15.8 billion).[28] The US is Malaysia's third-largest market for semiconductor exports.[29] Malaysia's foreign policy strategy of active non-alignment is to be pro-engagement in a manner that maximises strategic space.[30] This means engaging in platforms to develop harmonised standards, clarity for cybersecurity practices and to enhance intellectual property protection.

Malaysia's foreign policy strategy of active non-alignment is to be pro-engagement in a manner that maximises strategic space.

Therefore, in Malaysia's digital policy discourse, sovereignty carries multiple meanings, often linked to questions of control and jurisdiction. This is reflected, for instance, in the government's cloud computing guidelines, which favour data residency over strict data localisation, calibrated according to risk appetite.[31] At times, laws would demand representation, such as the Personal Data Protection Act that requires the appointment of a data protection officer. In a landscape where governments must negotiate with the business sector to enhance safety for users, galvanising efforts with like-minded countries to streamline principles and strengthen negotiating positions could advance national interest.

27 "Malaysia government not involved in local AI project involving Huawei chips", *Reuters*, 21 May 2025, https://www.reuters.com/world/asia-pacific/malaysia-government-say-not-involved-local-ai-project-involving-huawei-chips-2025-05-21/; and "Maxis, Huawei ink strategic partnership to drive AI and ML Powered Intelligent Network Operations", *Bernama*, 12 March 2025, https://bernama.com/en/news.php?id=2401337.

28 "From Bytes to Bucks: The Economics of Data Centres in Malaysia (2025)", Bank Negara Malaysia, 2025, https://www.bnm.gov.my/documents/20124/19910400/qb25q3_en_box1.pdf.

29 "Malaysia in talks for 0% chip tariff, minerals deal with Trump", Bloomberg, 25 October 2025, https://www.straitstimes.com/asia/se-asia/malaysia-in-talks-for-0-chip-tariff-minerals-deal-with-trump.

30 "Holding our ground: Southeast Asia in a Fractured World", Ministry of Foreign Affairs Malaysia, 31 May 2025, https://www.pmo.gov.my/en/speeches-en/speech-by-yab-prime-minister-holding-our-ground-southeast-asia-in-a-fractured-world/.

31 CGSO (n.d.), "Garis Panduan Pengurusan Keselamatan Maklumat Melalui Pengkomputeran Awan (Cloud Computing) Dalam Perkhidmatan Awam", CGSO, https://www.cgso.gov.my/wp-content/uploads/2021/11/GARIS-PANDUAN-PENGURUSAN-KESELAMATAN-MAKLUMAT-MELALUI-PENGKOMPUTERAN-AWAN-CLOUD-COMPUTING-DALAM-PERKHIDMATAN-AWAM-VERSI-2.0.pdf.

Conclusion

Malaysia's AI journey was rooted in the 1970s during the first wave of manufacturing expansion to Southeast Asia.

Malaysia's AI journey was rooted in the 1970s during the first wave of manufacturing expansion to Southeast Asia. Six decades later, Malaysia stands on solid ground to enhance its strategic position with foundations in infrastructure, sectoral industry and a robust talent pipeline. That said, Malaysia's ambitions can be impacted by dependence on foreign technology, geopolitical competition and limited accountability among AI actors. Realising Malaysia's goals as an AI nation requires an all of government and whole of society effort to enhance adoption, raise literacy and build practical applications for Malaysia's AI ecosystem.

Deployment for Development: Indonesia's Approach to AI

Fitriani and Pieter Pandie

This essay examines Indonesia's emerging approach to artificial intelligence (AI), highlighting its prioritisation of deployment over technological leadership. Given institutional fragmentation, reliance on foreign technology and hedging across global ecosystems, the essay argues that the central challenge lies in translating adoption into effective, coordinated governance.

Introduction

Indonesia's AI strategy prioritises practical deployment over technological leadership, using AI to strengthen state capacity despite continued reliance on foreign technology providers. As a developing country, Indonesia frames AI primarily as a tool for development and public service delivery rather than geopolitical competition. Even though AI adoption is projected to raise gross domestic product by between 6.9 per cent to 14 per cent,[1] there is no effort to indigenise its supply chain. Despite growing AI adoption, Indonesia appears occupied with overlapping bureaucratic management to pave practical steps for building its own sovereign AI.

As a developing country, Indonesia frames AI primarily as a tool for development and public service delivery rather than geopolitical competition.

AI as a Tool for Development and State Capacity

Indonesia's 2020 National AI Strategy[2] emphasises human-centred and welfare-oriented technological adoption with the goal of becoming a high-income economy by 2045. This agenda has yet to be translated into concrete AI tools but remains palpable in Jakarta's desire to foreground ethics and responsibility before drafting formal AI regulation.

Instead of framing AI as a disruptive force that could increase unemployment and expand the digital threat landscape, Indonesian

1 "The AI Opportunity: Indonesia", Public First, 2025, https://aiopportunity.publicfirst.co/indonesia/; and "Empowering Indonesia 2024: Growth Beyond Metropolitan", Indosat and Twimbit, 2024, https://www.scribd.com/document/959072807/x6x3x8x5x0x7x7x0x6x6x0x9x9x1x4x6x4x4x.

