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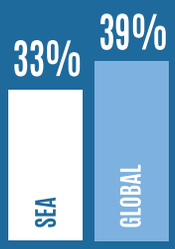
AI risks and governance in Southeast Asia

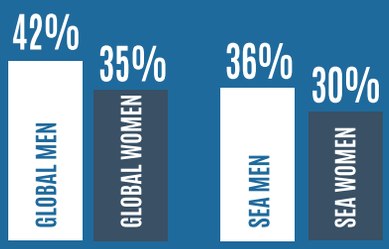
A POLICY BRIEF DRAWING ON DATA FROM THE LLOYD'S REGISTER FOUNDATION WORLD RISK POLL

How can policymakers guide AI towards a safer, more inclusive future?

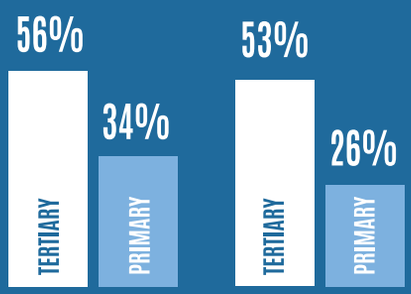
In Southeast Asia, optimism about AI is below global levels. Responsible policies can guide AI towards a safer, more inclusive, and sustainable future.



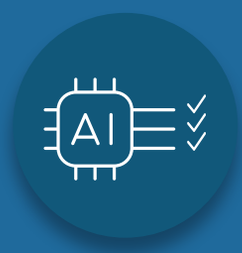
Southeast Asian (SEA) citizens show caution about AI, with optimism below the global average.*



Women are less optimistic about AI than men, especially where digital inclusion is limited.*



People with higher levels of education tend to be more optimistic about the potential impact of AI.*



Countries with responsible and inclusive AI governance frameworks and stronger implementation capabilities show higher levels of optimism in AI's benefits.*

*Share of people who believe AI will mostly help society in the next 20 years

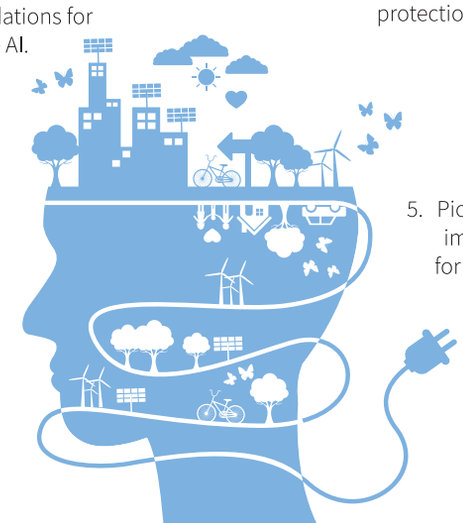
POLICY RECOMMENDATIONS

1. Foster inclusive, context-sensitive AI capacity and governance.

2. Strengthen legal and institutional foundations for responsible AI.

3. Advance regional harmonisation of data protection laws.

4. Accelerate the implementation of AI governance through regional and international cooperation.



5. Pioneer environmental impact measurement for AI in Southeast Asia.

POLICY RECOMMENDATIONS

About this policy brief

Artificial intelligence (AI) is transforming the economies and societies of the Association of Southeast Asian Nations (ASEAN), promising significant economic benefits while introducing new governance challenges and potential risks. This policy brief explores how public perceptions of AI risks align with governance approaches across ASEAN countries. Drawing on data from the World Risk Poll (WRP), it analyses regional patterns in concerns about AI harm, data security, and privacy. It examines three key questions: How do Southeast Asian citizens perceive AI risks? How do these perceptions vary by country and gender? And to what extent do existing governance frameworks address these concerns?

The brief forms part of a broader series, “Policymaking for a more resilient world: Leveraging the World Risk Poll for more effective digital, labour, and industrial policies”, funded by Lloyd’s Register Foundation, which seeks to translate public perception data into actionable policy recommendations.

Contributors

Authors: Zoi Roupakia, Hanlin Zhang, Jiaqi Li, and Jennifer Castañeda-Navarrete

Acknowledgements

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Disclaimer

AI policy is a rapidly evolving field. This brief reflects frameworks, policies, and laws available as of March 2025.

Contents

List of abbreviations

ADM	Automated decision-making
AI	Artificial intelligence
ASEAN	Association of Southeast Asian Nations
CAIDP	Center for AI and Digital Policy
DEFA	Digital Economy Framework Agreement
DSIT	Department for Science, Innovation and Technology
DPA	Data Privacy Act
EIA	Ethical Impact Assessment
ESG	Environmental, social, and governance
EU	European Union
G7	Group of Seven
G20	Group of Twenty
GAIR	Government AI Readiness Index
GDP	Gross domestic product
GDPR	General Data Protection Regulation
GIRAI	Global Index on Responsible AI
GPAI	Global Partnership on AI
ICT	Information and communication technology
LLM	Large language model
NIST	National Institute of Standards and Technology
OECD	Organisation for Economic Co-operation and Development
PDPA	Personal Data Protection Act
PDPC	Personal Data Protection Commission
PDPL	Personal Data Protection Law
PIA	Privacy impact assessment
pp	Percentage points
RAM	Readiness Assessment Methodology
SME	Small and medium enterprises
STEM	Science, technology, engineering, and mathematics
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States dollar
WRP	World Risk Poll

Executive summary

Southeast Asia stands at a critical juncture in its AI journey. With projections suggesting AI could contribute up to USD950 billion to the region's GDP by 2030 – equivalent to 10–18% of national output in several countries[1] – ASEAN nations are racing to harness its economic potential through ambitious national strategies and regional frameworks. Yet this technological transformation also introduces systemic risks that could undermine public trust and reinforce existing inequalities if governance fails to keep pace.[2]

Public perception of these risks offers a crucial but often overlooked dimension of effective AI governance. While technical standards and legal instruments provide essential guardrails, they must ultimately align with the lived concerns of citizens to ensure legitimacy and public trust. This policy brief explores how public perceptions of AI risks align with governance approaches across ASEAN countries.

Drawing on data from the 2021 World Risk Poll (WRP),[3] surveying 125,000 individuals across 121 countries, and conducting consultations with 23 key stakeholders, the brief analyses regional patterns in concerns about AI harm, data security, and privacy. It asks: How do Southeast Asian citizens perceive AI risks? How do these perceptions vary by country and gender? And to what extent do existing governance frameworks address these concerns?

The analysis integrates WRP findings with data from leading AI governance indices and monitoring frameworks, including the OECD AI Incidents Monitor, the Government AI Readiness Index,[4] the Network Readiness Index,[5] the AI and Democratic Values Index,[6] the Global Index on Responsible AI,[7] and the AI Global Surveillance Index.[8] The brief applies an inclusive AI policy analysis framework[9] to assess how effectively Southeast Asian countries are addressing the risks through their national policies, ethical principles, and data protection laws.

This publication forms part of a broader Lloyd's Register Foundation-funded series – "Policymaking for a more resilient world: Leveraging the World Risk Poll for more effective digital, labour, and industrial policies" – that seeks to translate public perception data into actionable digital, labour, and industrial policy recommendations.

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[1] Putra, B. A. (2024). Governing AI in Southeast Asia: ASEAN's Way Forward. *Frontiers in AI.*
[2] US-ASEAN Business Council (2023). AI Governance in Southeast Asia.
[3] Lloyd's Register Foundation (2021). World Risk Poll.
[4] Oxford Insights (2023). Government AI Readiness Index.
[5] Portulans Institute (2023). Network Readiness Index.
[6] Center for AI and Digital Policy (2023). AI and Democratic Values Index.
[7] Global Center on AI Governance (2024). Global Index on Responsible AI.
[8] Carnegie Endowment for International Peace (2022). AI Global Surveillance Index.
[9] Roupakia, Z. and Castañeda-Navarrete J. (2025). Feminist principles for an inclusive and transformative Artificial Intelligence. *Canadian Journal of Communication.*

Key messages

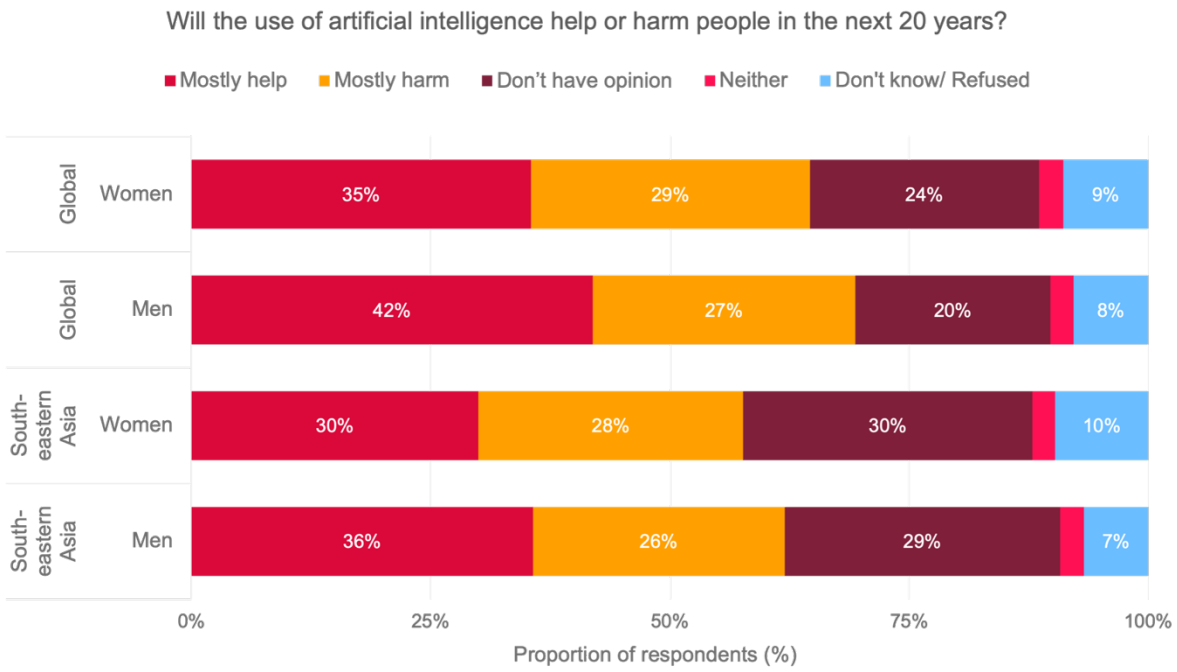
1. Southeast Asian citizens exhibit a cautious view towards AI, with only 33% believing AI will mostly help society – below the global average of 39%

This sentiment varies by country: Malaysia, Cambodia, and Indonesia show more concern than optimism, while Vietnam, Thailand, and Singapore express greater confidence in AI's benefits. These findings highlight the importance of tailoring governance approaches to national contexts.

2. Women across Southeast Asia are less optimistic about AI than men, especially where digital inclusion is limited

Globally, 42% of men and 35% of women believe AI will mostly help society in the next 20 years. In Southeast Asia, optimism drops – only 36% of men and 30% of women express confidence in AI's benefits (Figure ES.1). Countries with poor digital inclusion, such as Cambodia, demonstrate the widest gender gaps in AI optimism. These findings underscore the need for AI governance to address not only technical risks but also structural barriers to participation and representation.

FIGURE ES.1. WOMEN GLOBALLY AND ACROSS SOUTHEAST ASIA ARE LESS OPTIMISTIC THAT AI WILL HELP IN THE NEXT 20 YEARS



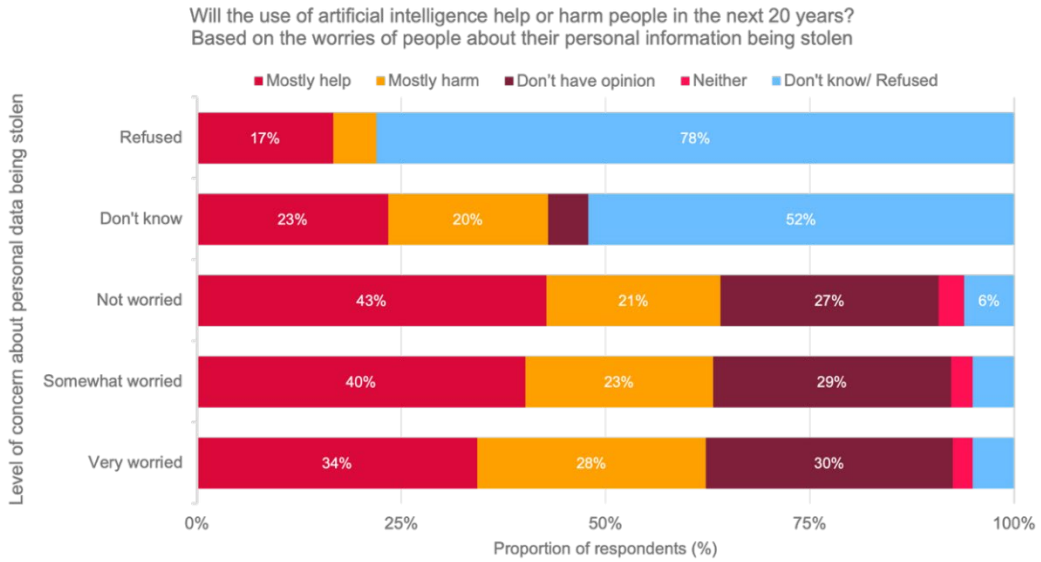
Note: Response to the question "These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?" Values less than 5% are not displayed.

Source: Lloyd's Register Foundation, World Risk Poll 2021.

3. Data security is a widespread concern across the region, with Southeast Asia ranking globally among the most concerned regions about data theft

These concerns appear to be linked to AI perceptions: individuals most worried about data security tend to be less optimistic about AI. This emphasises the importance of robust data governance in building public trust in AI systems (Figure ES.2).

Figure ES.2. IN SOUTHEAST ASIA, PEOPLE WHO ARE "VERY WORRIED" ABOUT THEIR PERSONAL DATA BEING STOLEN ARE LESS OPTIMISTIC ABOUT AI



Note: Response to the question "These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?" And "When you use the internet or social media, how worried are you that your personal information could be stolen?" Values less than 5% are not displayed. **Source:** Lloyd's Register Foundation, World Risk Poll 2021.

4. Countries with responsible and inclusive AI governance frameworks and stronger implementation capabilities show higher levels of optimism in AI's benefits

This correlation is particularly pronounced where efforts extend beyond a clear strategy and sound regulation to include accessible infrastructure, inclusive frameworks, representative data practices, and practical oversight mechanisms (Figure ES.3). Public trust is built not through strategy and regulation alone but through demonstrable capacity and accountability.

FIGURE ES.3. GLOBAL AND WOMEN'S OPTIMISM ABOUT AI IS HIGHER IN COUNTRIES WITH STRONGER RESPONSIBLE AI GOVERNANCE AND CAPACITIES

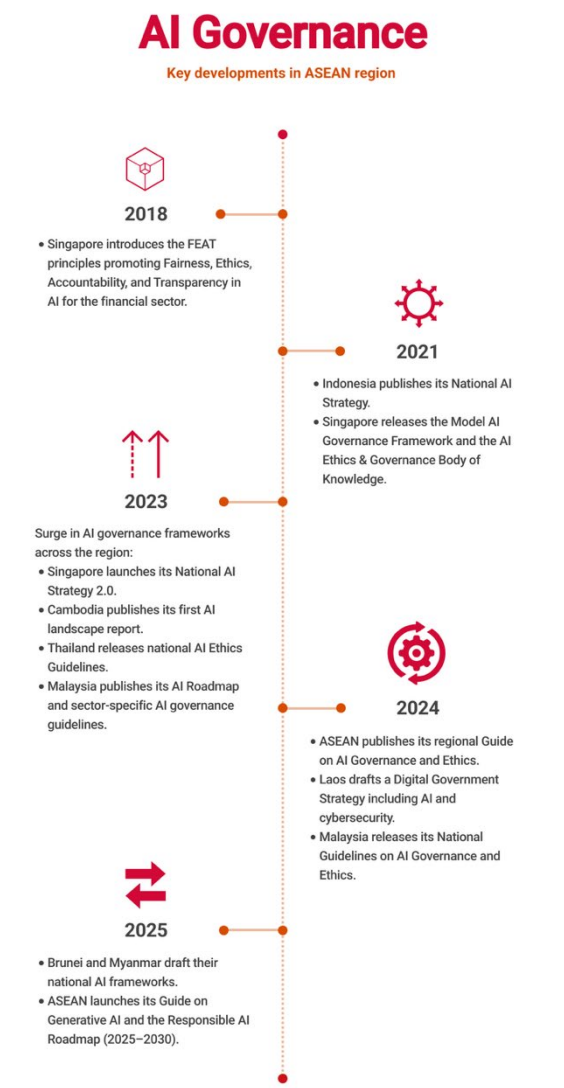
Note: Scatterplots show the relationship between women's AI optimism (top row) and global AI optimism (bottom row) and national scores in responsible AI governance (first column) and AI capacities (second column).

Source: Lloyd's Register Foundation, World Risk Poll 2021. Global Index of Responsible AI (2024).

5. Regional and national AI policies in ASEAN promote responsible governance, but implementation remains uneven and largely voluntary, with few enforceable safeguards

Regional AI frameworks provide a forward-looking vision, including commitments to sustainability and inclusion, but remain non-binding (Figure ES.4). The ASEAN Digital Economy Framework Agreement (DEFA), still under negotiation, may indirectly influence AI governance through provisions on data protection and cross-border data flows, but binding AI governance commitments have yet to emerge. National policies often prioritise human-centric values, and progress is evident in areas like transparency and adaptation to local contexts. But several critical dimensions of governance remain undeveloped. Opportunities exist in developing mechanisms for overriding, repairing, or decommissioning problematic systems. Efforts to ensure AI is inclusive are identified; however, these remain mainly focused on data representation, with limited attention to team diversity or public participation. Other opportunity areas include addressing environmental impacts and establishing legal boundaries for high-risk AI applications, such as mass surveillance or social scoring, which are essential to building public trust and defining the limits of responsible AI deployment.

FIGURE ES.4. KEY DEVELOPMENTS IN AI GOVERNANCE IN ASEAN REGION



Source: Cambridge Industrial Innovation Policy (2025).

6. Most ASEAN countries have adopted data protection laws but differ in how they address the specific risks AI poses to privacy and accountability

Data protection plays a critical role in shaping how AI systems are governed, particularly as these systems increasingly rely on personal, biometric, and other sensitive data. While a few countries have introduced more targeted provisions for biometric data, many legal frameworks remain general and do not fully address the unique challenges AI presents. Few explicitly require privacy impact assessments for automated decisions, and in some jurisdictions, public sector data practices fall outside core oversight mechanisms. These differences highlight the need – and opportunity – for greater regional alignment to support consistent safeguards and build trust in cross-border AI deployment.

Key recommendations

1. Foster inclusive, context-sensitive AI capacity and governance

- Support the development of national AI initiatives in ASEAN countries with lower AI readiness, drawing on the experience of projects such as ThaiLLM[10] (Thailand, developed through public–private collaboration) and ILMU AI[11] (Malaysia, a private-led initiative with public support).
- Provide dedicated funding for localised AI models in under-represented languages across the region.
- Foster public–private collaborations for responsible AI development to reduce reliance on foreign systems and promote inclusive innovation.
- Adopt a gender-responsive governance approach drawing on international practice, such as UNESCO's *Women for Ethical AI* outlook study and the recommendations of the Global Partnership on Artificial Intelligence (GPAI).[12]
- Advance inclusive capacity-building, including interdisciplinary training and participatory design processes involving marginalised communities, building on initiatives such as the planned ASEAN AI Safety Network.
- Expand AI skills development and digital literacy programmes, and raise public awareness of AI risks, ethical use, and safe online practices.

2. Strengthen legal and institutional foundations for responsible AI

- Encourage ASEAN Member States to translate regional guidance – such as the *ASEAN Guide on AI Governance and Ethics (2024)*, its Generative AI extension *(2025)*, and the *ASEAN Responsible AI Roadmap (2025–2030)* – into national legal frameworks with enforceable safeguards for high-risk AI systems, particularly in public services.
- Establish clear legal boundaries prohibiting AI uses that are incompatible with fundamental rights, particularly mass biometric surveillance and social scoring, in line with UNESCO's *Recommendation on the Ethics of Artificial Intelligence*.
- Expand engagement with UNESCO's Readiness Assessment Methodology (RAM) and support the adoption of Ethical Impact Assessment (EIA) as a tool to evaluate risks before deployment.

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[10] Corinium Intelligence (2025). *Shaping ASEAN's AI Future: Paving the Way for Responsible Innovation.*
[11] YTL AI Labs (2025). ILMU: Malaysia's AI.
[12] GPAI (2024). *Transformative AI Policy for Gender Equality;* UNESCO (2024). *Women for Ethical AI: Outlook Study on AI and Gender.*

- Strengthen or establish independent oversight bodies with enforcement powers and require human-in-the-loop safeguards for consequential public sector AI.
- Improve inter-ministerial coordination and multi-stakeholder collaboration on AI policy.
- Develop accountability frameworks and testing standards to ensure robustness and safety before deployment.

3. Advance regional harmonisation of data protection laws

- Accelerate alignment of all ASEAN national data protection laws with best practices, building on progress achieved in countries such as Indonesia, Malaysia, the Philippines, Thailand, and Singapore, and leveraging ongoing Digital Economy Framework Agreement negotiations on personal data protection and cross-border data flows.
- Prioritise harmonisation in key areas such as automated decision-making provisions, and biometric data governance, with a focus on public sector applications.
- Strengthen enforcement and redress mechanisms across all Member States.

4. Accelerate the implementation of AI governance through regional and international cooperation

- Translate the *ASEAN Responsible AI Roadmap (2025–2030)* into national action plans with clear benchmarks, dedicated institutional leadership, and defined periodic reviews.
- Establish knowledge-sharing mechanisms between countries with advanced AI ecosystems and those in the earlier stages of development to address uneven implementation capacity.
- Leverage the Digital Economy Framework Agreement to binding interoperability standards for cross-border AI deployment and data sharing.
- Expand regional initiatives with shared AI auditing tools, interoperable testing protocols, cross-border model evaluation mechanisms, and joint regulatory sandboxes.
- Strengthen engagement in international cooperation initiatives, such as the Global Partnership on Artificial Intelligence, to build institutional capacity and align ASEAN efforts with evolving global governance norms.

5. Pioneer environmental sustainability for AI in Southeast Asia

- Develop guidelines for environmentally sustainable AI development and deployment, building on international practice[13] and leveraging existing green digital infrastructure initiatives such as the *ASEAN Guide on Sustainable Data Centre Development*.
- Develop a measurement framework to create ASEAN-specific standards for tracking the environmental impacts of AI systems.
- Promote reporting of energy use, carbon impact, and resource intensity of AI in public procurement and regulatory compliance.

[13] OECD and GPAI (2022). *Measuring the environmental impacts of AI compute and applications: The AI footprint.*

1. Introduction

Southeast Asia stands at a critical juncture in its AI journey. With projections suggesting AI could contribute up to USD950 billion to the region's GDP by 2030 – equivalent to 10–18% of national output in several countries[14] – Association of Southeast Asian Nations (ASEAN) Member States are racing to harness its economic potential through ambitious national strategies and regional frameworks. Yet this technological transformation also introduces systemic risks that could undermine public trust and reinforce existing inequalities if governance fails to keep pace.[15]

The rapid advancement and dissemination of generative AI[16] have gained significant attention because of the technology's transformative potential. Growing evidence suggests it can drive productivity, innovation, and human development, for example by improving efficiency across business functions, enabling personalised learning, accelerating research and development, supporting clinical decision-making, and reducing barriers to market entry.[17,18] At the same time, generative AI raises concerns about reliability, accuracy, and bias in the content it generates. Understanding the data that underpins these systems, its cultural relevance, and its limitations is essential to building trust and ensuring safe adoption.[19,20]

Beyond generative AI, broader risks are already visible. The *International AI Safety Report* warns of the risks posed by general-purpose models, including disinformation, cyber-attacks, and the loss of human oversight in critical systems.[21] Evidence shows that AI systems and automated decision-making can reinforce social inequalities when deployed without adequate safeguards: recruitment tools have penalised CVs associated with women's colleges;[22] facial recognition technologies misidentify women and individuals with darker skin tones at higher rates;[23] and predictive systems in social services have excluded working-class families without avenues for contesting decisions.[24,25]

These risks are particularly relevant in Southeast Asia, a region of profound linguistic, cultural, and digital diversity, with over 1,000 spoken languages. However, many of these languages are under-represented in AI training datasets, limiting the relevance of AI systems and increasing the risk of

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[14] Putra, B. A. (2024). Governing AI in Southeast Asia: ASEAN's Way Forward. *Frontiers in AI.*
[15] US-ASEAN Business Council (2023). *AI Governance in Southeast Asia.*
[16] Generative AI refers to AI models or systems that create new content, such as text, images, music, and videos, by learning patterns from vast amounts of data, often in response to human language queries or prompts.
[17] Calvino, F. et al. (2025). *The effects of generative AI on productivity, innovation and entrepreneurship.*
[18] UNDP (2025). *Human Development Report 2025. A matter of choice: People and possibilities in the age of AI*.
[19] Calvino, F. et al. (2025). Op cit.
[20] UNDP (2025). Op. cit.
[21] Bengio, Y. (Chair) (2025). *International AI Safety Report.* Frontier AI Taskforce, Department for Science, Innovation and Technology (DSIT), UK Government. Note: The report was mandated by the nations attending the AI Safety Summit in Bletchley, UK. Thirty nations, the UN, the OECD, and the EU each nominated a representative to the report's Expert Advisory Panel. A total of 100 AI experts contributed, representing diverse perspectives and disciplines.
[22] Dastin, J. (2018). Amazon Scrapped AI Recruiting Tool That Showed Bias Against Women. Reuters.
[23] Buolamwini, J. and Gebru, T. (2018). Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification. *Proceedings of Machine Learning Research.*
[24] Eubanks, V. (2018). *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. Picador.
[25] O'Neil, C. (2017). *Weapons of Math Destruction*. Penguin Books.

excluding communities.[26] Effective governance in this context requires culturally responsive and locally grounded approaches that reflect ASEAN's diverse sociotechnical realities.

Public perceptions offer a crucial but often overlooked dimension of effective AI governance. While technical standards and legal instruments provide essential guardrails, they must ultimately align with the lived concerns of citizens to ensure legitimacy and public trust. This alignment becomes particularly important as global frameworks evolve from high-level principles towards more operational approaches that emphasise risk classification, mechanisms of redress, and institutional responses.[27,28]

This policy brief explores how public perceptions of AI risks align with governance approaches across ASEAN countries. It draws on data from the 2021 World Risk Poll (WRP)[29] and consultations with 23 stakeholders from industry, academia, and government conducted between June and July 2025. The central questions addressed include: How do Southeast Asian citizens perceive AI risks? How do these perceptions vary by country and gender? And to what extent do existing governance frameworks address these concerns?

The WRP is conducted by Gallup and funded by Lloyd's Register Foundation. In its 2021 round it surveyed over 125,000 individuals across 121 countries, analysing, among other themes, regional patterns in concerns about AI harm, data security, and privacy. The analysis integrates WRP findings with data from leading AI governance indices and monitoring frameworks, including the OECD AI Incidents Monitor, the Government AI Readiness Index, the Network Readiness Index, the AI and Democratic Values Index, the Global Index on Responsible AI, and the AI Global Surveillance Index. Together, these sources illuminate both public perceptions and institutional responses across the region.

The brief applies an inclusive AI policy analysis framework[30] to assess how effectively Southeast Asian countries address risks through their national policies, ethical principles, and data protection laws. Special attention is given to gendered dimensions of AI risk perception and regulatory coverage, highlighting where implementation gaps and policy inconsistencies may undermine public trust.

This publication forms part of a broader Lloyd's Register Foundation-funded series – "Policymaking for a more resilient world: Leveraging the World Risk Poll for more effective digital, labour, and industrial policies" – that seeks to translate public perception data into actionable digital, labour, and industrial policy recommendations. Following this introduction, Section 2 presents findings on AI risk perception; Section 3 analyses the key drivers shaping those perceptions; Section 4 evaluates national AI policies and data protection laws; and Section 5 concludes with policy recommendations for strengthening inclusive AI governance across Southeast Asia.

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[26] Aji, A. F. et al. (2023). *Current Status of NLP in Southeast Asia with Insights from Multilingualism and Language Diversity.* ACL.
[27] OECD (2025). *Towards a Common Reporting Framework for AI Incidents*. OECD AI Papers No. 34.
[28] NIST (2023). AI Risk Management Framework.
[29] Lloyd's Register Foundation (2021). World Risk Poll.
[30] Roupakia, Z. and Castañeda-Navarrete J. (2025). Feminist principles for an inclusive and transformative Artificial Intelligence. *Canadian Journal of Communication.*

2. Public perceptions of AI and digital risk

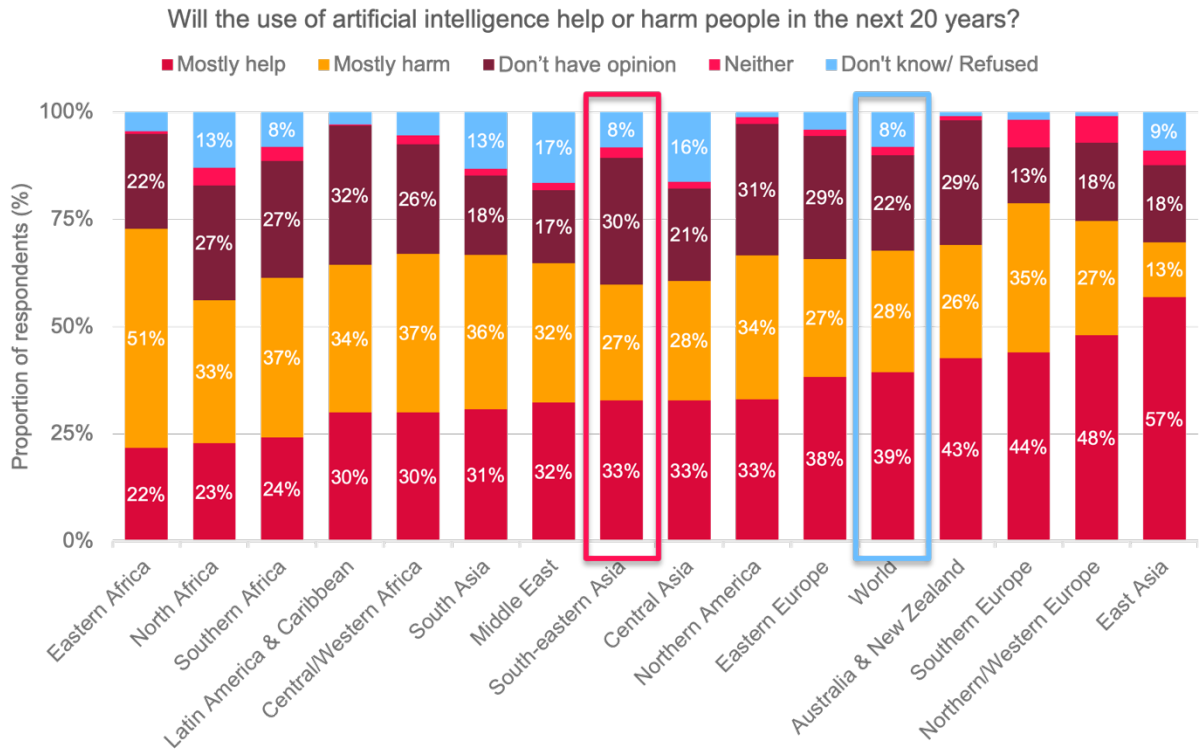
Understanding how people perceive the risks associated with AI and digital technologies provides insights into public confidence, institutional readiness, and areas where regulation may be misaligned with concern. This section analyses public perceptions of AI and digital risk across Southeast Asia, using data from the 2021 World Risk Poll. It examines three dimensions: overall regional sentiment towards AI, gender differences in the perceived benefits and harms, and levels of concern about data security.

2.1 Regional sentiments on AI risk

Southeast Asia demonstrates a cautious view on AI's impact

According to the 2021 World Risk Poll, 33% of respondents across the region believe AI will mostly help society, while 27% think it will mostly harm society (Figure 1). Compared to other regions, Southeast Asia's level of optimism aligns with Central Asia and Northern Europe but falls well below East Asia (57%), Northern Western Europe (48%), and the world (39%). By contrast, regions with lower infrastructure or higher governance gaps (such as Eastern Africa) report more concern than optimism (51%).

FIGURE 1. SOUTHEAST ASIA EXHIBITS A CAUTIOUS VIEW ON AI'S IMPACT

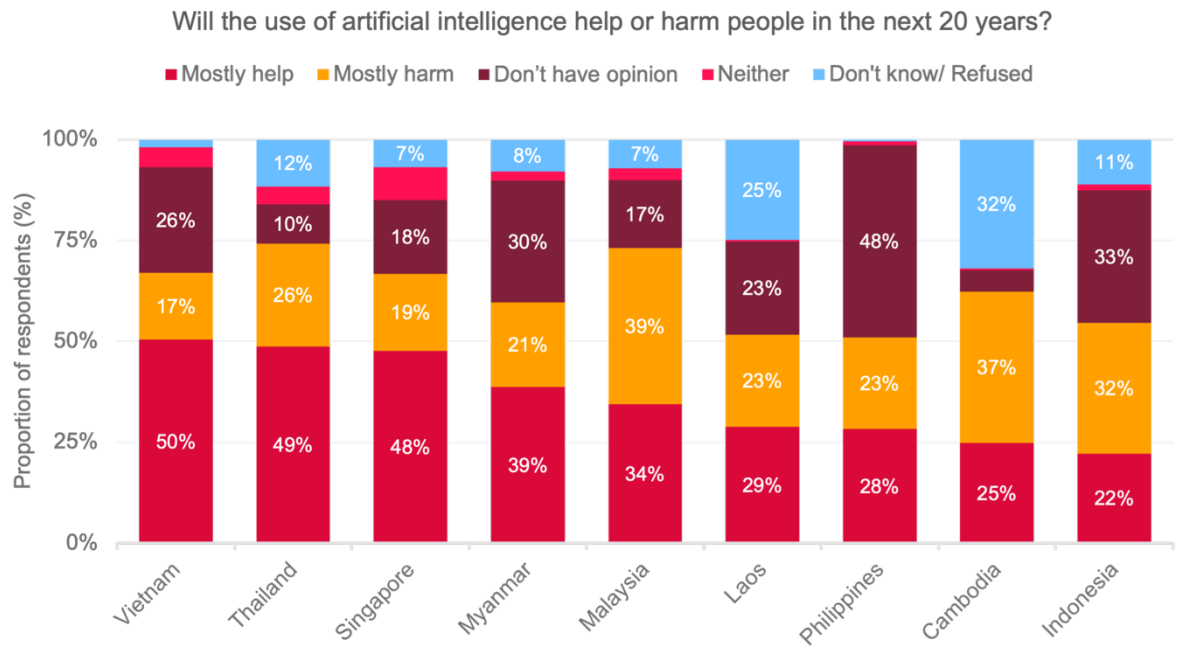


Note: Response to the question "These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?" Values less than 5% are not displayed.

Source: Lloyd's Register Foundation, World Risk Poll 2021.

Malaysia, Cambodia, and Indonesia are the only countries where respondents believe AI will harm more than help society (Figure 2). The most AI-optimistic countries are Vietnam (50%), Thailand (49%), and Singapore (48%).

FIGURE 2. IN MALAYSIA, CAMBODIA, AND INDONESIA, MORE PEOPLE BELIEVE AI WILL HARM MORE THAN HELP SOCIETY



Note: Response to the question "These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?" Values less than 5% are not displayed.

Source: Lloyd's Register Foundation, World Risk Poll 2021.

However, this is an evolving landscape. As generative AI systems see wider adoption, public perceptions continue to shift. A more recent survey focused on AI products and services identifies Indonesia and Thailand among the countries with the highest awareness levels and most favourable perceptions globally, with around 80% of respondents agreeing that such products have more benefits than drawbacks.[31] At the same time, people remain less positive about AI's role in areas such as disinformation, showing that optimism depends on the dimension considered.

These trends also align with the *UN Global Risk Report 2024,*[32] which identifies AI and frontier technologies as one of the top 10 risks most likely to become a crisis in the next 1–7 years, particularly in East and Southeast Asia. This contrasts with other regions worldwide, where AI risks do not feature as prominently. The findings underline Southeast Asia's cautious optimism: citizens recognise both the potential benefits of AI and the governance challenges its rapid diffusion may pose.