2 "Strategi National: Kecerdasan Artificial Indonesia: 2020-2045", Agency for the Assessment and Application of Technology of Indonesia, 2024, https://korika.id/wp-content/uploads/2024/07/stranas-ka-2045.pdf.

policymakers often present it as a panacea. At a 2025 Asia-Pacific Economic Cooperation meeting, Indonesia's President Prabowo Subianto linked AI adoption to improved agricultural productivity and enhanced social welfare. The country's Vice President Gibran Rakabuming Raka has also framed AI as a baseline capability for national competitiveness and has advocated for its integration into the national education curriculum.[3]

The Directorate General of Taxes has similarly rolled out AI-powered chatbots and virtual assistants to support taxpayers.

While Indonesia's education sector remains cautious about adopting AI, its financial services sector appears willing. The Indonesian central bank has developed AI to accelerate digital payments, support policy formulation and strengthen fraud detection.[4] In 2024, the Financial Services Authority issued AI Governance for Banking as guidelines to steer the responsible adoption of AI across banking operations.[5] The Directorate General of Taxes has similarly rolled out AI-powered chatbots and virtual assistants to support taxpayers. Beyond these areas, AI is also applied by digital financial services such as Indonesian digital wallet company, DANA, to analyse customer behaviour.[6]

Indonesia has also turned to AI-enabled tools for disaster response. In 2024, it launched the AI-powered Mutual Aid Map (Peta Gotong Royong) to support peer-to-peer disaster relief, empower local action and close critical response gaps, complementing the live disaster reporting map and chatbot Peta Bencana.[7] Major cities like Jakarta have integrated AI

3 Theressia Silalahi, "Gibran Pushes AI in School Curriculum to Keep Indonesia Competitive", *Jakarta Globe*, 12 March 2025, https://jakartaglobe.id/tech/gibran-pushes-ai-in-school-curriculum-to-keep-indonesia-competitive.

4 Agustinus Yoga Primantoro, "Adopting Artificial Intelligence, BI Accelerates Digitalization of Payment Systems", *Kompas*, 1 December 2023, https://www.kompas.id/artikel/en-dalam-lima-tahun-bi-siapkan-pengembangan-ai; Khoirifa Argisa Putri, "BI Kini Manfaatkan Teknologi AI dalam Merumuskan Kebijakan", *Info Bank News*, 9 September 2024, https://infobanknews.com/bi-kini-manfaatkan-teknologi-ai-dalam-merumuskan-kebijakan; Pramesti Regita Cindy, "Deteksi Kejahatan Digital, OJK–BI Gunakan AI & Machine Learning", *Bloomberg Technoz*, 10 November 2025, https://www.bloombergtechnoz.com/detail-news/89827/deteksi-kejahatan-digital-ojk-bi-gunakan-ai-machine-learning; and Surya Dua Artha Simanjuntak, "BI: Penerapan AI Perkuat Sistem Deteksi Penipuan Digital hingga Judol", *Bisnis*, 1 November 2025, https://finansial.bisnis.com/read/20251101/90/1925256/bi-penerapan-ai-perkuat-sistem-deteksi-penipuan-digital-hingga-judol#goog_rewarded.

5 "Tata Kelola Kecerdasan Artifisial Perbankan Indonesia", Otoritas Jasa Keuangan, 29 April 2025, https://ojk.go.id/id/Publikasi/Roadmap-dan-Pedoman/Perbankan/Pages/Tata-Kelola-Kecerdasan-Artifisial-Perbankan-Indonesia.aspx.

6 Vincent Henry Iswaratioso, "How the rise of AI in Indonesia is expanding financial inclusion", WEF Stories, 17 February 2025, https://www.weforum.org/stories/2025/02/rise-of-ai-in-indonesia/; and Mohamad Mamduh, "Layanan Keuangan Digital Masuk Fase Baru via Kolaborasi AI", *Media com.id*, 10 March 2026, https://www.medcom.id/teknologi/news-teknologi/MkM5nMVk-layanan-keuangan-digital-masuk-fase-baru-via-kolaborasi-ai.

7 Indonesia Disaster Map, *Peta Bencana*, 2025, https://petabencana.id/map/; Thomson Reuters Foundation, "With social media chatbots, Indonesia braces for monsoon floods", *Reuters*, 29 October 2020, https://www.reuters.com/world/with-social-media-chatbots-indonesia-braces-monsoon-floods--trfn-2020-10-29/; and Disaster Map Foundation (Yayasan Peta Bencana), "2025 Mutual Aid Map (Peta Gotong Royong) launches with international acclaim!", *News Update*, 21 June 2025, https://blog.petabencana.id/2025/06/21/hello-world/.

into flood mapping projects to improve situational awareness and early warning. Analysis of the devastating November-December 2025 Aceh flood was supported by satellite imagery from GeoSquare.ai.[8] Indonesia's homegrown AI video detection Nodeflux, backed by Microsoft, has assisted local governments with crowd management, traffic and water level detection.[9]

Some cases, however, also expose the limits of AI adoption without robust governance. The relatively weak response and high death toll after the recent Sumatra disaster,[10] coupled with the public visibility of AI largely through doctored animal videos shared during the disaster[11] highlight a critical gap – Indonesia's challenge is not merely deploying AI-enabled situational awareness tools but translating them into timely coordination, decision-making and life-saving responses on the ground.

Some cases, however, also expose the limits of AI adoption without robust governance.

Governance and Institutional Approaches

In terms of digital governance, the Ministry of Communications and Digital (Komdigi) functions as the primary regulator overseeing platforms and telecommunications infrastructure while the National Cyber and Crypto Agency is responsible for cybersecurity and critical infrastructure protection. Enforcement authority, however, is split between the two former institutions largely and the National Police's Directorate of Cyber Crime, with each institution involved in activities such as content takedowns.[12] The absence of a designated lead authority for AI and overall digital and cyber governance creates overlapping mandates and blurred accountability, particularly when responding to rapidly evolving risks.

8 Ananda Ridho Sulistya, "GeoSquare.ai Analisis Bencana Sumatera dengan Manfaatkan Berbagai Citra Satelit, Bagaimana Analisisnya?", *Spatial Highlights*, 9 December 2025, https://spatialhighlights.com/news/geosquareai-analisis-bencana-sumatera-dengan-manfaatkan-berbagai-citra-satelit-bagaimana-analisisnya.

9 Indonesia News Center, "Get to Know Nodeflux, Indonesian Homegrown Vision AI Solution", *Microsoft News*, 17 January 2023, https://news.microsoft.com/id-id/2023/01/17/get-to-know-nodeflux-indonesian-homegrown-vision-ai-solution/.

10 Eka Yudha Saputra, "Death Toll from Sumatra Disaster Reaches 1,157", *Tempo*, 3 January 2026, https://en.tempo.co/read/2077862/death-toll-from-sumatra-disaster-reaches-1157.

11 "Fact Check: AI Videos Falsely Show Tigers Saved in Sumatra Floods", *Tempo*, 21 December 2025, https://en.tempo.co/read/2075109/fact-check-ai-videos-falsely-show-tigers-saved-in-sumatra-floods.

12 Fitriani, "Indonesia", in Mark Manantan, Cyber ASEAN Pacific Forum, 2025, https://downloads.ctfassets.net/corl1354p0t3/750MZKJ7tfh9NSwTdPviqG/9dec46e2d311f2f8b130c28600a55fba/CyberAsean_Report.pdf.

The 2025 revision of the Military Law extended the armed forces' remit into countering cyber threats, adding to an already crowded institutional ecosystem.

Indonesia has yet to adopt a dedicated AI law, relying instead on ad-hoc state intervention to manage emerging risks. This was evident most recently in Indonesia's handling of the Grok chatbot on X after authorities found it was being used to generate non-consensual sexual deepfakes and explicit imagery. The government framed such content as a violation of human rights and digital safety. Access was later restored only after X committed to safeguards, with services allowed to resume under strict supervision and ongoing monitoring.[13] Further, elements of expanded state supervision are discernible in Indonesia's digital governance landscape. The 2025 revision of the Military Law extended the armed forces' remit into countering cyber threats, adding to an already crowded institutional ecosystem.[14]

Moreover, Indonesia's limited access to foundational AI technologies – advanced chip manufacturing or frontier large-language model (LLM) research-constrains its capacity for high-end innovation. Jakarta recognises that, in the near term, prioritising ecosystem level development at the model adaptation and application layers is more realistic than pursuing frontier model development. One example is Sahabat-AI, a local-language LLM developed in 2024 by Indosat and GoTo using Nvidia's AI stack.[15] While framed as a digital sovereignty project through its focus on Bahasa Indonesia and the incorporation of national cultural contexts, Sahabat-AI relies on external partners – AISingapore and India's Tech Mahindra. This situation also reflects constrained resources; to address the resource gap, Komdigi has published an AI roadmap to attract investment, alongside longer-term plans to establish a sovereign AI fund in 2027.[16]

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13 "Indonesia temporarily blocks access to Grok over sexualised images", *Reuters*, 10 January 2026, https://www.reuters.com/legal/litigation/indonesia-temporarily-blocks-access-grok-over-sexualised-images-2026-01-10/.

14 Abdil Mughis Mudhoffir and Rafiqa Qurrata Ayun, "The new TNI Law is about much more than just military dual function", *Indonesia at Melbourne*, 4 April 2025, https://indonesiaatmelbourne.unimelb.edu.au/the-new-tni-law-is-about-much-more-than-just-military-dual-function/#:~:text=Menu-,The%20new%20TNI%20Law%20is%20about%20much%20more%20than%20just,did%20not%20end%20with%20Soeharto.