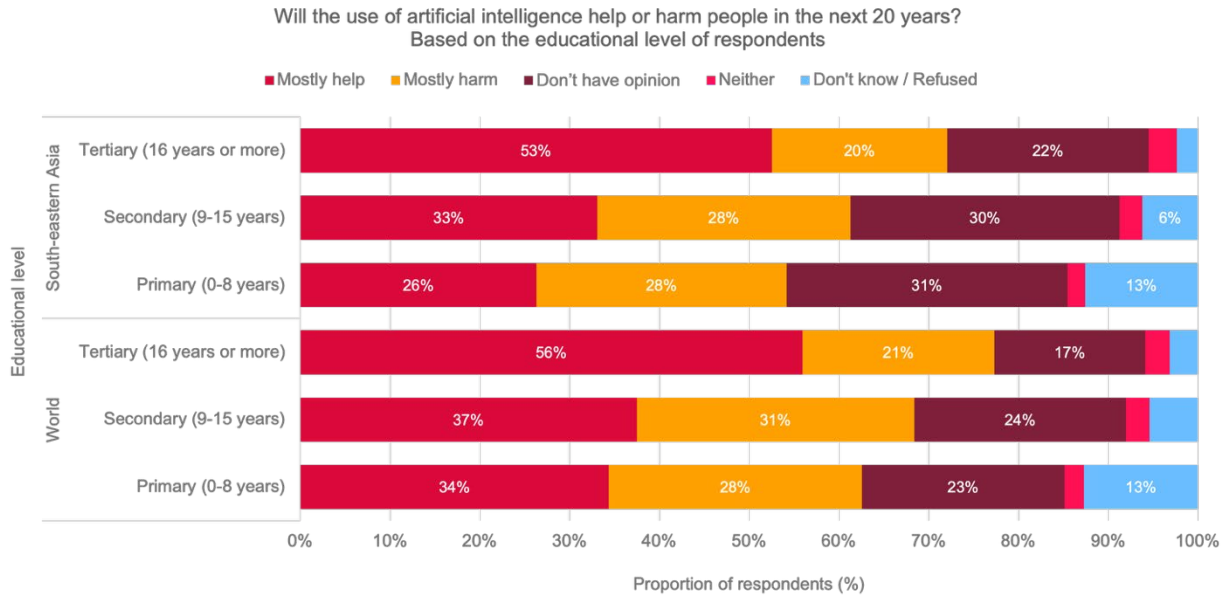
[31] Ipsos (2025). The Ipsos AI Monitor 2025.
[32] United Nations (2024). *Global Risk Report 2024*.

2.2 Demographic differences in AI risk perceptions

Across Southeast Asia, people with higher levels of education tend to be more optimistic about the potential impact of AI over the next 20 years

Globally, 56% of respondents with tertiary qualifications believe AI will mostly help, compared with just 34% of those with only primary education. A similar pattern is seen in Southeast Asia, where 53% of those with tertiary education think AI will mostly help, in contrast to only 26% of respondents with primary education (Figure 3).

FIGURE 3. THOSE WITH TERTIARY EDUCATION ARE MORE OPTIMISTIC ABOUT AI OVER THE NEXT 20 YEARS



Note: Response to the question "These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?" Values less than 5% are not displayed.

Source: Lloyd's Register Foundation, World Risk Poll 2021.

Perceptions of AI also vary across age groups. Younger people tend to be more optimistic about its potential impact. Globally, 41% of respondents aged 15–29 believe AI will mostly help over the next 20 years, compared to 37% of those aged 65 and over. In Southeast Asia, the contrast is even more pronounced: 23% of respondents aged 65 and over believe AI will mostly help, compared to 37% of those aged 15–29.

The Ipsos AI Monitor reported similar findings based on data collected between March and April 2025.[33] These patterns, across both education and age, confirm the importance of skills development and awareness-raising, particularly among older generations.

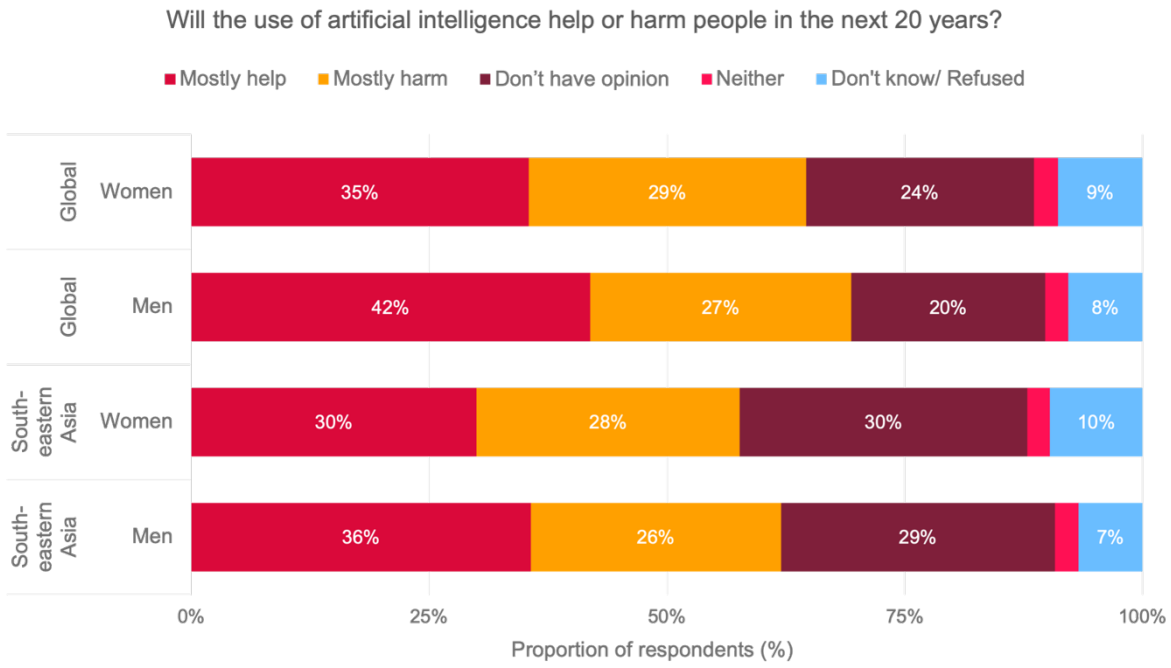
[33] Ipsos (2025). The Ipsos AI Monitor 2025.

Women across Southeast Asia are less optimistic about AI than men, especially where digital inclusion is limited

Globally, 42% of men and 35% of women believe AI will mostly help people in the next 20 years.[34] In Southeast Asia, this optimism is notably lower: only 36% of men and 30% of women share this positive outlook (Figure 4). This gap is visible in every ASEAN country.

Cambodia reports the largest gender gap in AI optimism in the region, at 17 percentage points (pp). Singapore, despite high digital infrastructure and investment in AI, shows an 11 pp gap, followed by the Philippines (10 pp). By contrast, Thailand shows no measurable gender difference (Figure 5).

FIGURE 4. WOMEN GLOBALLY AND ACROSS SOUTHEAST ASIA ARE LESS OPTIMISTIC THAT AI WILL HELP IN THE NEXT 20 YEARS

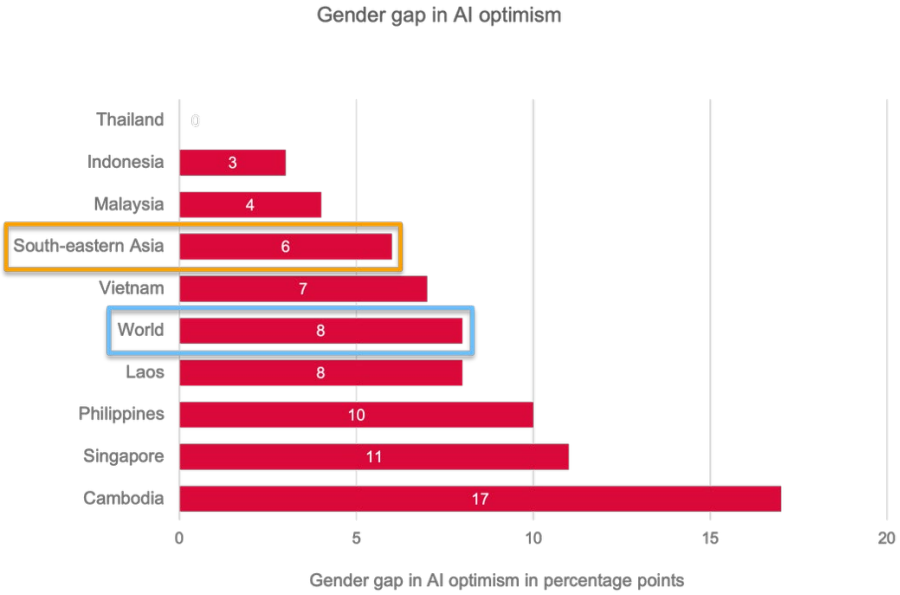


Note: Response to the question "These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?" Values less than 5% are not displayed.

Source: Lloyd's Register Foundation, World Risk Poll 2021.

[34] Lloyd's Register Foundation (2021). World Risk Poll: Focus on Risk and Gender.

FIGURE 5. THE PHILIPPINES, SINGAPORE, AND CAMBODIA HAVE A HIGHER GENDER GAP IN AI OPTIMISM THAN THE GLOBAL AVERAGE



Note: Gender gap is measured as the difference in the percentage of men and women who say AI will "mostly help society", based on responses to the question "These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?" Values shown in percentage points.

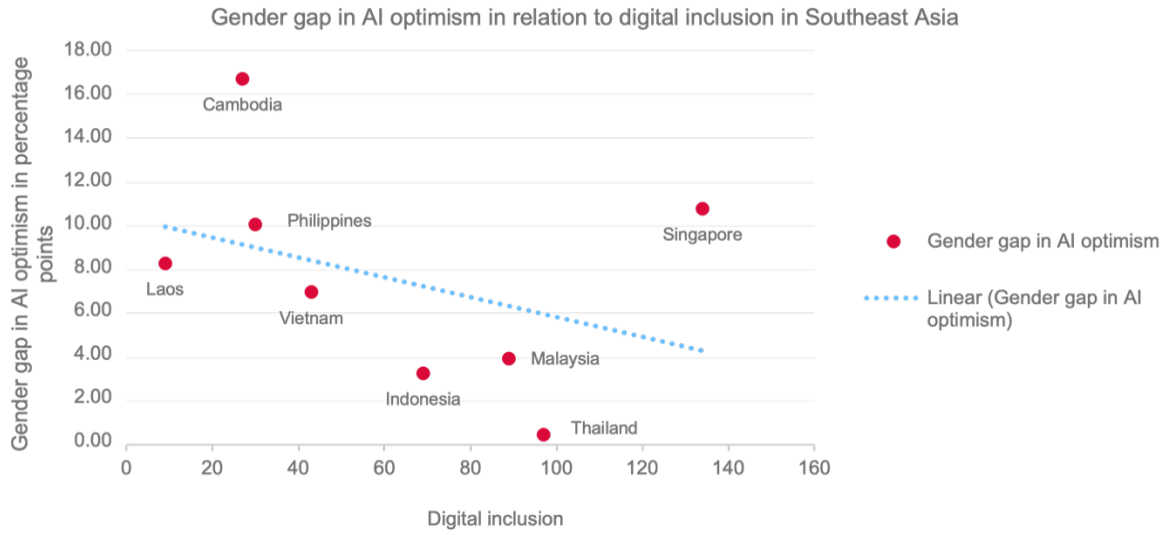
Source: Lloyd's Register Foundation, World Risk Poll 2021.

A comparison with digital inclusion scores from the Network Readiness Index (see Appendix B) suggests that the gender gap in AI optimism is wider in countries where women face greater barriers to digital participation. As shown in Figure 6, countries with lower digital inclusion (Cambodia, the Philippines, Laos) demonstrate the widest gender gaps (8–17 pp). Thailand and Malaysia – countries with stronger digital inclusion – show smaller gender disparities (0.5–4 pp). Singapore performs strongly on digital inclusion but still reports substantial gender gaps, indicating that access alone does not ensure equal confidence in AI.

These gender gaps in AI optimism may reflect deeper governance challenges. UNESCO's recent analysis of AI policies globally found that fewer than 20 out of 138 countries include substantive gender provisions, and even fewer have enforceable mitigation mechanisms.[35] In Southeast Asia specifically, while countries often mention fairness and inclusion in their AI strategies, few include gender-specific risk assessments or targeted safeguards for women's participation.[36] Where women face structural barriers to digital participation and have limited voice in AI governance, lower confidence in AI's benefits may reflect concerns about exclusion rather than a lack of understanding.[37] Gender gaps in AI perception are not just technical – they are tied to who is represented, who is protected, and who feels included in shaping AI futures.

[35] UNESCO (2024). *Women for Ethical AI: Outlook Study on AI and Gender.*
[36] Fournier-Tombs, E. et al. (2023). *Gender-Sensitive AI Policy in Southeast Asia*. United Nations University – Macau and ITU.
[37] ASEAN and UN Women (2024). *ASEAN Gender Outlook: Achieving the SDGs for All and Leaving No Woman or Girl Behind*.

FIGURE 6. COUNTRIES WITH POOR DIGITAL INCLUSION DEMONSTRATE THE WIDEST GENDER GAPS IN PERCEPTION THAT AI WILL MOSTLY HELP



Note: Gender gap is measured as the difference in the percentage of men and women who say AI will "mostly help society", based on responses to the question "These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?" Values shown in percentage points. The higher the score, the better the digital inclusion.

Source: Author's analysis (2025), based on the World Risk Poll 2021, Lloyd's Register Foundation; Portulans Institute (2023). Network Readiness Index.

2.3 Data security concerns

Southeast Asia ranks among the regions most concerned about data theft globally

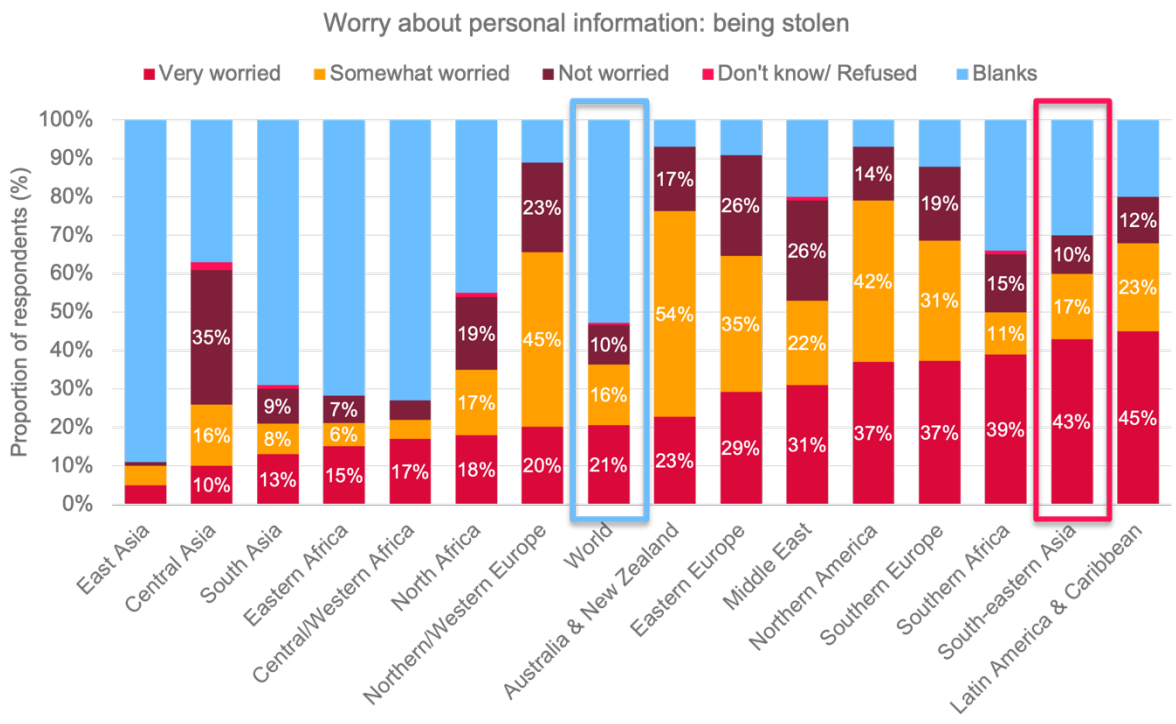
According to the 2021 World Risk Poll, 43% of respondents across the region report being "very worried" about their personal data being stolen – second only to Latin America and the Caribbean (45%) and more than double the global average of 21% (Figure 7). This concern spans countries with both weak and strong regulatory frameworks.

Incident data from the OECD AI Incident Monitor[38] reinforces these findings. In Southeast Asia, the most prevalent themes of reported AI-related issues involve privacy and data governance, digital security, and human rights (Figure 8).

Notably, levels of concern tend to be higher in countries with more advanced governance frameworks. In Singapore, Thailand, Malaysia, and Indonesia – countries that score higher on the Oxford Insights AI Readiness Index's Governance and Ethics dimension[39] – concern about data misuse remains high.[3] This may reflect not weaker protections but greater public awareness and more visible regulatory debates.

[38] OECD (2025). Towards a common reporting framework for AI incidents.
[39] Oxford Insights (2024). Government AI Readiness Index.

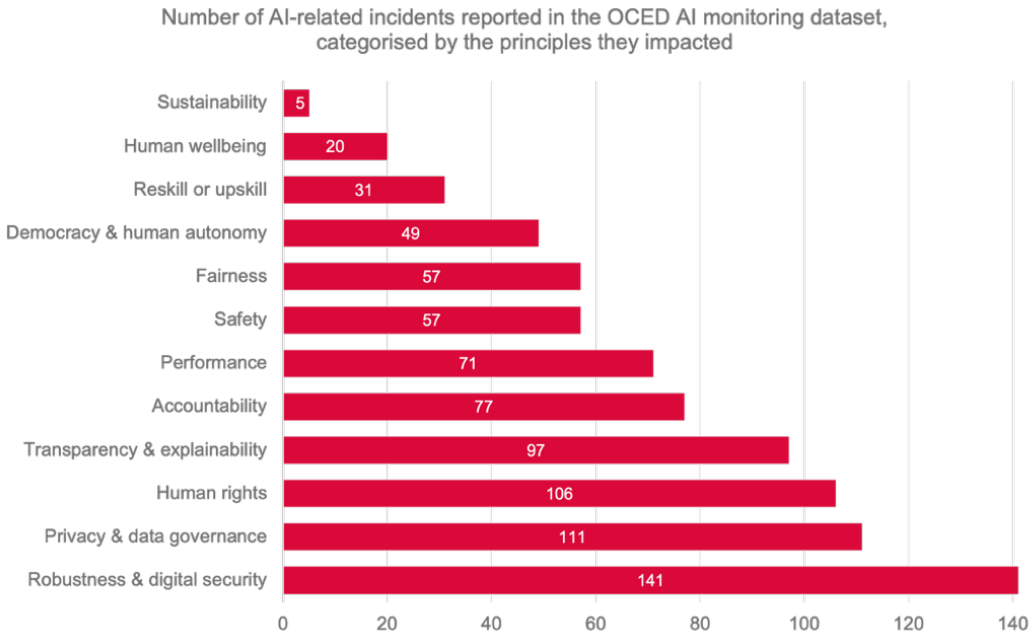
FIGURE 7. SOUTHEAST ASIA IS THE SECOND MOST CONCERNED REGION ABOUT DATA THEFT



Note: Response to the question "When you use the internet or social media, how worried are you that your personal information could be stolen?" Values less than 5% are not displayed.