15 Indosat, Sahabat AI website, 2024, https://sahabat-ai.com/; and Thomson Reuters, "Indonesia's Indosat, GoTo launch local-language AI model", *Reuters*, 14 November 2024, https://www.reuters.com/technology/artificial-intelligence/indonesias-indosat-goto-launch-local-language-ai-model-2024-11-14/.

16 Stanley Widianto, "Indonesia targets foreign investment with new AI roadmap, official says", *Reuters*, 22 July 2025, https://www.reuters.com/business/media-telecom/indonesia-targets-foreign-investment-with-new-ai-roadmap-official-says-2025-07-22/; and "Indonesia eyes 'sovereign AI fund' to drive development, document shows", *Reuters*, 11 August 2025, https://www.reuters.com/world/asia-pacific/indonesia-eyes-sovereign-ai-fund-drive-development-document-shows-2025-08-11/.

AI and Geopolitical Positioning

So far, Indonesia has incorporated elements of the European Union's (EU) rights-based approach through the 2022 Personal Data Protection Law, which establishes safeguards relevant to AI training, profiling and automated decision-making despite uneven enforcement capacity. In principle, this law provides a rights-based approach for AI governance, even as enforcement capacity and institutional readiness remain uneven. Internationally, Indonesia is a party to the G20 AI principles, has adopted the United Nations Educational, Scientific and Cultural Organisation's recommendations on the ethics of AI and supports the Association of Southeast Asian Nations' Guide on AI governance and ethics.[17]

In practice, however, Indonesia's resource constraints and market realities push it in a different direction. Strong domestic usage of Western AI platforms such as ChatGPT rather than DeepSeek or other alternatives reinforces Indonesia's continued reliance on market-driven ecosystems linked to American technology firms. Indonesia's AI ecosystem remains connected to partnerships, infrastructure support and capacity building efforts by global AI firms like Nvidia and Microsoft.[18]

Moreover,[19] Indonesia's telecommunications network remains heavily dependent on China's Huawei. Huawei has dominated the market since 2018 and in 2025, accounting for nearly 70 per cent of the core infrastructure across telecommunication operators. This dependence has raised concerns about the long-term reliance on Huawei's AI-enabled technologies.[20] Yet, Indonesia has limited room for manoeuvre; Huawei offers a package that Jakarta has found difficult to refuse, including infrastructure investment through data centres and digital ecosystem

This dependence has raised concerns about the long-term reliance on Huawei's AI-enabled technologies.

17 "Leading AI Ethics: UNESCO and KOMINFO launch AI Readiness Assessment Methodology in Indonesia", *Unesco news*, 28 May 2024, https://www.unesco.org/en/articles/leading-ai-ethics-unesco-and-kominfo-launch-ai-readiness-assessment-methodology-indonesia; and Herber Smith Freehills Kramer, "Indonesia", AI Tracker, 12 February 2026, https://www.hsfkramer.com/insights/reports/ai-tracker/indonesia.

18 "NVIDIA Signs Agreement to Develop AI Talent, Support Industry Research in Indonesia", NVIDIA press release, 27 January 2022, https://www.nvidia.com/en-sg/news/nvidia-signs-agreement-to-develop-ai-talent-support-industry-research-in-indonesia/; and Microsoft, "Microsoft Expands AI Infrastructure and Cloud Services in Indonesia, Empowering More Organizations to Innovate Locally", *Company News*, 25 November 2025, https://news.microsoft.com/source/asia/2025/11/25/microsoft-expands-ai-infrastructure-and-cloud-services-in-indonesia-empowering-more-organizations-to-innovate-locally/.

19 "Indonesia promises to bolster digital sovereignty and AI talent on Independence Day", *Digwatch Update*, 19 August 2025, https://dig.watch/updates/indonesia-promises-to-bolster-digital-sovereignty-and-ai-talent-on-independence-day.

20 Jascha Ramba Santoso, "Indonesia is hooked on Huawei", *The Strategist*, 29 April 2025, https://www.aspistrategist.org.au/indonesia-is-hooked-on-huawei/.

Jakarta will not alter this posture in the near term, as AI adoption deepens.

support. Indonesia hedges by drawing from the United States' market dynamism, the EU's rights-based regulatory approach while maintaining optionality through partnerships with Chinese firms. Jakarta will not alter this posture in the near term, as AI adoption deepens. Jakarta has signalled its intent to maximise the development benefits of AI while acknowledging the risks that range from misinformation and intellectual property theft to data security vulnerabilities, algorithm bias and the expansion of surveillance capabilities.

Conclusion

Indonesia's evolving approach to artificial intelligence reflects a pragmatic effort to harness technological advances for development while navigating structural constraints in terms of capabilities, governance and major power competition. By prioritising adoption over innovation and maintaining diversified external partnerships, Jakarta has attempted to accelerate AI integration across the public and private sectors. Yet, this strategy has trade-offs; continued reliance on foreign infrastructure and platforms may complicate ambitions for digital sovereignty while fragmented institutional authority risks eroding governance of increasingly powerful AI systems. As AI adoption deepens, Indonesia's central policy challenge will shift from expanding access to strengthening coordination, regulatory clarity and domestic capacity, ensuring AI adoption and deployment translate into effective governance rather than new forms of dependency or vulnerability.