Source: Lloyd's Register Foundation, World Risk Poll 2021.

FIGURE 8 HUMAN RIGHTS, PRIVACY AND DATA GOVERNANCE, AND DIGITAL SECURITY ARE THE MOST PREVALENT THEMES OF AI INCIDENTS REPORTED IN THE ASEAN REGION



Source: Author's analysis based on OECD AI Incident Monitor data, accessed in January 2025.

3. Drivers of perceptions of the risks associated with the use of AI

Public perception of AI is shaped by not only exposure to technologies but also institutional trust, regulatory visibility, and the broader political and governance environments. This section examines three drivers of how people perceive AI-related risks: trust in government, concern over data misuse, and the quality of national AI governance and countries' digital institutional readiness.

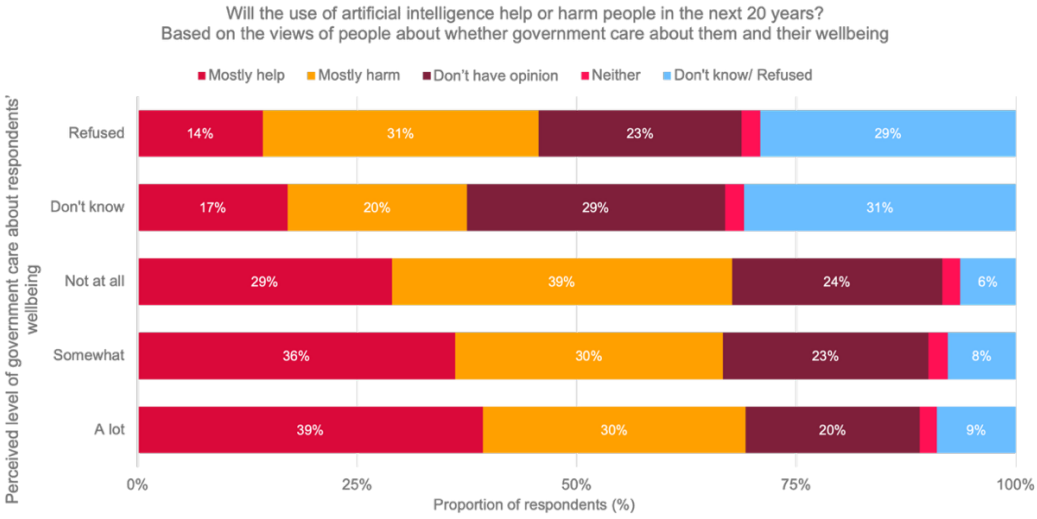
3.1 Trust in government and perceptions of AI

Globally, higher trust in government is associated with more optimistic views on AI

According to the World Risk Poll 2021, individuals who believe their government cares "a lot" about their wellbeing are more optimistic about AI: 39% believe AI will mostly help society, compared to just 29% among those who feel their government does not care "at all". Conversely, 39% of those with low government trust believe AI will mostly harm society – the highest level of pessimism across all groups (Figure 9).

Uncertainty is also concentrated among those with low trust. Among people who responded "don't know" when asked whether their government cares, 29% said they didn't have an opinion on AI, and 31% selected "don't know/refused" when asked about AI's impact. These findings highlight the importance of institutional legitimacy and responsiveness in shaping how the public perceives new technologies. Where trust is low, people may be less likely to believe that AI systems will be deployed fairly, safely, or with public benefit in mind.

FIGURE 9. INDIVIDUALS WHO BELIEVE THEIR GOVERNMENT CARES "A LOT" ABOUT THEIR WELLBEING ARE MORE OPTIMISTIC ABOUT AI



Note: Response to the question "These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?" And "How much do you think the government of your country cares about you and your wellbeing?" Values less than 5% are not displayed.

Source: Lloyd's Register Foundation, World Risk Poll 2021.

3.2 Data privacy concerns and AI perceptions

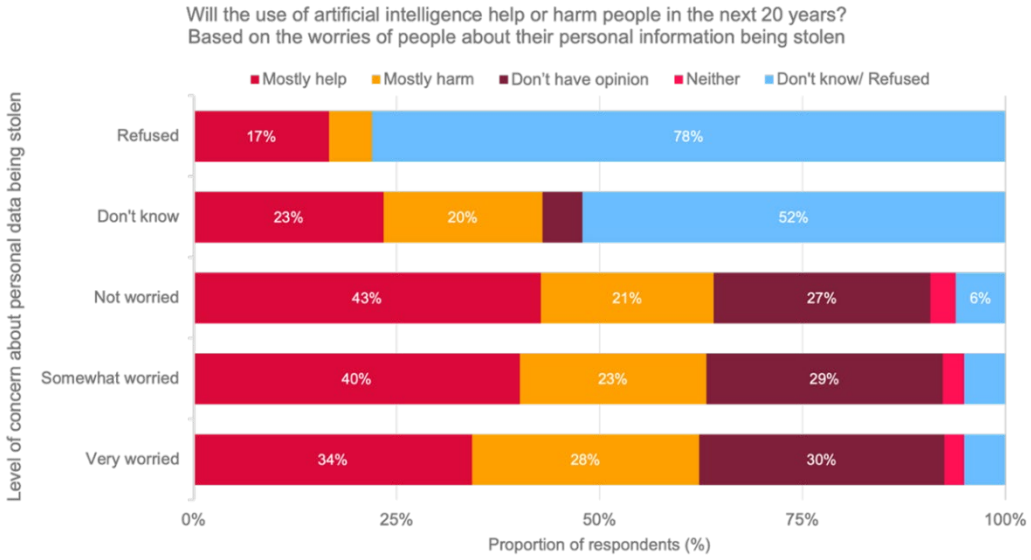
In Southeast Asia, concern about personal data misuse is linked to lower optimism and greater uncertainty about AI

Globally, people who are “somewhat worried” about personal data theft are the most optimistic about AI, with 43% believing it will mostly help society. In contrast, concern over personal data theft appears to shape how people perceive AI in Southeast Asia. According to the 2021 World Risk Poll, only 34% of people who are “very worried” about personal data theft believe AI will mostly help society, compared to 43% among those who are not worried (Figure 10).

This suggests that in Southeast Asia, data security concerns may reflect deeper discomfort with how AI systems are governed or implemented, especially in contexts where surveillance, profiling, or data extraction are more visible. Regional incident data from the OECD AI Incident Monitor supports this view. Privacy and digital security are the most frequently reported AI incidents in Southeast Asia (Figure 8), often linked to facial recognition.

Concern remains high even in countries with stronger governance frameworks**.** In settings with more visible regulation, such as Singapore,[40] citizens may be more aware of digital risks, leading to more cautious perceptions of AI.

FIGURE 10. IN SOUTHEAST ASIA, PEOPLE WHO ARE “VERY WORRIED” ABOUT THEIR PERSONAL DATA BEING STOLEN ARE LESS OPTIMISTIC ABOUT AI



Note: Response to the question “These days, there are machines or robots that can think and make decisions on their own, often known as artificial intelligence. Do you think artificial intelligence will mostly help or mostly harm people in this country in the next 20 years?” And “When you use the internet or social media, how worried are you that your personal information could be stolen?” Values less than 5% are not displayed.

Source: Lloyd’s Register Foundation, World Risk Poll 2021.

[40] Oxford Insights (2024). Government AI Readiness Index.

3.3 AI governance quality and AI perceptions

Public optimism about AI, including among women, is higher in countries with stronger governance frameworks and capacity for responsible AI, but the type of governance matters

To better understand what shapes public confidence in AI, this section examines how perceptions vary with governance performance across two leading global indices: the Global Index on Responsible AI (GIRAI)[41] and the Government AI Readiness Index (GAIR)[42] (see Appendix B). These indices assess complementary aspects of governance, including policy design, institutional capacity, digital infrastructure, rights protection, and implementation capability.

From the GIRAI, we use two dimensions:[43]

- **Responsible AI governance** evaluates whether national frameworks safeguard rights through oversight, transparency, proportionality, and redress. It also considers whether countries have AI strategies, impact assessments, and ethical procurement guidance.
- **Responsible AI capacities** assess whether governments have the institutional capabilities to implement responsible AI, such as skilled public sector staff and regulatory bodies.

From the GAIR Index, we focus on two core components:[44]

- **Government readiness** reflects the strength of a country's public sector governance, including national strategies, regulatory quality, data protection, cybersecurity, and ethics frameworks.
- **Data and infrastructure readiness** captures a country's ability to support AI through strong digital infrastructure, the availability of high-quality data, and the extent to which data represents the population.

Scatterplots based on WRP data show a consistent pattern: AI optimism rises with higher governance strength for both the general population and women. But the association is more pronounced where capacity and infrastructure are high, rather than where policy frameworks alone are in place.

In the GIRAI results, responsible AI capacities are more clearly associated with optimism than governance structures alone. Among GAIR dimensions, data and infrastructure readiness shows the clearest upward trend in global and women's optimism.

This suggests that public trust, especially among women, responds more to visible capabilities and inclusive access than to policy on paper. Where countries invest in infrastructure, inclusive data ecosystems, and practical tools for oversight, people are more likely to believe AI will help society in the next 20 years.

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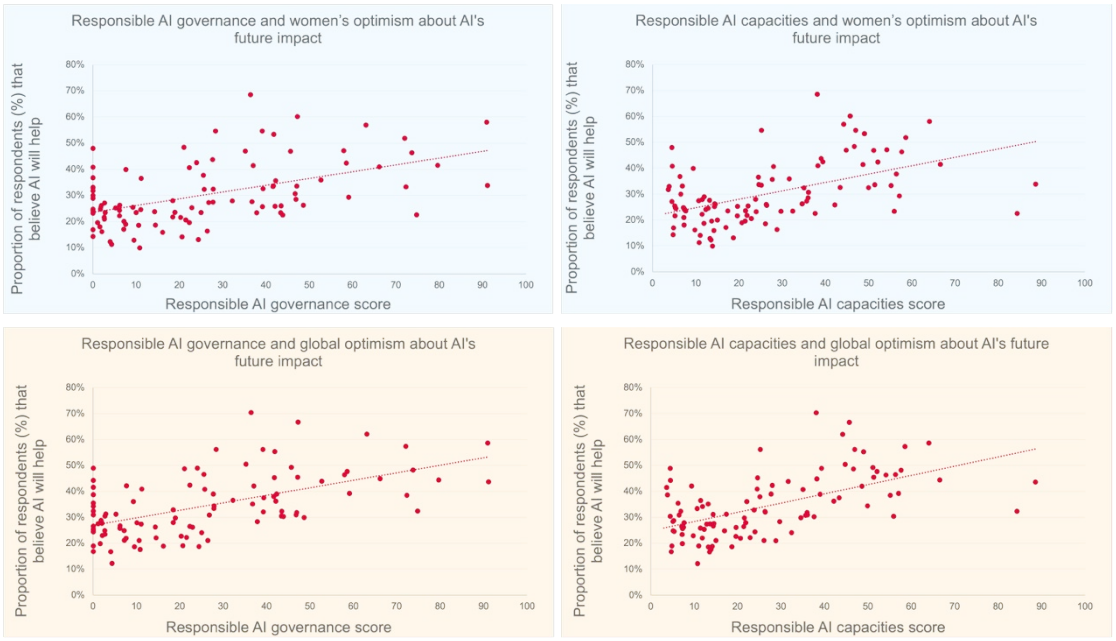
[41] Global Center on AI Governance (2024). Global Index on Responsible AI.

[42] Oxford Insights (2023). Government AI Readiness Index.

[43] Global Center on AI Governance (2023). Methodology and conceptual framework of the Global Index on Responsible AI.

[44] Oxford Insights (2023). Government AI Readiness Index 2023.

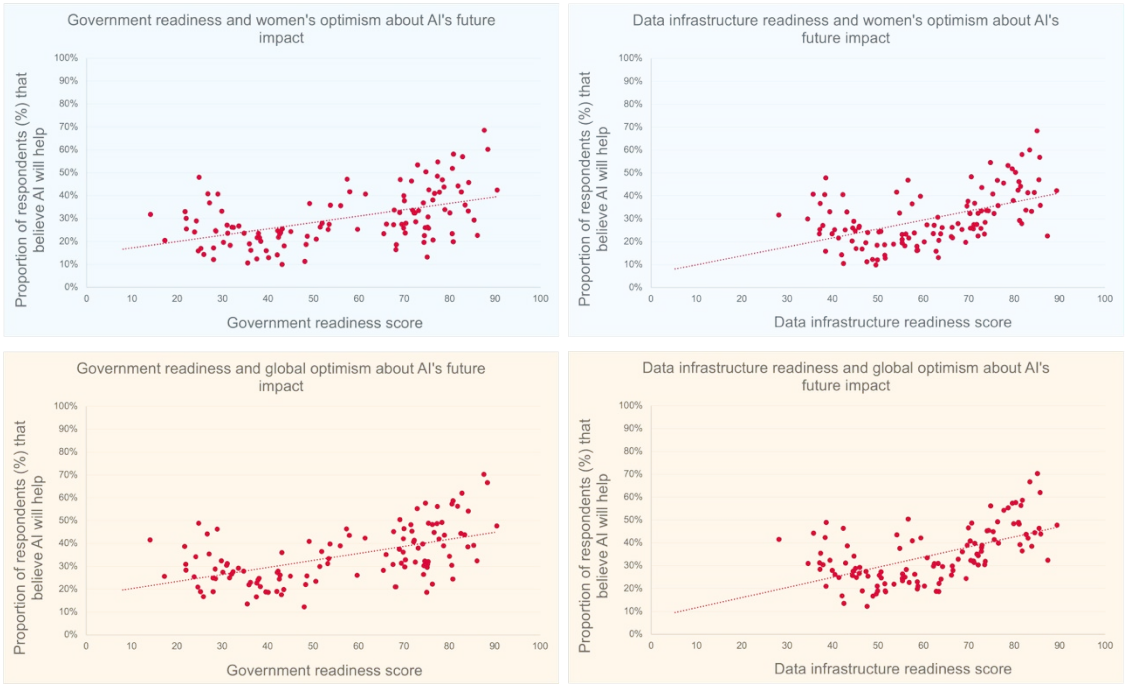
FIGURE 11. GLOBAL AND WOMEN'S OPTIMISM ABOUT AI IS HIGHER IN COUNTRIES WITH STRONGER RESPONSIBLE AI GOVERNANCE AND CAPACITIES



Note: Scatterplots show the relationship between women's AI optimism (top row) and global AI optimism (bottom row) and national scores in responsible AI governance (first column) and AI capacities (second column).

Source: Lloyd's Register Foundation, World Risk Poll 2021. Global Index of Responsible AI (2024).

FIGURE 12. GLOBAL AND WOMEN'S OPTIMISM ABOUT AI IS HIGHER IN COUNTRIES WITH STRONGER GOVERNMENT AND DATA INFRASTRUCTURE READINESS



Note: Scatterplots show the relationship between women's AI optimism (top row) and global AI optimism (bottom row) and national scores in government (first column) and data infrastructure readiness (second column).

Source: Lloyd's Register Foundation, World Risk Poll 2021. Oxford Insights (2024). AI Readiness Index.

This relationship between AI optimism and AI capacity and governance becomes particularly relevant in Southeast Asia.

Table 1 compares ASEAN countries across global indices. These scores reflect both governance quality and digital readiness, offering insights into why AI optimism is higher in some countries than others.

TABLE 1. ASEAN COUNTRY SCORES ACROSS KEY AI GOVERNANCE AND READINESS INDICES

INDEX	AI and Democratic Values Index	Global Index on Responsible AI	Network Readiness Index, inclusion dimension	Government AI Readiness Index	AI Global Surveillance Index	UNESCO Readiness Assessment Methodology
What does it assess?	Measures how well national AI policies align with democratic values and human rights	Assesses how effectively countries implement responsible AI based on human rights principles	Evaluates digital inclusion, including equitable access to connectivity and digital skills	Measures how well-prepared governments are to adopt and integrate AI for the public good	Tracks government use of AI surveillance technologies, without judging legitimacy	Assesses national readiness for ethical AI, including gender, data, and institutional safeguards
Interpretation	Higher = better	Higher = better	Lower = better	Higher = better	Lower = better	
Global average	7.8	19.8	67.5	44.9	-0.02	70+ countries engaged, 23 with published reports
ASEAN average	6.5○	23●	79●	52.5●	0.6●	
Indonesia	8.5●	13.8○	66●	61.0●	-0.1●	Completed
Philippines	8.5●	35.5●	105○	52.0○	0.4●	Completed
Singapore	7.5●	53.8●	1●	82.0●	0.0●	
Malaysia	7.0●	28.5●	46●	68.7●	-0.1●	Completed
Thailand	5.5○	23.9●	37●	63.0●	0.4●	Completed
Vietnam	5.5○	34.3●	92○	54.5●	0.9○	In process
Myanmar	3.0○	0.6○		30.9○	2.0○	
Cambodia		11.3○	108○	31.9○	0.9○	Completed
Laos		1.7○	126○	33.1○	0.6○	In process
Brunei Darussalam				48.1○		

Note: ● outperforms the benchmark, ○ meets or falls below the benchmark. For **ASEAN**, the benchmark is the **global average**; for **individual countries**, the benchmark is the **ASEAN average**. As the Network Readiness Index is a ranking, we use the median instead of the average.

Source: CAIDP (2023). AI and Democratic Values Index; Global Center on AI Governance (2024). Global Index on Responsible AI; Portulans Institute (2023). Network Readiness Index; Oxford Insights (2023). Government AI Readiness Index; Carnegie Endowment for International Peace (2022). AI Global Surveillance Index; UNESCO (Acc. May 2025). Country Profiles, Global Hub, Global AI Ethics and Governance Observatory. See Appendix B.

The data reveals a wide range of national profiles. Some countries, such as Singapore and Malaysia, score above global and ASEAN averages on most indicators. Others, including Cambodia, Laos, and Myanmar, are still in the early stages of developing governance frameworks and digital infrastructure. These differences help to explain why public confidence in AI varies across the region. For example, the Global Index on Responsible AI scores reflect the variation in institutional capacity, with some countries still working to establish the necessary foundations for trustworthy and inclusive AI deployment. Rather than pointing to a singular gap, these differences underscore the diversity of trajectories and approaches, and the importance of context-specific strategies for AI governance in ASEAN.

4. AI and data governance in ASEAN

The previous section demonstrated that governance quality is associated with public perceptions of AI risk across Southeast Asia. Countries with stronger institutional frameworks for responsible AI tend to show higher levels of public optimism. This relationship underscores the value of examining the current state of AI governance, both regionally and nationally, to identify strengths and opportunities for improvement. This chapter does so by assessing AI strategies, guidelines, and data protection laws across ASEAN countries.

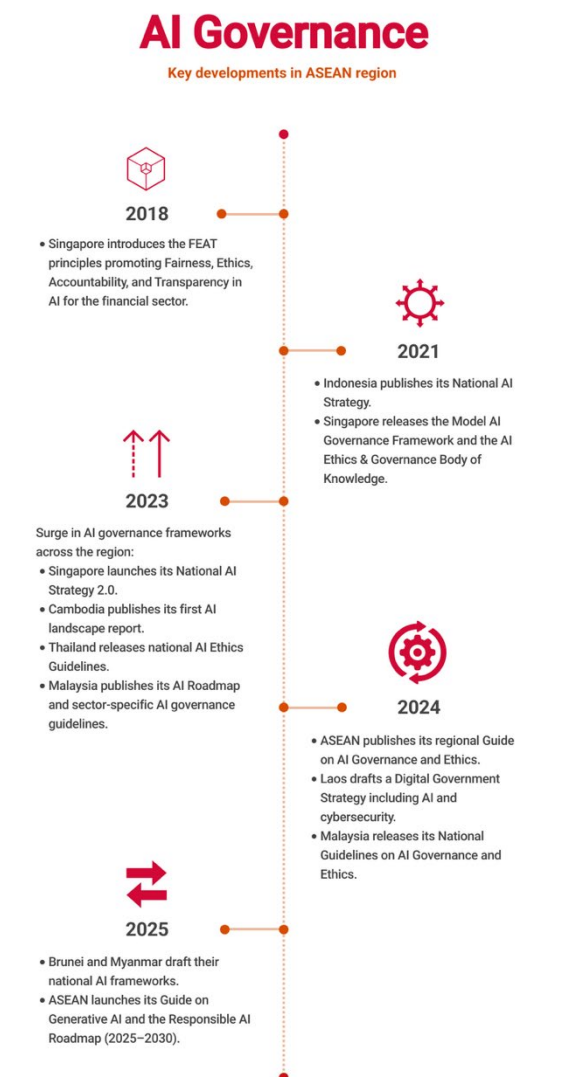
4.1 National and regional AI governance policies

ASEAN Member States have increasingly prioritised AI governance in recent years (Figure 13). As of May 2025, at least eight countries had published or were drafting national AI strategies, ethical guidelines, or landscape reviews. These instruments vary in scope and ambition but share a common feature: none are legally binding. Most take the form of strategic or ethical guidance, relying on voluntary implementation rather than statutory enforcement. Several countries are engaging with UNESCO's AI Readiness Assessment, and Cambodia, Indonesia, Malaysia, the Philippines, and Thailand have already completed it [45] (Table 1).

In parallel, ASEAN has developed a coordinated governance vision through three regional frameworks: the *ASEAN Guide on AI Governance and Ethics,*[46] its Generative AI extension,[47] and the *ASEAN Responsible AI Roadmap.*[48] These documents promote risk-based governance, contextual awareness, human-centric principles, and sustainability.

To evaluate these governance instruments, this section applies an inclusive AI policy analysis framework, aligned with global initiatives such as the OECD AI Principles and UNESCO's *Recommendation on the Ethics of Artificial Intelligence*. The framework reviews national and regional AI policies across eight dimensions: positive and transformative purpose; diversity and representation; accessibility, fairness, and inclusion; contextual awareness; transparency, explainability, and accountability; environmental

FIGURE 13. KEY DEVELOPMENTS IN AI GOVERNANCE IN THE ASEAN REGION

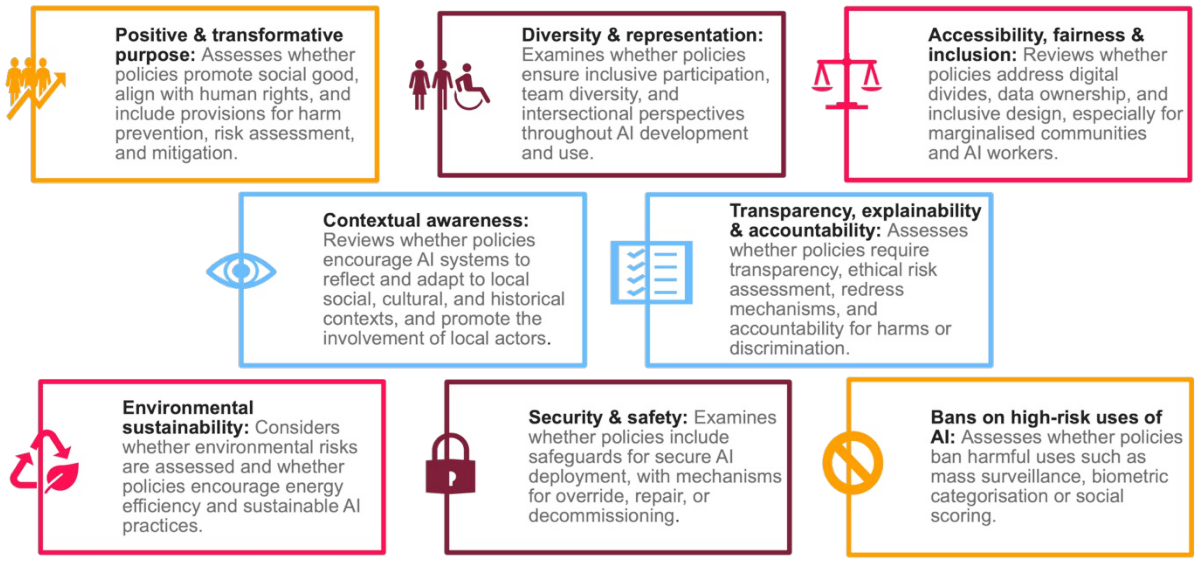


Source: Cambridge Industrial Innovation Policy (2025).

[45] UNESCO (Acc. May 2025). *Country Profiles, Global Hub, Global AI Ethics and Governance Observatory*.
[46] ASEAN, (2024). *Guide on AI Governance and Ethics.*
[47] ASEAN, (2025). *Guide on AI Governance and Ethics – Generative AI.*
[48] ASEAN, (2025). *Responsible AI Roadmap.*

sustainability; security and safety; and bans on high-risk AI uses, such as mass surveillance,[49] biometric categorisation, or social scoring. A visual overview of this framework is provided in Figure 14 (see Appendix C).

FIGURE 14. INCLUSIVE AI POLICY ANALYSIS FRAMEWORK



Source: Adapted from Roupakia, Z. and Castañeda-Navarrete J. (2025). Feminist principles for an inclusive and transformative Artificial Intelligence. *Canadian Journal of Communication*.

The analysis focuses on central government policies that provide guidance or regulation across the AI lifecycle, targeting broad sectors of the economy and society. Each policy or strategy was assessed using publicly available documents and scored against the eight dimensions on a four-level scale: fully addressed, partially addressed, minimally addressed, or not addressed. Table 2 presents a comparative snapshot of how ASEAN countries and regional frameworks perform across these dimensions.

Findings show that ASEAN regional frameworks outperform national strategies on most dimensions, particularly contextual awareness, environmental sustainability, transparency, and safety. Across the board, both national and regional approaches lack explicit prohibitions on high-risk or harmful AI uses, revealing a shared regulatory area not yet addressed.

Performance also varies significantly at the country level. Cambodia, Indonesia, Singapore, and Thailand fully address a positive and transformative purpose – whether AI policies promote human wellbeing, align with rights standards, and include harm mitigation – while Vietnam shows limited implementation. Similarly, Brunei Darussalam, Cambodia, Indonesia, and Singapore demonstrate relatively comprehensive approaches to transparency and accountability, whereas the Philippines and Vietnam provide only basic provisions.

[49] UNESCO's *Recommendation on the Ethics of Artificial Intelligence*, adopted by all ASEAN Member States but not fully implemented, explicitly calls for a ban on AI systems used for social scoring and mass surveillance.

TABLE 2. REVIEW OF NATIONAL AND REGIONAL AI POLICIES IN ASEAN MEMBER STATES ACROSS KEY INCLUSIVE GOVERNANCE DIMENSIONS

Country/ Region	Positive and transformative purpose	Diversity and representation	Accessibility, fairness and inclusion	Contextual awareness	Transparency, explainability, and accountability	Environmental sustainability	Security and safety	Bans on high-risk AI uses
Brunei Darussalam	●●	●	●	●	●●●	●	●●	●
Cambodia	●●●	●●	●	●	●●●	●●●	●●	●
Indonesia	●●●	●	●●	●●●	●●●	●	●●	●
Malaysia	●●	●●●	●●	●●	●●	●●	●●	●
Philippines	●●	●	●	●	●	●	●	●
Singapore	●●●	●●	●●	●●	●●●	●●	●●	●
Thailand	●●●	●●	●●	●●	●●	●	●●	●
Vietnam[50]	●	●	●	●●●	●	●	●	●
ASEAN	●●	●●	●●	●●●	●●●	●●●	●●●	●

Note: ●●● Fully addressed; ●● More than 50% addressed; ● Less than 50% addressed; ● Not addressed. The cut-off date for document selection was March 2025.

Source: Authors' review of national and regional AI governance frameworks and policies in the ASEAN region (see Appendix D), based on the inclusive AI policy analysis framework[51] shown in Figure 14 (see Appendix C).

[50] Note that one policy, the Draft National Standard on Artificial Intelligence Life Cycle, could not be accessed.
[51] Roupakia, Z. and Castañeda-Navarrete J. (2025). Feminist principles for an inclusive and transformative Artificial Intelligence. *Canadian Journal of Communication*.

4.1.1 Regional AI policies

ASEAN's regional AI frameworks provide a forward-looking vision, including commitments to sustainability and inclusion, but their voluntary nature limits their enforceability

ASEAN's three regional frameworks – the *ASEAN Guide on AI Governance and Ethics* (2024), its Generative AI extension (2025), and the *ASEAN Responsible AI Roadmap* (2025) – offer a comprehensive vision for responsible AI governance in the region. These frameworks collectively promote contextual awareness, transparency, human-centricity, environmental sustainability, and security.

They also reflect a nuanced understanding of Southeast Asia's diverse sociotechnical landscape. For example, the *ASEAN Guide on AI Governance and Ethics* explicitly calls for deployers to consider *"the unique local norms and values in different countries when assessing risks"* and recognises variations in digital maturity across Member States.[52] All three frameworks emphasise risk assessment and mitigation, requiring ethical evaluations and mechanisms for documenting and addressing system errors.[53]

Compared to most national strategies, the regional frameworks more thoroughly address environmental sustainability, including provisions for measuring energy consumption, assessing environmental impact, and encouraging resource-efficient practices throughout the AI lifecycle.[54] Security measures mandate human intervention when systems behave unsafely, and require disengagement mechanisms, along with safeguards against unauthorised access and data misuse.[55]

Regarding inclusion, the frameworks recognise multiple forms of bias – representational, societal, labelling, and measurement – calling for special attention to be paid to vulnerable and marginalised groups.[56] The *ASEAN Responsible AI Roadmap* goes furthest, proposing mechanisms to include vulnerable communities in design processes, ensuring diverse representation in decision-making, and monitoring demographic impacts by gender, age, ethnicity, and socio-economic background.[57]

There is, however, room for improvement. None of the frameworks include legally binding bans on harmful AI applications such as mass surveillance,[58] biometric categorisation,[59] or social scoring

[52] ASEAN (2024). *Guide on AI Governance and Ethics.*
[53] Ibid.
[54] ASEAN (2025). *Guide on AI Governance and Ethics – Generative AI.*
[55] ASEAN (2024). *Guide on AI Governance and Ethics.*
[56] ASEAN (2025). *Responsible AI Roadmap.*
[57] Ibid.
[58] Mass surveillance is the large-scale, automated monitoring of individuals using AI tools such as facial recognition, typically without consent or adequate oversight.
[59] Biometrics categorisation is the use of AI to classify individuals based on biometric data (e.g. facial features, voice, gait), often for profiling or predictive purposes without contextual awareness or ethical safeguards.

Box 1: Key international AI governance frameworks, initiatives, and tools

The global landscape for AI governance is shaped by several multilateral frameworks, initiatives, and tools that influence both ASEAN regional guidance and national policies:

- **OECD AI Principles/G20 AI Principles (2019):**[1] The first inter-governmental AI principles, adopted by OECD Member States and partner countries, and later endorsed by G20 economies. As of 2025, 53 countries are adherents, including only Singapore and Indonesia from ASEAN. The principles promote human-centred values, transparency, and accountability, and have influenced several national frameworks.

- **UNESCO *Recommendation on the Ethics of Artificial Intelligence* (2021):**[2] Adopted by 194 Member States, this is the first global AI ethics framework – and the first to make sustainability a core principle. It translates 10 ethical principles into policy across 11 areas, including gender equality. Its **Readiness Assessment Methodology (RAM)** assesses countries' preparedness for ethical AI across five governance dimensions. By mid-2025, more than 70 countries worldwide had engaged with RAM, with 23 completing and publishing their national reports. In ASEAN, **Cambodia, Indonesia, Malaysia, the Philippines, and Thailand** have completed their RAM assessments, with Malaysia's report pending public release. The recommendation also promotes **Ethical Impact Assessment (EIA)** to support *ex ante* evaluation of public and private AI deployments.

- **G7 Guiding Principles and Code of Conduct (2023):**[3] Developed through the Hiroshima Process, these introduce a **risk-based lifecycle approach**, starting with precautionary pre-deployment assessments. They informed Singapore's Model AI Governance Framework.

- **G7 Hiroshima AI Process (HAIP) Reporting Framework (2025):**[4] A voluntary reporting tool launched by the G7 to encourage transparency and accountability among organisations developing advanced AI systems. It facilitates comparability of risk mitigation measures and dissemination of good practices.

- **Global Partnership on AI (GPAI):**[5] A multi-stakeholder initiative supporting the practical application of the OECD AI Principles. In 2024, GPAI and OECD jointly committed to advancing human-centric, safe, and trustworthy AI governance. Singapore is a participating member from ASEAN.

- **Council of Europe Framework Convention on AI (2024):**[6] The first legally binding international treaty on AI and human rights, democracy, and the rule of law. While primarily European, it has been signed by non-European countries, including Argentina, Australia, Canada, Costa Rica, the Holy See, Israel, Japan, Mexico, Peru, the USA, and Uruguay.

These frameworks offer practical guidance for ASEAN. In particular, the **UNESCO RAM and EIA tools** can support national capacity-building in areas such as environmental impact, prohibited uses, and gender-responsive AI governance. The **G7/OECD/UNESCO toolkit for public sector AI** provides actionable recommendations that ASEAN countries could adapt to strengthen oversight and accountability.[7]

[1]OECD (2019). Recommendation of the Council on Artificial Intelligence.
[2]UNESCO (2021). *Recommendation on the Ethics of Artificial Intelligence*.
[3]G7 (2023). Hiroshima Process International Guiding Principles for Organisations Developing Advanced AI Systems.
[4]OECD.AI (2023). G7 Hiroshima AI Process Reporting Framework.
[5]GPAI (2024). Global Partnership on Artificial Intelligence.
[6]Council of Europe (2024). Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law.
[7]OECD and UNESCO (2023). G7 Toolkit for Artificial Intelligence in the Public Sector.

scoring.[60,61] While they advocate stronger legal frameworks around data ownership[62] and accountability, they do not directly address the power asymmetries between global tech firms and local actors, or the risk of data extractivism,[63] where local populations provide data without equitable benefit or control.

While this light-touch regulatory approach has facilitated unanimous adoption, it also means progress is more gradual than more legally binding approaches in regions like the EU. The frameworks' effectiveness ultimately depends on how they are translated into national policy and implementation tools.

ASEAN is also negotiating the Digital Economy Framework Agreement, intended to become the region's first binding digital economy instrument. While not AI-specific, chapters on data protection, cross-border data flows, and regulatory cooperation on emerging technologies could indirectly shape the environment for AI governance. However, no binding AI governance commitments have emerged to date.

As highlighted in Box 1, international frameworks such as those from UNESCO, the OECD, G7, and the Council of Europe provide actionable recommendations that can guide ASEAN countries in strengthening oversight and implementation. Several ASEAN Member States are already engaged in these processes, providing a foundation for aligning regional efforts with global best practices.

4.1.2 Strengths in national AI policies

Most ASEAN countries place human-centric values, the protection of citizen's wellbeing, or, where referenced, rights protection at the centre of AI governance

Singapore, Thailand, Indonesia, Malaysia, and Cambodia encourage ethical AI development through human-centric principles and risk or impact assessments. Thailand requires independent external risk reporting. Indonesia connects AI deployment to national development goals, such as education, healthcare, and food security, while Malaysia requires organisations to evaluate AI risks and adopt governance frameworks. Brunei Darussalam outlines a three-tier human intervention model, and the Philippines references human rights, citing both its data privacy law and the EU General Data Protection Regulation (GDPR).[64] Vietnam does not mandate risk assessments or mitigation provisions.

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[60] Social scoring is the use of AI to assign individuals scores based on behaviour or characteristics, often influencing access to public services, employment, or legal rights.
[61] Authors' review of ASEAN frameworks. See Appendix D.
[62] Data ownership refers to individuals' or communities' ability to control how their data is accessed, used, and monetised, including rights to consent, access, portability, and deletion.
[63] Data extractivism refers to the systematic extraction of data from individuals and communities, often in the Global South, as a raw material for AI development without equitable compensation, consent, or benefit-sharing with the data originators. This practice can reinforce existing power imbalances between large technology companies and local populations, particularly affecting marginalised communities.
[64] European Union (2016). General Data Protection Regulation (GDPR), Regulation (EU) 2016/679 of the European Parliament and of the Council.

Transparency and accountability are among the most developed governance aspects across the ASEAN region

Singapore, Thailand, and Indonesia each present structured approaches to risk assessment, transparency, and redress. Singapore's Model AI Governance Framework,[65] updated for generative AI in 2024,[66] outlines explainability requirements and assigns responsibility across the AI lifecycle. Thailand and Indonesia require risk assessments and promote transparency through ethical governance structures. Brunei Darussalam, Cambodia, and Malaysia reference fairness, risk, and ethical review but lack clear provisions for redress. The Philippines and Vietnam mention transparency in general terms but do not describe operational mechanisms. While awareness of AI risks is increasing across the region, monitoring, redress mechanisms, and enforcement are areas for further policy development.