ASEAN's AI Governance: A Model for the Global South?

Jose Miguelito Enriquez

This essay covers the Association of Southeast Asian Nations' (ASEAN) soft law approach to artificial intelligence (AI) governance, which emphasises flexibility, interoperability and development across diverse national contexts. Anchored in the ASEAN AI Governance Guide and Responsible AI Roadmap, the model reflects Global South concerns around capacity gaps, digital divides and regulatory fragmentation.

ASEAN has developed a soft-law model of AI governance that prioritises interoperability and responsible development while accommodating uneven national AI capacities. This model is distinct from the policy choices made by major powers, namely, the de-regulatory and accelerationist positions associated with the second Donald Trump administration in the United States (US), China's state security-focused model and Europe's emphasis on digital sovereignty and rights protection.

ASEAN has developed a soft law model of AI governance that prioritises interoperability and responsible development while accommodating uneven national AI capacities.

ASEAN's model is rooted in a Global South discourse that remains attentive to the risks AI poses, including widening digital divides, disruptions to creative and knowledge economies and mounting environmental and energy costs.[1] Instead, ASEAN's model offers a pathway to reduce regulatory fragmentation, which could streamline national capacities in managing these risks and reduce constraints to regional innovation. However, its effectiveness hinges on each ASEAN member state's ability to align domestic AI policies with regional frameworks.

Governing Through Guidelines

ASEAN's AI governance approach is anchored on voluntary frameworks, most notably the two editions of the ASEAN Guide on AI Governance and Ethics.

1 Daron Acemoğlu, "The Need for Multipolar Artificial Intelligence Governance", in *The New Global Economic Order*, eds. Lili Yan Ing and Dani Rodrik (London: Routledge, 2026).

The first edition, published in 2024, was designed to support Southeast Asia-based organisations developing or deploying AI models in their operations by recommending the appropriate oversight, accountability, management standards and stakeholder engagement. It is structured around seven core principles: transparency and explainability, fairness and equity, security and safety, robustness and reliability, human-centricity, privacy and data governance, and accountability and integrity.[2]

In 2025, ASEAN released a second edition, which differed from the first edition in two key respects.

In 2025, ASEAN released a second edition, which differed from the first edition in two key respects. First, it incorporated recommendations specifically addressing the risks of generative AI, including concerns related to response bias, intellectual property, deepfakes and content provenance.[3] Second, the 2025 Guide was more explicitly tailored to national policy objectives, to foster policy alignment across ASEAN member states.

Thereafter, ASEAN established the Responsible AI Roadmap (2025-2030) which outlined a number of short, medium and long-term action steps to "facilitate the alignment of national AI efforts" while allowing member states to deploy and govern AI "in a way that fits each country's specific needs and priorities".[4] The roadmap focuses on assessing national readiness and strengthening regional integration across several pillars, including skills and capacity building, fairness and inclusion, risk mitigation, governance and participation at the national and regional levels and stakeholder and regional collaboration.

ASEAN prefers soft law for three reasons. First, it reflects a deliberate effort to keep regulation agile given technological change; the AI Guide functions as "living document" subject to periodic review.[5] Second, ASEAN's diversity necessitates flexibility given distinct infrastructural and talent capabilities. While ASEAN's digital economy grew by roughly

2 Association of Southeast Asian Nations (ASEAN), "ASEAN Guide on AI Governance and Ethics", 8 January 2026, https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf.

3 ASEAN, "Expanded ASEAN Guide on AI Governance and Ethics – Generative AI", ASEAN, 8 January 2026, https://asean.org/wp-content/uploads/2025/01/Expanded-ASEAN-Guide-on-AI-Governance-and-Ethics-Generative-AI.pdf.

4 ASEAN, "ASEAN Responsible AI Roadmap (2025-2030)", 9 January 2026, https://asean.org/wp-content/uploads/2025/02/ASEAN-Responsible-AI-Roadmap-Final.docx.pdf.

5 ASEAN, "ASEAN Guide" (2024), p. 8.

15 per cent to US$305 billion (S$389.56 billion) in 2025, nearly 98 per cent is concentrated within its six biggest economies.[6] This scenario necessitates equitable regional AI goals that do not exacerbate existing digital gaps. Third, enacting binding regulation without addressing enforcement capacities risks undermining effective implementation.

That said, this reliance on soft law exposes vulnerabilities. National AI ambitions can easily override regional goals, especially if rules are not enforced. Without the enforcement mechanisms of binding legal instruments, evaluations of ASEAN's policy recommendations become critical to monitor national uptake and identify areas for future collaboration. To this end, the ASEAN Working Group on AI Governance could ensure domestic progress of all 11 ASEAN member states complements ASEAN's vision of a vibrant regional AI industry and harmonised governance.[7]

A Model to Be Emulated?