Several ASEAN countries have begun adapting AI governance to local contexts and conditions – an essential priority given the region's linguistic and cultural diversity (see Box 2)

Vietnam and Indonesia provide the clearest articulation of local adaptation: Vietnam promotes implementation across ministries and aligns AI systems with the social, cultural, and economic context, while Indonesia encourages local content in procurement, training data, and interdisciplinary design. Other countries, such as Thailand, Singapore, and Malaysia, reference local ecosystems, stakeholder engagement, or contextual risks, but offer fewer tools for adapting AI to deployment environments. Cambodia, Brunei Darussalam, and the Philippines acknowledge local needs or values but do not include formal mechanisms for ensuring context-sensitive governance. While recognition of context is increasing across the region, further development of practical guidance, particularly for cross-border or imported systems, remains a valuable area for policy advancement.

Box 2: Local context and artificial intelligence: natural language processing in ASEAN

Southeast Asia is home to over 1,000 languages across a linguistically diverse and multilingual population. Yet the region remains significantly under-represented in natural language processing (NLP) research. Most languages are low-resource, and existing AI models often perform poorly because of limited datasets, sparse benchmarks, and underinvestment in local language technologies.[1] Bahasa Indonesia, spoken by around 200 million people, is under-represented in research datasets.[2] Local researchers also face structural barriers such as limited computer access and funding disparities.[3] These gaps risk deepening AI-driven inequalities and marginalising the region's linguistic richness in the digital age.

Notable regional efforts are emerging to counteract these trends. Singapore, for example, launched the SEA-LION initiative, its first open source large language model tailored to Southeast Asian contexts. Supported by AI Singapore, this national-level project aims to build a foundation model that addresses local languages, accents, and cultural nuances.[4]

[1] Aji, A. F. et al. (2023). *Current Status of NLP in Southeast Asia with Insights from Multilingualism and Language Diversity.* AACL-IJCNLP 2023.
[2] UNESCO (2024). *Readiness Assessment Methodology (RAM) Country Report: Indonesia.*
[3] Yong, Z.-X. et al. (2023). Prompting Multilingual Large Language Models to Generate Code-Mixed Texts: The Case of Southeast Asian Languages. ACL Anthology.
[4] AI Singapore (2024). *SEA-LION:* Southeast Asian Languages in One Network. Retrieved from https://sea-lion.ai/.

[65] Infocomm Media Development Authority & Personal Data Protection Commission (2020). Model Artificial Intelligence Governance Framework (2nd Edition).
[66] Infocomm Media Development Authority & AI Verify Foundation (2024). Model Artificial Intelligence Governance Framework for Generative AI.

4.1.3 Opportunities for improvement in national AI policies

Most ASEAN policies lack mechanisms for overriding, repairing, or decommissioning problematic systems

National AI frameworks vary in their approach to AI lifecycle safety. Singapore's Model Artificial Intelligence Governance Framework offers the most comprehensive treatment, detailing three levels for human intervention in AI-augmented decision-making, with varying degrees of override capability based on probability-severity assessments. Thailand acknowledges the importance of security throughout the AI lifecycle and reinforces the need for human authority in deployment decisions. Brunei Darussalam, Cambodia, Indonesia, and Malaysia reference risk assessments and cybersecurity principles but lack specific technical safeguards or implementation details. Vietnam states security as a guiding principle, while the Philippines has limited provisions, and neither address comprehensive lifecycle management. Explicit mechanisms for repairing or decommissioning AI systems that exhibit harmful behaviours are not yet established across existing frameworks. As AI systems are increasingly embedded in critical infrastructure, developing concrete protocols for managing system failure and withdrawal is an area for policy development.

Most ASEAN countries' policy frameworks focus on data representation rather than diversifying AI development teams or ensuring public participation in policy development

ASEAN countries vary in how their governance policies address diversity and inclusion. While most acknowledge bias, few go beyond data-level interventions. Thailand incorporates perspectives from marginalised groups and highlights the importance of diverse research teams. Malaysia references fairness indices and design diversity, while Singapore, Brunei Darussalam, and Indonesia's policy frameworks focus on data representation rather than development team diversity or public engagement. Cambodia notes gender gaps in STEM education, offering a foundation for future inclusion efforts. Vietnam and the Philippines have yet to include formal diversity provisions. Across the region, there is significant scope to strengthen public participation in AI policy development, particularly of marginalised communities, and to formalise diversity standards for AI development teams.

Most ASEAN countries acknowledge fairness in principle, but vary in their treatment of access, data control, and equity

Thailand and Indonesia are among the most comprehensive in tackling fairness and inclusion. Thailand acknowledges digital divides by gender and education and promotes inclusive design and developer training. Indonesia raises concerns over multinational dominance and the exclusion of local startups while addressing digital infrastructure gaps. Malaysia encourages inclusive data practices and capacity-building. Cambodia and the Philippines note digital literacy and gender inequalities but do not translate these into inclusive governance measures. Singapore discusses fairness in terms of outputs but does not sufficiently address access inequalities. Vietnam and Brunei Darussalam make only high-level references to fairness. Public participation, data ownership,[67] and equity remain areas for strengthening governance frameworks across the region.

[67] Data ownership refers to individuals' or communities' ability to control how their data is accessed, used, and monetised, including rights to consent, access, portability, and deletion.

Few ASEAN countries directly address the environmental impact of AI systems

Although most ASEAN AI strategies reference sustainable development, only a few incorporate explicit environmental provisions. Cambodia stands out for referencing the environmental cost of AI-related manufacturing and encouraging eco-friendly production in supply chains. Thailand, Vietnam, and Indonesia link AI to sectoral development goals such as agriculture but do not require environmental impact assessments. Malaysia includes an Environmental Safety Index and ties AI to ESG[68] principles. Singapore mentions AI for social good but lacks concrete ecological provisions. Singapore mentions AI for social good but lacks AI-specific environmental provisions, though it has broader digital infrastructure sustainability initiatives, like the Green Data Centre Roadmap.[69] The Philippines and Brunei Darussalam do not address sustainability in their frameworks. This contrasts with UNESCO's *Recommendation on the Ethics of Artificial Intelligence*, which places sustainability at the core of responsible governance and calls for lifecycle environmental risk assessments.[70] No ASEAN country currently mandates these assessments in national AI policy.

No country has established legal bans for high-risk AI applications

There is an absence of legal boundaries for uses such as mass surveillance,[71] biometric categorisation,[72] or social scoring[73] across the reviewed countries. While some related safeguards may be found across sectoral laws, none prohibit these applications. Malaysia briefly references the need to regulate surveillance and deepfakes but does not specify prohibited applications. This stands in contrast to UNESCO's *Recommendation on the Ethics of Artificial Intelligence*,[74] adopted by all ASEAN Member States, which explicitly calls for bans on systems *"incompatible with fundamental rights"*, such as mass surveillance and social scoring. Legal boundaries for such applications would increase public trust and provide greater certainty regarding the boundaries of acceptable AI development and deployment.

4.2 Data protection laws and digital rights in AI governance

AI systems often require vast amounts of personal data to learn, make predictions, and automate decisions. Data protection laws define how this data is collected, processed, shared, and safeguarded, establishing the basis for transparency, fairness, and accountability in the use of AI. International frameworks, including the OECD AI Principles,[75] UNESCO's *Recommendation on the Ethics of Artificial Intelligence*,[76] and the EU's General Data Protection Regulation (GDPR),[77] consistently stress the importance of embedding privacy and data control throughout the AI lifecycle.

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[68] Environmental, social, and governance.
[69] Infocomm Media Development Authority (2024). *Driving a Greener Digital Future. Singapore's Green Data Centre Roadmap*.
[70] UNESCO (2021). *Recommendation on the Ethics of Artificial Intelligence*, Articles 8 and 26.
[71] Mass surveillance is the large-scale, automated monitoring of individuals using AI tools such as facial recognition, typically without consent or adequate oversight.
[72] Biometrics categorisation is the use of AI to classify individuals based on biometric data (e.g. facial features, voice, gait), often for profiling or predictive purposes without contextual awareness or ethical safeguards.
[73] Social scoring is the use of AI to assign individuals scores based on behaviour or characteristics, often influencing access to public services, employment, or legal rights.
[74] UNESCO (2021). *Recommendation on the Ethics of Artificial Intelligence*, Articles 25–26.
[75] OECD (2019). Recommendation of the Council on Artificial Intelligence.
[76] UNESCO (2021). *Recommendation on the Ethics of Artificial Intelligence*.
[77] European Union (2016). General Data Protection Regulation (GDPR).

This link between digital rights and AI risk is reflected in public perception. According to the World Risk Poll, Southeast Asian respondents report a higher level of concern than the global average: 60% worry about data theft, 59% about corporate data use, and 44% about government use. As shown in Figure 11, individuals, particularly women, in countries with weaker protections are more likely to believe AI will harm society. OECD incident data reinforces this view, with privacy, data governance, and digital security among the most frequently reported AI-related challenges across the region (Figure 8).

UNESCO's Readiness Assessment Methodology (RAM)[78] provides a framework for evaluating a country's preparedness for ethical AI. Of its twenty-four indicators, eight[79] focus on data governance, including legislation, enforcement, and impact assessments. These have been used in this brief to assess ASEAN data protection laws (Table 4, see also Appendix E).

ASEAN has issued regional guidance, such as the Framework on Personal Data Protection (2016) and the Digital Data Governance Framework (2021), to promote shared principles and interoperability. However, these are non-binding and do not address AI-specific risks such as automated decision-making (ADM) or biometric surveillance.

While most ASEAN countries now have data protection laws, their treatment of AI-related risks varies. This reflects not only differences in institutional capacity but also the timing and scope of legal reform. Laws adopted between 2019 and 2024, such as those in Indonesia, Vietnam, and Thailand, tend to include stronger safeguards, including privacy impact assessments, biometric protections, and, in some cases, provisions on ADM. Older frameworks from 2010 to 2018 offer more limited coverage. Four areas of divergence can be identified:

Only one ASEAN country regulates privacy impact assessments on automated decisions

Indonesia is the only country that references ADM in law, requiring privacy impact assessments (PIAs) for such decisions, though the legal framework remains unimplemented, as the country is still in the process of establishing a Personal Data Protection Authority. No other ASEAN jurisdiction includes specific provisions on ADM systems. Systems used in areas like welfare, recruitment, or profiling are therefore governed only by general fairness principles.

Privacy impact assessments are uneven and rarely AI-specific

Indonesia and Vietnam require PIAs for high-risk data processing, though only Indonesia links them to automated decisions. The Philippines mandates PIAs for government agencies, large private organisations, and research institutions. Thailand and Brunei Darussalam require assessments in relation to data breaches, while Singapore's PDPA similarly mandates breach assessments but does not require proactive PIAs in its primary legislation. Singapore's Personal Data Protection Commission encourages organisations to conduct data protection impact assessments as best practice in its guidance, yet these remain voluntary. Without systematic risk evaluation, AI applications may be deployed without adequate safeguards.

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[78] UNESCO (2023). Readiness Assessment Methodology.
[79] These are: Does the data protection law give users control over their data and allow them to delete it? Does the data protection law mention a notice and consent framework? Does the data protection law include transparency requirements on data usage? Does the data protection law include requirements on data minimisation? Does the data protection law highlight cases in which data protection or privacy impact assessment is required? Does the data protection law include specific rules for sensitive information (e.g. biometric data)? Does the data protection law include enforcement mechanisms and compensation schemes in case of violation? Are different standards of data protection applied for data collected by public versus private entities; are there government exemptions?

Protection of biometric data varies across the region

Most ASEAN countries classify biometric data as sensitive and apply additional safeguards. However, Singapore, Brunei Darussalam, Cambodia, and Myanmar do not provide specific statutory protections,[80] despite Singapore's leading role in deploying facial recognition in public infrastructure and digital identity systems.[81] While Singapore's PDPC provides non-binding guidance on Responsible Use of Biometric Data in Security Applications, the country lacks a statutory "sensitive personal data" protection regime that would afford biometric data additional legal protections.[82] This inconsistency poses risks as biometric technologies expand in public and commercial systems.

Public sector data coverage varies across ASEAN

Malaysia and Brunei Darussalam exclude public agencies from their main data protection laws, with government data instead governed by separate rules and internal policies. Malaysia recently enacted a Data Sharing Act in April 2025 that introduces rules for public sector data sharing. Singapore likewise excludes public agencies from the Personal Data Protection Act but regulates them under the Public Sector (Governance) Act (2018) and the *Government Instruction Manual on Infocomm Technology & Smart Systems Management*, which emphasise administrative accountability but do not provide equivalent enforceable rights or independent oversight. Indonesia, Vietnam, and Thailand apply their laws to both public and private sectors but allow broad exemptions for reasons such as public interest, national security, or parliamentary functions. As AI is increasingly deployed in policing, migration, and welfare, such exclusions and exemptions weaken accountability and raise concerns about citizen rights.

These differences underscore the varied approaches to data protection across ASEAN, especially when considered alongside more comprehensive international models (see Box 3). While the EU's GDPR was developed in a European context, it has increasingly served as a comparative framework for understanding data protection approaches globally. In Southeast Asia, countries such as Malaysia, Thailand and the Philippines – with the latter explicitly referencing the GDPR in its National AI Strategy – have drawn on GDPR principles in shaping their own laws and guidance.[83] As such, it provides a relevant reference point for assessing how ASEAN frameworks address AI-related data governance challenges, while also considering the differing priorities and interests in the diverse region.

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[80] Lim, A. C. M. et al. (2025). Biometric data landscape in Southeast Asia: Challenges and opportunities for effective regulation. *Computer Law & Security Review.*
[81] Ibid.
[82] Ibid.
[83] Corning, G. P. (2024). The diffusion of data privacy laws in Southeast Asia: Learning and the extraterritorial reach of the EU's GDPR. *Contemporary Politics.*

Box 3: ASEAN data protection compared to EU GDPR

The EU's General Data Protection Regulation (GDPR) provides a useful benchmark for assessing ASEAN data protection laws. Key differences include:

TABLE 3. COMPARISON OF EU GDPR WITH NATIONAL DATA PROTECTION LAWS IN ASEAN

Dimension	EU GDPR	Data protection laws in ASEAN
Automated decision-making (ADM)	Article 22 prohibits decisions based solely on automated processing explicitly that produce legal or similarly significant effects	Only Indonesia explicitly references ADM systems and mandates risk assessments specifically for ADM outcomes.
Privacy impact assessments (PIAs)	Mandatory for high-risk processing, including ADM and sensitive data (Articles 35–36)	Required in Indonesia and Vietnam for high-risk data processing; the Philippines requires PIAs for government agencies and large organisations; Brunei Darussalam and Thailand require assessments for data breaches.
Biometric data protection	Biometric data treated as “special category” with heightened safeguards (Article 9)	Most ASEAN Member States offer similar categorisations; Brunei Darussalam, Cambodia, Myanmar, and Singapore do not provide specific statutory protections.
Public sector coverage	Applies to both public and private sectors with narrow, proportionate exemptions for national and public security (Article 23)	Brunei Darussalam, Malaysia and Singapore exclude government and public agencies, which are governed by separate rules; most others have broad national security and public interest exceptions.

Source: Authors’ analysis based on national legislations in ASEAN (Appendix E); European Union (2016). General Data Protection Regulation (GDPR); UNCTAD (2024). Global Data Protection and Privacy Legislation Tracker; Lim, A. C. M. et al. (2025). Biometric data landscape in Southeast Asia: Challenges and opportunities for effective regulation. *Computer Law & Security Review.*

TABLE 5. REVIEW OF ASEAN DATA PROTECTION LAWS

Country	User control and data deletion?	Notice and consent?	Transparency on data usage?	Data minimisation?	Privacy impact assessments?	Sensitive data protections?	Enforcement and penalties?	Public sector exclusion?
Brunei Darussalam (PDPO, 2025)	●●●	●●●	●●●	●●●	●●	●	●●	●●● (full exclusion, different rules)
Cambodia (Law in E-commerce, 2019)	●	●	●	●	●	●	●●	●
Indonesia (PDPL, 2022)	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●
Laos (Law on Electronic Data Protection, 2017)	●●●	●●●	●●●	●●●	●●	●●●.	●●●	●● (different standards for state data)
Malaysia (PDPA, 2010, amended 2024)	●●●	●●●	●●●	●●●	●●	●●●	●●	●●● (full exclusion, different Act)
Myanmar (Electronic Transactions Law, amended 2021)	●	●	●	●	●	●	●	●
Philippines (DPA, 2012, amended 2022)	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●.
Singapore (PDPA, 2012, updated 2020)	●●	●●	●●●	●●●	●●	●	●●●	●●● (full exclusion, different Act)
Thailand (PDPA, 2019, enforced 2022)	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●
Vietnam (PDPD, 2023)	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●

Note: ●●● Strong provisions; ●● Partial provisions; ● Minimal or no provisions. The cut-off date for document selection was March 2025.

Source: Authors' review of data protection laws in the ASEAN region based on UNESCO's Readiness Assessment Methodology.[84] See Appendix E.

[84] Based on the questions of UNESCO's Readiness Assessment Methodology: Does the data protection law give users control over their data and allow them to delete it? Does the data protection law mention a notice and consent framework? Does the data protection law include transparency requirements on data usage? Does the data protection law include requirements on data minimisation? Does the data protection law highlight cases in which data protection or privacy impact assessment is required? Does the data protection law include specific rules for sensitive information (e.g. biometric data)? Does the data protection law include enforcement mechanisms and compensation schemes in case of violation? Are different standards of data protection applied for data collected by public versus private entities; are there government exemptions?

4.3 Consultation insights on AI governance in Southeast Asia

The consultations across Southeast Asia pointed to several positive developments in AI governance and digital transformation. The consultees highlighted regional initiatives that align with international frameworks, as well as national efforts to establish ethics guidelines and strategies. Investments in digital infrastructure, including new data centres in Indonesia, Singapore, Malaysia, and Thailand, were also noted as indications of growing commitment to responsible AI. Together, these efforts reflect recognition of AI's potential and the importance of governance frameworks to guide its development.

In parallel, the consultees identified a set of challenges that continue to shape how AI is governed in the region. These span infrastructure, institutions, human capital, and social dynamics, and will need to be addressed to strengthen inclusive and responsible AI governance.