ASEAN offers a development-oriented AI governance model, centred on regional integration, not sovereignty. Unlike the EU, where AI regulation is connected to a broader effort to assert digital sovereignty, ASEAN eschews comprehensive, binding regulation.[8] While ASEAN views AI as a key driver for digital economic growth, it does not necessarily frame regulation as "onerous", in contrast to the deregulatory instincts of current US policymakers.[9] Unlike China, national security considerations are not the organising principle of ASEAN's model.

Unlike China, national security considerations are not the organising principle of ASEAN's model.

For Global South countries, ASEAN exemplifies how limited resources do not preclude meaningful agency in AI governance. While its model's transferability to other regions is not guaranteed, ASEAN's experience demonstrates how developing countries can determine their own paths to nurture homegrown AI industries and set effective parameters for responsible, safe and ethical AI that empowers local communities.

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6 Google, Temasek and Bain & Company, "e-Conomy SEA 2025 (From Digital Decade to AI Reality: Accelerating the Future in ASEAN)", 11 November 2025, https://www.temasek.com.sg/content/dam/temasek-corporate/news-and-views/resources/reports/e-conomy-sea-2025-report.pdf.

7 Jose Miguelito Enriquez, "Southeast Asia's AI Governance Dilemma: Bridging Regional and Domestic Visions", in *Strategic Currents: New and Emerging Technologies: Strategic and Security Implications for Southeast Asia,* eds. Bernard F.W. Loo and Damien D. Cheong (Singapore: World Scientific, 2026).

8 Thierry Breton, "The world's digital empires are jostling for power – in Europe, we can't afford to be useful idiots", *The Guardian,* 18 November 2025. https://www.theguardian.com/commentisfree/2025/nov/18/europe-digital-us-online-safety-laws.

9 The White House, "America's AI Action Plan", July 2025, https://www.whitehouse.gov/wp-content/uploads/2025/07/Americas-AI-Action-Plan.pdf.

Singapore's AI Governance Approach

Manoj Harjani

This essay examines Singapore's artificial intelligence (AI) governance approach, highlighting its emphasis on public investment, ecosystem coordination and light-touch, industry-led regulation. It argues that while this model supports competitiveness, Singapore faces constraints in talent, infrastructure and scale, alongside growing social and geopolitical risks that could test its adaptive governance approach.

Introduction

Singapore appears well positioned to capitalise on the opportunities that AI could generate.

In the 2025 Government AI Readiness Index, Singapore ranked seventh out of 195 countries.[1] Its strong performance in this index and across other similar indices[2] suggests that it is doing something right in terms of AI governance. Moreover, with its National AI Strategy 2.0 (NAIS 2.0)[3] and Research, Innovation and Enterprise (RIE) 2030 plan,[4] Singapore appears well positioned to capitalise on the opportunities that AI could generate.

However, a closer examination of the factors shaping national AI competitiveness, such as the availability of technical talent, workforce-wide AI skills, the quality and scale of data and digital infrastructure and the depth of the innovation and industry ecosystem, reveals that Singapore faces intense challenges. Moreover, it must also navigate a wide range of constraints, particularly in terms of physical resources such as land, energy and water.

The city-state's approach to AI governance has thus far emphasised public sector investment, drawn on a well-established playbook for positioning itself as a hub and leaned towards a soft, industry-centric stance on regulation. However, AI governance is not just about economic competitiveness. It increasingly involves mitigating the social and geopolitical risks associated with AI adoption; on these dimensions, the

1 Kate Iida et al, *Government AI Readiness Index 2025* (Oxford Insights, 2025), p. 67, https://oxfordinsights.com/wp-content/uploads/2025/12/2025-Government-AI-Readiness-Index-2.pdf.
2 For instance, Singapore ranked sixth out of 36 countries in the 2024 Global AI Vibrancy ranking, third out of 83 countries in the 2024 Global AI Index and first out of 100 cities in the 2025 AI City Index.
3 "NAIS 2.0: Singapore National AI Strategy, AI for the Public Good For Singapore and the World", https://file.go.gov.sg/nais2023.pdf.
4 "Research, Innovation and Enterprise 2030", https://file.go.gov.sg/rie2030factsheet.pdf.

indicators of success are less well defined, and they could pose a more demanding test of Singapore's AI governance approach.

Singapore's Approach to AI Governance

The city-state's AI governance approach draws on competitive strengths developed over decades and a playbook anchored on state-industry coordination to attract AI investments and talent over prescriptive regulation.

Public sector investment in AI has been channelled through the RIE plans and the most recent edition has allocated US$29 billion (S$37 billion) over a five-year period from 2026 to 2030.[5] Programmes supporting basic and applied research, talent development and the broader industry ecosystem are managed by AI Singapore, established in 2017 as a national node linking research institutions and government agencies.[6]

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To position Singapore as a global AI hub, NAIS 2.0 outlines initiatives that include AI centres of excellence in Singapore-based companies, startup accelerator programmes, a dedicated talent attraction scheme, workforce training to boost technical capacity, a shared AI community space, access to high-performance computing resources and stronger international partnerships.