Digital infrastructure and readiness: Digital development is uneven across ASEAN. Cambodia, Laos, and Myanmar still face infrastructure and connectivity gaps, which may constrain digital literacy and confidence in AI. In Indonesia, divides between Java and more remote areas illustrate how internal disparities limit access and skills. Even in countries with advanced digital infrastructure, such as Thailand, access to AI and its benefits is not evenly distributed, and the consultees noted limited inclusion, transparency, and community participation in system design and deployment.

Human capital and skills: The shortage of skilled professionals in AI, cybersecurity, and data management was consistently raised in consultations. Cambodia faces particularly acute constraints, while Thailand and Indonesia also experience shortages that affect both innovation and regulatory enforcement. These concerns are echoed in UNESCO's Readiness Assessment Methodology reports: Indonesia faces a projected shortage of 9 million tech workers by 2030,[85] the Philippines reports that nearly 90% of its population lack basic ICT skills,[86] and Thailand anticipates a shortfall of 80,000 AI professionals.[87] Gender gaps in STEM education and low levels of digital literacy further restrict participation, especially for women and rural populations.

Regulatory frameworks and enforcement: AI governance remains at an early stage across the region, with frameworks often fragmented and voluntary. Only eight out of ten ASEAN Member States have data protection laws, and many of these require updates to address AI-specific risks. Differences in standards and approaches complicate cross-border alignment, and institutional coordination within countries is often weak, leading to inconsistent oversight. Data localisation[88] also remains a sensitive issue in regional negotiations.

Public awareness and participation: Low awareness of AI, data protection, and cybersecurity increases the risk of misuse and ethical lapses. The consultees noted limited opportunities for public input into how AI is designed and deployed. In Indonesia, generational divides in digital

[85] UNESCO (2024). *Readiness Assessment Methodology (RAM) Country Report: Indonesia*.
[86] UNESCO (2025). *Readiness Assessment Methodology (RAM) Country Report: Philippines*.
[87] UNESCO (2025). *Readiness Assessment Methodology (RAM) Country Report: Thailand*.
[88] Data localisation refers to legal or regulatory requirements that data about a country's citizens or residents must be collected, processed, or stored within that country's borders.

literacy illustrate how adoption varies across society. There is also concern that AI systems may confine individuals to the role of passive users or data providers, reducing their opportunities to shape digital rules. Building awareness, critical thinking, and responsible use of AI were repeatedly emphasised as priorities.

Data governance and security: Data governance challenges were raised in most consultations. Poor-quality data, a lack of testing standards, and siloed systems undermine safe and scalable AI deployment. In Thailand, the absence of quality controls for training data was highlighted, while in Indonesia, fragmented government databases delay public service delivery. Outdated or duplicated records reduce effectiveness and trust. Weak protections also heighten the risk of fraud and cybercrime.

Ethical, social, and economic risks: AI governance in ASEAN faces the challenge of managing economic opportunities alongside risks such as bias, misinformation, disinformation, and job displacement. Without stronger human-centred design, AI risks being applied in ways that do not match local needs. Inequalities could widen as marginalised groups face higher exposure to harm, while large technology firms may capture disproportionate benefits. Some consultees raised concerns that reliance on foreign systems could sideline local priorities, and about the unequal access to data between SMEs and larger firms. The environmental impacts of AI are also largely missing from current policy discussions.

Regional cooperation and policy approach: ASEAN's consensus-based, non-interference model helps to preserve regional cohesion but may slow the implementation of commitments. Some participants noted that a principle-based, flexible approach may be better suited to ASEAN's diversity than more prescriptive models, such as the EU AI Act. At the same time, this flexibility can lead to uneven adoption, creating a need for safeguards that build trust and support investment.

5. Conclusion and policy recommendations

Southeast Asia is entering a decisive phase in shaping the governance of artificial intelligence. While AI's potential to contribute to economic growth and development is widely recognised, optimism remains cautious and uneven. Public perceptions vary across countries and are shaped by gender, education, age, and digital access. Trust is closely tied to visible safeguards: the people who are most concerned about data security are also the least confident in AI's benefits. Analysis, reinforced by consultations, indicates that optimism is not built on vision statements alone but on demonstrable capacity to regulate, implement, and respond to risks in practice.

The region has already taken important steps. ASEAN has developed regional guidance on AI governance and ethics, and several Member States have adopted national AI strategies and data protection laws. Investments in digital infrastructure, including new data centres in Indonesia, Singapore, Malaysia, and Thailand, signal a growing commitment to digital transformation. Yet differences in development continue to characterise the region. Some countries still face connectivity and institutional challenges, while shortages of AI, data, and cybersecurity professionals affect both innovation and regulatory capacity. Gender gaps in STEM education and digital literacy constrain participation, particularly among women and rural communities.

AI governance frameworks remain largely voluntary, with enforcement capacity still developing. The consultations pointed to gaps in data governance, fragmented regulatory approaches, and low levels of public awareness. Data quality issues and siloed systems continue to limit effective oversight, while cross-border alignment is complicated by differing national standards and sensitivities around data localisation. Environmental considerations are not yet systematically addressed in most policy frameworks, despite the growing resource demands of AI. Without stronger safeguards, public trust in AI may remain fragile, particularly in sensitive areas such as data security and public services.

Looking ahead, ASEAN's tradition of consensus and cooperation, and its expanding regional initiatives, provide a strong foundation for progress. Realising AI's potential will depend on closing implementation gaps, strengthening institutional capacity, and ensuring that governance frameworks reflect the region's diversity. By investing in inclusive skills development, embedding safeguards for trust and accountability, and advancing sustainability, Southeast Asia can position itself as not just a user or developer of AI but a leader in shaping responsible, context-sensitive, and innovative governance.

Policy recommendations

1. Foster inclusive, context-sensitive AI capacity and governance

- Support the development of national AI initiatives in ASEAN countries with lower AI readiness, drawing on the experience of projects such as ThaiLLM[89] (Thailand, developed through public–private collaboration) and ILMU AI[90] (Malaysia, a private-led initiative with public support).

[89] Corinium Intelligence (2025). *Shaping ASEAN's AI Future: Paving the Way for Responsible Innovation.*
[90] YTL AI Labs (2025). ILMU: Malaysia's AI.

- Provide dedicated funding for localised AI models in under-represented languages across the region.
- Foster public–private collaborations for responsible AI development to reduce reliance on foreign systems and promote inclusive innovation.
- Adopt a gender-responsive governance approach drawing on international practice, such as UNESCO's *Women for Ethical AI* outlook study and the recommendations of the Global Partnership on Artificial Intelligence (GPAI).[91]
- Advance inclusive capacity-building, including interdisciplinary training and participatory design processes involving marginalised communities, building on initiatives such as the planned ASEAN AI Safety Network.
- Expand AI skills development and digital literacy programmes, and raise public awareness of AI risks, ethical use, and safe online practices.

2. Strengthen the legal and institutional foundations for responsible AI

- Encourage ASEAN Member States to translate regional guidance – such as the *ASEAN Guide on AI Governance and Ethics (2024)*, its Generative AI extension *(2025)*, and the *Responsible AI Roadmap (2025–2030)* – into national legal frameworks with enforceable safeguards for high-risk AI systems, particularly in public services.
- Establish clear legal boundaries prohibiting AI uses that are incompatible with fundamental rights, particularly mass biometric surveillance and social scoring, in line with UNESCO's *Recommendation on the Ethics of Artificial Intelligence*.
- Expand engagement with UNESCO's Readiness Assessment Methodology (RAM) and support the adoption of Ethical Impact Assessment (EIA) as a tool to evaluate risks before deployment.
- Strengthen or establish independent oversight bodies with enforcement powers and require human-in-the-loop safeguards for consequential public sector AI.
- Improve inter-ministerial coordination and multi-stakeholder collaboration on AI policy.
- Develop accountability frameworks and testing standards to ensure robustness and safety before deployment.

3. Advance regional harmonisation of data protection laws

- Accelerate alignment of all ASEAN national data protection laws with best practices, building on progress achieved in countries such as Indonesia, Malaysia, the Philippines, Thailand, and Singapore, and leveraging ongoing Digital Economy Framework Agreement negotiations on personal data protection and cross-border data flows.
- Prioritise harmonisation in key areas such as automated decision-making provisions, and biometric data governance, with special attention to public sector applications.
- Strengthen enforcement and redress mechanisms across all Member States.

4. Accelerate the implementation of AI governance through regional and international cooperation

- Translate the *ASEAN Responsible AI Roadmap (2025–2030)* into national action plans with clear benchmarks, dedicated institutional leadership, and defined periodic reviews.

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[91] GPAI (2024). *Transformative AI Policy for Gender Equality;* UNESCO (2024). *Women for Ethical AI: Outlook Study on AI and Gender.*

- Establish knowledge-sharing mechanisms between countries with advanced AI ecosystems, and those in the earlier stages of development, to address uneven implementation capacity.
- Leverage the Digital Economy Framework Agreement to binding interoperability standards for cross-border AI deployment and data sharing.
- Expand regional initiatives with shared AI auditing tools, interoperable testing protocols, cross-border model evaluation mechanisms, and joint regulatory sandboxes.
- Strengthen engagement in international cooperation initiatives, such as the Global Partnership on AI (GPAI), to build institutional capacity and align ASEAN efforts with evolving global governance norms.

5. Pioneer environmental sustainability for AI in Southeast Asia

- Develop guidelines for environmentally sustainable AI development and deployment, building on international practice[92] and leveraging existing green digital infrastructure initiatives such as the *ASEAN Guide on Sustainable Data Centre Development*.
- Develop a measurement framework to create ASEAN-specific standards for tracking the environmental impacts of AI systems.
- Promote reporting of energy use, carbon impact, and resource intensity of AI in public procurement and regulatory compliance.

[92] OECD and GPAI (2022). Measuring the environmental impacts of AI compute and applications: The AI footprint.

Appendix A. Consultation participants

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21. Representative, United Nations Educational, Scientific and Cultural Organization (UNESCO)
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Appendix B. Data sources and indices for AI governance analysis

TABLE 6. OVERVIEW OF THE KEY GLOBAL INDICES AND DATASETS USED TO ASSESS AI GOVERNANCE AND DIGITAL READINESS

Source	Description	ASEAN countries covered
CAIDP (2023). **Artificial Intelligence and Democratic Values Index**	The AI and Democratic Values Index is an annual assessment by the Center for AI and Digital Policy (CAIDP) that evaluates how well countries align their AI policies with democratic principles and human rights. The index examines AI governance across multiple dimensions, focusing on fundamental rights, the rule of law, accountability, and transparency in AI development and deployment.	Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam
Carnegie Endowment for International Peace (2022); **AI Global Surveillance Index**	Carnegie's AI Global Surveillance Index compiles empirical data on AI surveillance across 176 countries to illustrate how emerging surveillance capabilities are transforming governmental monitoring and tracking. It does not differentiate between legitimate and unlawful uses. The index asks: 1) Which countries are adopting AI surveillance? 2) What types of AI surveillance are being deployed? 3) Which countries and companies are supplying these technologies?	Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam
Global Center on AI Governance (2024). **Global Index on Responsible AI**	The Global Index on Responsible AI is a ranking of 138 countries that assesses how well they implement responsible AI based on human rights principles. It evaluates AI policies across 3 main pillars and 19 thematic areas, providing data to compare national efforts in ethical AI governance.	Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam
OECD **AI Incidents Monitor** (Acc. January 2025)	Tracks AI-related incidents and controversies globally.	Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam
OECD **policies** (Acc. February 2025)	Lists AI policies and governance frameworks globally.	Indonesia, Singapore, Thailand, Vietnam
Oxford Insights (2024). **Government AI Readiness Index**	The Government AI Readiness Index 2024 is a global benchmark used by policymakers to assess how well governments are prepared to adopt and integrate AI into public service delivery. Recognised by leading organisations like UNESCO and the G20, the index evaluates 188 countries based on their AI readiness in the face of evolving challenges such as economic uncertainty, climate risks, and rising inequalities. The 2024 Index is structured around 40 indicators across 3 key pillars: (a) government (policies, regulations, and institutional support of AI), (b) technology sector (AI industry development and innovation capacity), (c) data and infrastructure (digital and data ecosystems enabling AI adoption).	Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam
Portulans Institute (2023). **Network Readiness Index**	The Network Readiness Index 2023 is a global ranking that assesses how prepared a country or community is to use information and communication technologies, evaluating them across four key dimensions: government, trust, people, and inclusion.	Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, Vietnam

Appendix C. Inclusive AI policy analysis framework

This appendix details the analytical framework used to assess national AI policies in ASEAN countries. The framework was developed based on a comprehensive review of feminist AI literature across diverse geographical contexts, combined with widely accepted AI ethics frameworks such as the OECD's AI principles and UNESCO's *Recommendation on the Ethics of Artificial Intelligence*.

The framework is structured around eight dimensions:

1) **Positive and transformative purpose**: Assesses whether policies promote social good, align with human rights, and include provisions for harm prevention, risk assessment, and mitigation.

2) **Diversity and representation:** Examines whether policies ensure inclusive participation, team diversity, and intersectional perspectives throughout AI development and use.

3) **Accessibility, fairness, and inclusion**: Reviews whether policies address digital divides, data ownership, and inclusive design, especially for marginalised communities and AI workers.

4) **Contextual awareness:** Reviews whether policies encourage AI systems to reflect and adapt to local social, cultural, and historical contexts, and promote the involvement of local actors.

5) **Transparency, explainability, and accountability:** Assesses whether policies require transparency, ethical risk assessment, redress mechanisms, and accountability for harms or discrimination.

6) **Environmental sustainability**: Considers whether environmental risks are assessed and whether policies encourage energy efficiency and sustainable AI practices.

7) **Security and safety**: Examines whether policies include safeguards for secure AI deployment, with mechanisms for override, repair, or decommissioning.

8) **Ban on high-risk AI uses**: Assesses whether policies ban harmful uses such as mass surveillance, biometric categorisation, or social scoring.

Each dimension was operationalised through specific policy questions (outlined in Table 6) that guided our systematic review of national AI policies and initiatives across ASEAN.

TABLE 7. INCLUSIVE AI POLICY ANALYSIS FRAMEWORK

Positive and transformative purpose	Diversity and representation	Accessibility, fairness, and inclusion	Contextual awareness	Transparency, explainability, and accountability	Environmental sustainability	Security and safety	Bans on high-risk AI uses
Does the policy encourage the use of AI for a positive and transformative purpose? Does the policy align with international human rights standards and ensure that AI systems do not infringe upon basic human rights? Does the policy provide guidelines to prevent the design of AI systems for harmful use? Does the policy mandate risk and impact assessments? Does it outline mitigation provisions?	Does the policy capture voices from different actors and particularly marginalised groups? Does the policy encourage diverse representation within AI development, deployment, and use teams? Are diversity and representation accounted for from an intersectional perspective? Does it address potential biases in design and development?	Does it address power and technology disparities between global corporates and local actors? Does the policy address data and resource extractivism? Does it tackle data ownership and control issues, especially for marginalised groups? Does it empower individuals to have control over their data? Does the policy promote training and resources to ensure developers are aware of potential biases and how to address them? Does it encourage the use of diverse data and participatory design approaches? Does the policy address the digital divide? Does it address the working conditions of AI workers throughout the supply chain?	Does the policy promote the involvement of local actors where AI systems will be deployed? Does it encourage interdisciplinary approaches and context awareness training? Does the policy consider the implications of the interactions of AI systems and the social, cultural, economic, and historical context? Does it consider the implications of deploying AI systems in places different to those where systems were developed?	Does the policy require a comprehensive assessment of ethical considerations and potential risks? Does the policy outline and enforce guidelines for transparency and explainability? Does the policy establish mechanisms for accountability for discriminatory uses and negative impacts of AI? Does the policy consider highlighting monitoring, redress, and remedy mechanisms against harms caused by AI systems?	Does the policy consider environmental impact assessments of AI systems? Does the policy encourage resource-efficient and sustainable practices for AI systems? Does the policy encourage the use of AI for sustainable development?	Does the policy consider mechanisms to ensure that AI systems remain secure and safe throughout their lifecycle? Does the policy outline mechanisms for safely overriding, repairing, or decommissioning AI systems if they exhibit undesired behaviours or risk causing undue harm?	Does the policy prohibit the use of AI for mass surveillance? Social scoring? Biometric categorisation?

Source: Adapted from Roupakia, Z. and Castañeda-Navarrete J. (2025). Feminist principles for an inclusive and transformative Artificial Intelligence. *Canadian Journal of Communication.*

Appendix D. Review of national and regional AI policies

TABLE 8. REVIEW OF NATIONAL AND REGIONAL AI POLICIES IN ASEAN MEMBER STATES

Country/ Region	Policy	Year	Legally Binding	Agency	Positive and transformative purpose	Diversity and representation	Accessibility, fairness, and inclusion	Contextual awareness	Transparency, explainability, and accountability	Environmental sustainability	Security and safety	Bans on high-risk AI uses
Brunei Darussalam	Guide on AI Gover-nance & Ethics	2025	No	The Authority for Info-communi-cations Technology Industry (AITI)	Human-centred values with three levels of human intervention to prevent harms. Risk mitigation focus. Lacks human rights frameworks.	Acknowledges bias and recommends diverse datasets. No marginalised group focus or intersectionality .	Addresses bias in system design and advocates developer training. Encourages diverse datasets but lacks participatory design approaches. Doesn't address sovereignty, power disparities, data extractivism, or digital divide issues.	Explicitly aligns with Melayu Islam Beraja principles and Maqasid of Shariah. Minimal local actor involvement or context awareness training.	Requires comprehensive risk assessment and ethics evaluation. Emphasises transparency, explainability principles, and accountability mechanisms. Includes monitoring, redress, and remedy frameworks.	No environmental impact assessments, resource-efficient practices, or sustainable development considerations.	Establishes risk assessment and prevention mechanisms for AI-specific cybersecurity threats. Lacks protocols for safely overriding, repairing, or decommission-ing problematic AI systems.	None.
Cambodia	AI Land-scape in Cambo-dia. Current Status and Future Trends	2023	No	Ministry of Industry, Science, Technology & Innovation (MISTI)	Socio-economic transformation vision. References several international human rights standards that AI should respect. Provides risk assessment framework.	Acknowledges STEM education gender gap. Recognises need for diverse teams without intersectionality .	Human rights by-design approach for bias. Addresses gender digital divide. Ignores sovereignty and data ownership.	Emphasises local talent and collaboration without specific socio-historical context adaptation.	Mandates ethical assessments with transparency and accountability frameworks.	Considers environmental impact of manufacturing sector that produces/ supports AI systems. Encourages environmentally friendly production in AI supply chains.	Risk assessment and security measures. Demands framework to fight against cybercrimes. No decommission-ing protocols.	None.
Indonesia	Indone-sian	2020	No	Agency for the	Acknowledges transformative	Non-discrimination	Addresses data sovereignty with	Strong focus on Indonesian	Ethical assessment	Links AI to climate	Considers lifecycle	None.