Singapore's light-touch regulatory approach has seen it eschew a horizontal AI law like the European Union's 2024 AI Act in favour of voluntary frameworks.[7] In 2019, Singapore launched a Model AI Governance Framework,[8] which was updated in 2020 and later complemented in 2022 with AI Verify, a governance testing framework and software toolkit.[9]

Nevertheless, the city-state has played an active role in global discussions on AI safety. In 2023, it was one of 28 countries that signed the Bletchley

5 Hwee Min Ang, "Singapore to invest S$37 billion in research, innovation and enterprise over next 5 years: NRF", *CNA*, 5 December 2025, https://www.channelnewsasia.com/singapore/national-research-foundation-research-innovation-enterprise-rie-2030-37-billion-5537496.

6 "AI Singapore", https://aisingapore.org/.

7 Manoj Harjani, "Where is Singapore's AI Regulation Headed?", *Issues in Science and Technology* 41, no. 4 (Summer 2025): 27-29, https://doi.org/10.58875/GFWV2530.

8 "Model Artificial Intelligence Governance Framework: Second Edition", Info-communications Media Development Authority and Personal Data Protection Commission, Singapore, https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.

9 AI Tester Accreditation Programme, Verify Foundation, https://aiverifyfoundation.sg/.

Declaration at the inaugural AI Safety Summit.[10] It also organised the 2025 Singapore Conference on AI, which led to a consensus document on priorities for global AI safety research.[11]

Challenges for Staying Competitive

Singapore's AI competitiveness hinges on a few considerations. These include the availability of technical talent, the development of AI skills in the workforce, the quality and quantity of data and digital infrastructure and the depth of the innovation and industry ecosystem in terms of the companies within it.

The shortage of technical talent is a global challenge.

The shortage of technical talent is a global challenge. In a survey by the ManpowerGroup, talent with AI skills was identified as the most difficult for employers to find.[12] The same survey noted that for Singapore, AI model and application development and AI literacy were the most difficult skills to find in prospective employees.[13]

Developing AI skills is not just about meeting industry needs but increasingly about mitigating the societal impact of AI on jobs. Singapore has recognised this in its ongoing Economic Strategy Review,[14] and announced a slew of measures in its 2026 Budget, among them a programme to train 100,000 workers to be "bilingual in AI"[15] in order to better leverage AI within their respective sectors as jobs get redesigned.[16] However, policymaking in this area is inherently challenging, given the

10 "The Bletchley Declaration by Countries Attending the AI Safety Summit, 1-2 November 2023", Policy Paper, 13 February 2025, https://www.gov.uk/government/publications/ai-safety-summit-2023-the-bletchley-declaration/the-bletchley-declaration-by-countries-attending-the-ai-safety-summit-1-2-november-2023.

11 "The Singapore Consensus on Global AI Safety Research Priorities Building a Trustworthy, Reliable and Secure AI Ecosystem", Singapore Conference on AI and Infocomm Media Development Authority, 8 May 2025, https://file.go.gov.sg/sg-consensus-ai-safety.pdf.

12 "Global talent shortage reaches turning point as AI skills claim top spot", ManpowerGroup, 26 February 2026, https://www.manpowergroup.com/en/news-releases/news/global-talent-shortage-reaches-turning-point-as-ai-skills-claim-top-spot.

13 "AI skills become Singapore's hardest-to-fill capability even as talent scarcity eases: ManpowerGroup's 2026 Global Talent Shortage Survey," ManpowerGroup, 26 February 2026, https://www.manpower.com.sg/en/insights/blogs/2026/02/ai-skills-become-singapores-hardest-to-fill-capability-even-as-talent-scarcity-eases.

14 Abigail Ng, "Singapore studying broader ways to help workers 'bounce back' after job loss from AI, restructuring: DPM Gan", *CNA*, 25 August 2025, https://www.channelnewsasia.com/singapore/economist-dialogue-gan-kim-yong-economic-resilience-unemployment-5312296.

15 Li Ying Lee, "Singaporeans urged to become 'bilingual' AI talent to thrive in digital economy", *The Straits Times*, 29 August 2025, https://www.straitstimes.com/tech/singaporeans-urged-to-become-bilingual-ai-talents-to-thrive-in-digital-economy.

16 Li Ying Lee, "Singapore to train 100,000 AI-savvy workers by 2029", *The Straits Times*, 2 March 2026, https://www.straitstimes.com/singapore/politics/singapore-to-train-100000-ai-savvy-workers-by-2029.

transitional nature of the current period; companies and employees are experimenting with AI use while education and training systems are evolving to meet shifting expectations and skill requirements.[17]

In terms of the quality and quantity of the data and digital infrastructure, Singapore's lack of physical resources imposes a severe constraint. From 2019 to 2022, the government imposed a moratorium on building new data centres not only due to the limited availability of land but also to mitigate strain on energy and water demand.[18] Stringent regulatory requirements have been instituted by Singapore's Infocomm Media Development Authority under its 2024 Green Data Centre Roadmap[19] to guide future data centre developments.

Stringent regulatory requirements have been instituted by Singapore's Infocomm Media Development Authority under its 2024 Green Data Centre Roadmap to guide future data centre developments.

Meanwhile, the limits of Singapore's innovation and industry ecosystem are exemplified by the small number of AI unicorns produced, despite significant support from the government, including direct investment in startups through its sovereign wealth funds. According to data from Pitchbook, Singapore has not produced any AI unicorns in the 2023-2025 period that witnessed the meteoric rise of generative AI applications.[20]

Looking Ahead and Beyond Economic Competitiveness

Beyond the economic effects, AI could pose significant social challenges for Singapore. Recent technical advances have made AI-generated content increasingly realistic, more accessible, inexpensive to scale and highly personalised, amplifying the potential harms associated with deepfakes, particularly their use in scams and fraud.[21] In February 2026, Singapore's Prime Minister Lawrence Wong was targeted in an AI-driven disinformation campaign on YouTube.[22]

17 Ivy Chok, Caitlin Ng and Louisa Tang, "As AI reshapes jobs in Singapore, workers and firms face uneven change", *CNA*, 19 January 2026, https://www.channelnewsasia.com/singapore/jobs-workers-ai-artificial-intelligence-reshape-productivity-uneven-change-5867951.

18 Janice Lim, "Singapore unlikely to draw large-scale data centre investments despite added capacity: Report", *The Straits Times*, 4 June 2024, https://www.straitstimes.com/business/singapore-unlikely-to-draw-large-scale-data-centre-investments-despite-added-capacity-report.

19 "Driving a Greener Digital Future: Singapore Green Data Centre Roadmap", Infocomm Media Development Authority, 2024, https://www.imda.gov.sg/-/media/imda/files/how-we-can-help/green-dc-roadmap/green-dc-roadmap.pdf.

20 Jordan Rubio, "Unicorn companies tracker", *Pitchbook*, 6 January 2026, https://pitchbook.com/news/articles/unicorn-startups-list-trends.

21 *AI and Online Safety: Emerging Risks and Opportunities* (AI Asia Pacific Institute, 2025), 11, https://aiasiapacific.org/wp-content/uploads/2024/12/Final-version-Netsafe_AIAPI-wCVR_121224R3.pdf.

22 "Singapore and PM Lawrence Wong targeted in AI-driven disinformation campaign on YouTube", *CNA*, 25 February 2026, https://www.channelnewsasia.com/singapore/lawrence-wong-disinformation-ai-youtube-campaign-chinese-fake-videos-5949266.

For Singapore, it is not as simple as choosing between China or the United States and even making such a choice will have long-lasting consequences beyond AI.

Singapore has acknowledged the risks and the government is studying the need to curb online harms related to AI,[23] but has yet to take steps like banning access to social media apps for individuals below the age of 16, as countries like Australia have done.[24] Moreover, such measures do not guarantee an easy solution to the social challenges posed by AI. There is also an additional layer of complexity in terms of geopolitical risks. Countries are already analysing collaboration and partnerships through this lens, and the notion of neutrality seems quaint given the deep dependencies evident in the supply and value chain of AI. For Singapore, it is not as simple as choosing between China and the United States and even making such a choice will have long-lasting consequences beyond AI.

Looking ahead, flexibility in terms of governing AI will be crucial. Singapore has so far relied on a familiar playbook it has employed in other sectors with considerable success. However, the traditional competitive strengths Singapore enjoys may not guarantee desired outcomes given the complexities related to the aforementioned constraints and risks Singapore faces. The Singapore prime minister sent a clear signal in his 2026 Budget speech,[25] delivered on 12 February 2026, where he noted that Singapore must "go beyond individual pilots and isolated experiments…[and] organise at a national level and move with speed and scale." Ultimately, Singapore will also have to continuously reinvent itself. The shift in positioning from the initial NAIS in 2019 to NAIS 2.0 in 2023 attests to this evolution. NAIS 3.0 may feature a different set of objectives and actions to be achieved.

23 Sarah Koh, "Govt studying need for safeguards to curb harms of online games, AI chatbots", *The Straits Times*, 2 March 2026, https://www.straitstimes.com/singapore/politics/govt-studying-need-for-safeguards-to-curb-harms-of-online-games-ai-chatbots.

24 Josh Taylor, "Three months into Australia's world-first social media ban for under-16s, has it been a success?", *The Guardian*, 4 March 2026, https://www.theguardian.com/australia-news/2026/mar/04/australia-social-media-ban-under-16s-three-month-review.

25 "Budget Statement: Securing Our Future Together in a Changed World", 12 February 2026, https://www.singaporebudget.gov.sg/budget-speech/budget-statement.

Appendix 1
About the Authors

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