	National Strategy on Artificial Intelligen-ce			Assess-ment and Application of Technology (BPPT)	potential. BPPT agency specifically tasked with risk assessment.	principle. Notes potential bias in facial cognition based on ethnicity, age, gender. No participation channels or intersectionality .	focus on training data, data link systems, and shared computing infrastructure. Goals include state access to strategic data and concerns about multinational company domination. Neglects marginalised data ownership rights.	context adaptation. Local content level requirements in government AI procurement. Ethical considerations aligned with Pancasila values.	aligned with Pancasila values and Trustworthy AI framework.	resilience and environmental protection. No system impact assessment.	security without override protocols.	
Malaysia	Malaysia National Artificial Intelli-gence Road-map 2021–2025 (AI-RMAP)	2023	No	Ministry of Science, Technology and Innovation (MOSTI)	Economic, social, technological development focus. Proposes AI-CIU (AI Coordination and Implementation Unit) for governance without mandatory assessments.	"Quadruple helix" collaboration (government, academia, industry, society) without marginalised participation or intersectionality .	Brief sovereignty mention without addressing power disparities or data ownership. Acknowledges digital divide.	References global position without structured local involvement or context adaptation.	Ethics acknowledge-ment without enforcement mechanisms or accountability frameworks.	No impact assessment. Mentions self-sustainable AI innovative system without specific resource-efficiency measures.	Proposes cybersecurity integration without technical safety mechanisms.	Security surveill-ance mention-ed without details.
Malaysia	The National Guide-lines on AI Gover-nance & Ethics (AIGE)	2024	No	Ministry of Science, Technology and Innovation (MOSTI)	Responsible governance aligned with rights standards. Religious/cultural reference: Explicit alignment with Rukun Negara values(belief in God, loyalty to King and Country, supremacy of Constitution, rule of law, courtesy and morality). Includes risk	Addresses diverse perspectives and fairness. Provides several indices to evaluate fairness and inclusiveness. No specific marginalised inclusion or intersectionality .	Emphasises accountability for under-represented groups. Mentions AI Ethics, accountability, transparency, inclusiveness for under-represented groups. No sovereignty or power balance focus.	Encourages stakeholder engagement with limited cultural-historical consideration.	Risk assessment and transparency guidelines. Recommends oversight bodies and ethical review processes without enforcement mechanisms.	Environmental impact mentioned with ESG (Environmental, Social, Governance) connections. Includes Environmental Safety Index for responsible AI practices.	Security requirements. Reliability, Safety, and Control principle without override protocols.	Brief reference to regulation needed for surveill-ance, deep-fakes, cyber-attacks.

					mitigation processes.							
Malaysia	Guide-lines on Technolo gy Risk Manage-ment	2023 , effec -tive from 2024	Yes* (For Regulate d Entities in Capital Markets)	Securities Commiss-ion Malaysia (SC)	Financial sector risk management focus on technology-related risks. No transformative vision or human rights framework.	Regulatory compliance focus without diversity provisions or bias mitigation frameworks.	Limited financial industry scope without addressing broader technology governance issues.	Limited to financial compliance without sociocultural considerations.	Financial AI risk assessment without broader ethical frameworks.	No environmental considerations.	Data safeguarding without lifecycle security provisions.	None.
Philippines	National AI Strategy Road-map for the Philipp-ines	2021	No	Depart-ment of Trade and Industry (DTI)	Economic transformation. Human rights in "strategic dimensions" with specific data privacy focus citing Data Privacy Act 2012 and EU GDPR. No risk assessment mandates.	No diverse voices or representation requirements.	Highlights imbalance between large companies and MSMEs in data value extraction. Encourages "full extraction of value from datasets" with "entire solution complex" for data extraction.	Local workforce preparation for "AI-demanding jobs of the future". No cultural-historical context consideration.	Acknowledges ethics framework gap. Proposes strengthening IP/Data Privacy Law and "regulatory sandbox" for AI "conscience".	Economic sustainability without environmental focus.	Network security without lifecycle considerations.	None.
Singapore	National-AI Strategy 2.0	2023	No	Deputy Prime Minister (DPM) and Minister for Finance; Smart Nation and Digital Govern-ment Office (SNDGO)	AI as "public good" without inequality reduction or human rights alignment. Creating a "trusted environment" for Singapore.	Limited participation processes without marginalised inclusion or intersectionality . Emphasises "inclusive conversations" without specific mechanisms.	Preliminary talent development without sovereignty, data control, or inclusivity focus.	Mentions local ecosystem and context-specific risks without cross-context considerations.	Trusted environment emphasis without specific accountability mechanisms.	Sustainable use without impact assessment requirements.	Actions to "raise security and resilience baseline" for AI without decommission-ing protocols.	None.
Singapore	Develop-ing the Minimum Viable Product (MVP) for AI Gover-nance Testing	2021	No	Personal Data Protection Commiss-ion (PDPC); Infocomm Media Develop-ment	Responsible adoption with 12 ethical principles (listed in Annex). Lacks human rights framework.	Limited participation with fairness and data governance principles for bias prevention.	References "alignment with national priorities" without addressing power dynamics or digital divide.	Mentions "context-specific metrics and thresholds" without local engagement guidance.	12 ethical principles with transparency and human oversight emphasis.	No environmental considerations.	Safety and robustness principles without override mechanisms.	None.

	Frame-work			Authority (IMDA)								
Singapore	Artificial Intelli-gence Ethics & Gover-nance Body of Knowl-edge	2020	No	Singapore Computer Society (SCS)	Human-centric benefit approach with safety focus but limited mitigation strategies.	Stakeholder management guidelines. Requires build-ing trust and bridging knowledge gaps without marginalised inclusion or intersectionality .	Data protection, privacy, and user control mechanisms. Principle of "data accessibility at all time to all persons". No digital divide, sovereignty, extractivism focus.	Promotes interdisciplinary collaboration and recognition of wellbeing/ trusted environment without cross-context deployment guidance.	Ethical principles. Series of questions as transparency guidelines. Auditing process for bias and fairness.	Mentions sustainable AI balancing economic growth, social progress, and environmental preservation without specific measures.	Safety as primary consideration without decommission-ing protocols.	None.
Singapore	Model Artificial Intelli-gence Gover-nance Frame-work	2020	No	Infocomm Media Developme nt Authority (IMDA); Personal Data Protection Commiss-ion (PDPC)	"Responsible use of AI" with "human-centric" development. Risk-based approach with internal governance structures.	Diverse consultation principle. Bias minimisation and representative-ess in data use without development team diversity requirements.	Data fairness focus. "Risk-based approach" to AI use without addressing sovereignty or power dynamics.	Context awareness with limited social–cultural implications consideration.	Comprehen-sive risk-based governance. "Good data accountability practices" and detailed monitoring/ redress mechanisms.	Limited sustainability references.	Three-tiered human oversight model with varying control levels based on probability-severity assessment.	None.
Singapore	Princi-ples to Promote Fairness, Ethics, Accounta bility, and Transpar ency (FEAT) in the Use of AI and Data Analytics in Singapor e's Financial Sector	2018	No	Monetary Authority of Singapore (MAS)	Responsible financial AI with FEAT principles (Fairness, Ethics, Accountability, Transparency) without explicit risk assessment mandates.	Principles co-created with stakeholders and "range of financial institutions and companies" without marginalised inclusion.	"Minimise unintentional bias" and "justify different factors" without addressing broader power dynamics.	"Contextualising and operationalising governance" of AIDA (AI and Data Analytics) without detailed awareness training.	FEAT principles framework. Requires disclosing AI use with clear explanations on data usage. Both internal/ external accountability without harm redress.	No environmental considerations.	No security or safety provisions.	None.

Thailand	Digital Thailand AI Ethics Guideline	2023	No	Ministry of Digital Economy and Society	Focus on human wellbeing and social, economic, environmental benefits. Rights standards alignment. Independent external reporting requirement for risk assessment with impact accountability.	Incorporates disadvantaged, disabled group perspectives. Diverse AI design/ development representation. Diverse researchers and data to address bias. No intersectionality .	Emphasises data owner control rights and individual data understanding. Promotes contextual awareness and participatory process in design. Addresses gender and educational digital divides.	Encourages context awareness without interdisciplinary approaches. Considers social, cultural, economic and historical context interactions with AI.	Comprehen-sive ethics assessment. Transparency mechanisms. Accountability for discriminatory impacts. Monitoring, redress, and remedy mechanisms.	Considers environmental impact without specific practices. Places sustainable development at core of AI ethics.	Lifecycle security. Human determination of AI deployment decisions. No decommission-ing protocols.	None.
Thailand* (Translation issues)	Guideline-s for Responsible Use of Artificial Intelli-gence for Organis-ational Execu-tive	N/A	No	Artificial Intelligence Gover-nance Clinic (AIGC); Electronic transaction Develop-ment Agency	Limited transformative vision. Accountability principle without prevention guidelines.	No marginalised perspectives or diverse representation requirements.	"Fairness" and "non-discrimination" as part of risk control. Competency building without addressing ownership or power disparities.	Cross-organisational involvement without detailed context analysis. Considers legal and social implications of AI interactions.	Ethics and risk evaluation. Transparency enhancement strategies in AI services. Considers negative consequence severity.	AI Governance Council to evaluate sustainability without specific practices. No environmental considerations.	"Security and safety" as core AI Ethics. "Security measures" at implementation level by AI Governance Council. Considers human involvement in deployment.	None.
Vietnam	National Strategy on Res-earch and Develop-ment and Applica-tion of AI (2021-30)	2021	Yes	Prime minister	Transformative use. Ministry of Public Security mandated to develop legal documents on privacy protection, human rights, and security.	No participation or representation provisions.	International collaboration without addressing power dynamics or data ownership.	Strong local actor involvement. Extensive ministerial orders for implementation across sectors including tourism, culture, education.	No ethical assessment or accountability frameworks.	Sustainable development applications in agriculture, transport, environmental protection without impact assessment.	Security principles without override mechanisms.	None.
ASEAN	ASEAN Guide on AI Gover-nance	2024	No	ASEAN	Human-centric approach. AI risk impact assessment template with	Recognises multiple bias types (representation, societal, labelling,	Advocates clearer legal frameworks for data ownership. Developer bias awareness	Strong Southeast Asian context focus. Local norms/values in risk	Comprehen-sive ethics assessment. Error/unethical outcome documentation	Environmental impact measurement and energy consumption metrics.	Lifecycle security. Human intervention and disengagement	None.

	and Ethics				mitigation provisions.	measurement, activity, proxy). Focus on vulnerable/ marginalised groups impact.	training. Diverse and representative datasets.	assessment. Acknowledges digital maturity variations across social, economic, cultural backgrounds.	and correction for harm prevention. Transparency guidelines with mitigation plans.	Resource-efficient, sustainable practices.	mechanisms for unsafe decisions.	
ASEAN	ASEAN Guide on AI Gover-nance and Ethics – Genera-tive AI	2025	No	ASEAN	Human-centric approach. Risk template specific to generative AI.	Vulnerable population consideration. Addresses representation bias in training data. Promotes diverse AI teams.	Legal frameworks for ownership. Workforce upskilling for AI adaptation.	Regional context emphasis. Local norms/values in risk assessments. Varying digital maturity awareness.	Ethical risk evaluation. Error documentation/ correction to prevent harm. Transparency guidelines.	Environmental impact tracking and energy consumption measurement. Sustainable practices focus.	Security with guardrails against erroneous prompts outside intended operation.	None.
ASEAN	ASEAN Respon-sible AI Road-map	2025	No	ASEAN	Human-centric rights focus. Assessment pillar for societal impact. Harm minimisation pillar with tailored mitigation strategies.	Captures voices of vulnerable communities in AI design. Proposes to monitor demographic representation across gender, age, ethnicity, socio-economic backgrounds.	Data sovereignty mechanisms as assessment pillar. High-speed broadband extension to bridge digital divides. Accelerates AI adoption across business sizes.	Extensive local involvement through infrastructure, experts, language materials, community engagement. Interdisciplinary research collaboration for societal impact study.	Comprehen-sive ethics assessment. Multiple assessment pillars for transparency and discrimination accountability. Policy assessment guidelines.	Environmental impact assessments of AI systems. National framework evaluation based on environmental criteria. Resource-efficiency requirements.	Lifecycle security without decommission-ing protocols.	None.

Note: The cut-off date for document selection was March 2025.

Appendix E. Review of data protection laws

Our analysis employed UNESCO's AI Readiness Assessment Methodology (RAM) to evaluate data protection frameworks across Southeast Asian countries. This methodology provides a standardised approach for assessing how well national data protection laws support ethical AI implementation by examining the key dimensions that underpin responsible data governance.

We assessed each country's legislation against eight key criteria derived from UNESCO's *Recommendation on the Ethics of Artificial Intelligence*:

1) **User control and data deletion**: Does the data protection law give users control over their data and allow them to delete it? This examines whether individuals have rights to access, correct, and remove their personal information from databases.

2) **Notice and consent framework**: Does the data protection law mention a notice and consent framework? This evaluates whether organisations must inform individuals about data collection purposes and obtain consent before processing.

3) **Transparency on data usage**: Does the data protection law include transparency requirements on data usage? This assesses provisions requiring clear disclosures about how collected data is used, shared, and protected.

4) **Data minimisation**: Does the data protection law include requirements on data minimisation? This examines provisions limiting data collection to what is necessary for specified purposes.

5) **Privacy impact assessments**: Does the data protection law highlight cases in which data protection or privacy impact assessment is required? This evaluates whether organisations must formally assess data processing risks, particularly for high-risk activities.

6) **Sensitive data protection**: Does the data protection law include specific rules for sensitive information (e.g. biometric data)? This examines whether heightened protections exist for particularly vulnerable data categories.

7) **Enforcement and penalties**: Does the data protection law include enforcement mechanisms and compensation schemes in case of violation? This evaluates the presence of oversight bodies, penalties, and remedies for affected individuals.

8) **Public sector exclusion**: Are different standards of data protection applied for data collected by public versus private entities? Are there government exemptions? This assesses whether government agencies face the same requirements as private organisations.

This framework allowed us to systematically compare different national approaches, identify strengths and weaknesses across the region, and evaluate how data protection regimes may influence AI governance and public perceptions of technology. Our analysis focused on substantive legal provisions rather than implementation effectiveness, providing a baseline assessment of regulatory readiness for AI development. Note that the cut-off date for document selection was March 2025.

TABLE 9. REVIEW OF DATA PROTECTION LAWS IN ASEAN MEMBER STATES

Country	User control and data deletion?	Notice and consent framework?	Transparency on data usage?	Data minimisation?	Privacy impact assessments	Sensitive data protection?	Enforcement and penalties?	Public sector exclusion?
Brunei Darussalam (Personal Data Protection Order – Draft, 2025)	Yes, users can request deletion	Yes, explicit consent required	Yes, transparency on data usage required	Yes, data minimisation required	Required for data breaches	No explicit differentiation of sensitive data	Proposed fines up to B$1 million or 10% of turnover	Full exclusion for public agencies, which follow separate rules
Cambodia (Law on E-Commerce, 2019)	No explicit right to delete data	No explicit notice and consent framework	No explicit transparency requirements		Not required	No explicit classification of sensitive data	Criminal penalties, including imprisonment for data protection violations	No distinction
Indonesia (Personal data Protection Law, 2022)	Yes, users can delete data	Yes, explicit consent required	Yes, transparency on data usage required	Yes, data minimisation required	Required for ADM, large-scale processing, systematic monitoring	Health biometric, genetic, criminal, and financial data classified as sensitive	Criminal penalties, fines, and compensation rights	Exemptions for public interest in state administration
Laos (Law on Electronic Data Protection, 2017)	Yes, users can delete data	Yes, consent required	Yes, transparency on data usage required	Yes, data minimisation required	Required for data breach response, not proactive assessment	Health, ethnicity, and political affiliation data classified as sensitive	Reprimand, warning, discipline, fines, or criminal penalties	Different security levels for state-collected data
Malaysia (Personal data Protection Act, 2010, amended 2024)	Yes, users can request deletion	Yes, explicit consent required	Yes, transparency on data usage required	Yes, data minimisation required	Data breach notification required, PIAs at regulator's discretion	Biometric data classified as sensitive	Fines imposed, but no clear compensation mechanisms	Full exclusion for government; separate Data Sharing Act
Myanmar (Law Protecting the Privacy and Security of Citizens 2017)	No explicit right to delete data	No notice and consent framework	No explicit transparency rules		Not required	No special category for sensitive data	Unclear – enforcement mechanisms for data protection not specified	No distinction between public and private sector data
Philippines (Data Privacy Act, 2012, amended 2022)	Yes, users can request deletion	Yes, specific informed consent required	Yes, transparency on data usage required	Yes, data minimisation required	Required particularly for government agencies, large organisations, and research institutions	Race, health, financial, genetic data classified as sensitive	Strong penalties, including imprisonment	Government agencies must follow additional security requirements
Singapore (Personal Data Protection Act, 2012, updated 2020)	Partial, right to withdraw consent and data retention limits; doesn't explicitly grant the right to delete	Yes, consent required but with exceptions (i.e. business improvement purposes and others)	Yes, transparency on data usage required	Yes, data minimisation required	Data breach assessment required, not full PIA	No special categories of sensitive data	Financial penalties	Full exclusion for public agencies, governed under Public Sector (Governance) Act (2018)
Thailand (Personal Data Protection Act, 2019, enforced 2022)	Yes, users can request deletion	Yes, explicit consent required	Yes, transparency on data usage required	Yes, data minimisation required	Required for data breaches	Race, health, criminal, biometric data classified as sensitive	Administrative fines, criminal penalties, and civil damages	Exemptions for national security, forensic science, and public safety
Vietnam (Personal Data Protection Decree, 2023)	Yes, users can request deletion within 72 hours	Yes, explicit consent required	Yes, transparency on data usage required	Yes, data minimisation required	Required for sensitive data processing, and third-party transfers	Health, biometric, financial, political, religious data classified as sensitive	Fines, administrative sanctions, criminal liability, and compensation rights	Exemptions for national security, law enforcement, and public interest

Policymaking for a more resilient world

The project *Policymaking for a more resilient world: leveraging the World Risk Poll for more effective digital, labour, and industrial policies* is led by Cambridge Industrial Innovation Policy, in partnership with UNIDO, and funded by Lloyd's Register Foundation. It draws on the Lloyd's Register Foundation World Risk Poll and interconnected data sets to examine perspectives on AI, digital, labour, and industrial policy, focusing on the Southeast Asia region. The project aims to inform policies that ensure a safer and more sustainable future for all.

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