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AI READINESS, DIGITAL LITERACY, AND DIGITAL CAPABILITY: RETHINKING EDUCATIONAL EQUITY IN SOUTHEAST ASIA

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ABSTRACT

The rapid diffusion of artificial intelligence (AI) is transforming digital environments and educational systems across Southeast Asia, while creating challenges for information credibility and digital inequality. This study examines the relationship between government AI readiness and population-level digital literacy across six Southeast Asian countries—Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam—and discusses its implications for digital capability and educational equity. Using a comparative secondary-data approach, the study draws primarily on the 2025 Government AI Readiness Index developed by Oxford Insights and the digital literacy sub-pillar of the Tech for Good Institute's 2025 Confident Digital Society Index. National AI strategies and policy documents are used to interpret the numerical patterns. The comparison reveals substantial differences between government AI readiness and digital literacy. Singapore demonstrates the highest government AI readiness, while Malaysia and the Philippines show comparatively higher digital literacy than government AI readiness. Indonesia exhibits near alignment between the two dimensions, whereas Thailand, Singapore, and Vietnam show higher government AI readiness than digital literacy. Policy documents and prior studies suggest that strategies centre on institutions and talent pipelines, while public literacy receives limited attention and national averages conceal unequal capability. Educational equity in the AI era should therefore be understood beyond equal access to digital technologies: it increasingly depends on whether people can develop the critical, evaluative, and adaptive capabilities needed to navigate AI-mediated information environments.

Keywords: Artificial Intelligence (AI) Readiness; Digital Literacy; Educational Equity; Southeast Asia; Digital Capability

INTRODUCTION

Artificial intelligence (AI) is rapidly becoming part of the information environments in which people in Southeast Asia learn, communicate, and form beliefs. AI-generated media also complicate judgments of credibility. Experimental evidence shows that political deepfakes may not always deceive viewers, but they create uncertainty that lowers trust in news on social media (Vaccari & Chadwick, 2020). A survey of roughly 1,000 respondents in each of eight countries, including all six examined here, found that

repeated exposure to deepfakes increased belief in their claims, especially among people who rely on social media for news, and that higher cognitive ability did not remove this effect (Ahmed et al., 2024).

Policy attention has largely concentrated on what governments are doing. The Government AI Readiness Index assesses the capacity of governments to harness AI for public benefit (Iida et al., 2026a), and the ASEAN Digital Masterplan 2025 includes digital skills and literacy among the enabling conditions of a regional digital community (ASEAN Secretariat, 2021). Yet government readiness is not the same as population capability. This paper therefore asks: (RQ1) How does government AI readiness compare with population-level digital literacy in Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam? (RQ2) What do these patterns imply for digital capability and educational equity?

LITERATURE REVIEW

Digital literacy is not a single settled construct, and AI literacy extends the debate: it is understood as more than technical knowledge, encompassing the use, evaluation, and ethical appraisal of AI (Ng et al., 2021), while its integration into school curricula is still developing (Casal-Otero et al., 2023). A capability perspective asks what people are actually able to do and to be, rather than only which resources are available to them. McDougall et al. (2018) draw on Sen's concept of capability to distinguish digital competences, understood as functioning, from the uses of those competences for a broader range of capabilities. Applied to AI, equal access to devices, connectivity, or AI tools is necessary but insufficient for educational equity; what matters is whether learners can convert access into critical, evaluative, and adaptive capability. Deepfake risks are likewise unevenly distributed, shaped by psychological and media-use factors as well as access (Ahmed et al., 2023).

Research on the digital divide supports this move from access to capability. Van Deursen and van Dijk (2019) show in a representative Dutch survey that even in a highly connected country, inequalities shift from physical access to material access, that is, to the devices, peripherals, and running costs that shape Internet skills, uses, and outcomes. Work on AI in education points in the same direction: a systematic review of 146 studies found that research on AI in higher education comes mostly from computer science and STEM fields and shows little critical reflection on challenges and risks (Zawacki-Richter et al., 2019). Long and Magerko (2020) add that AI literacy involves competencies, such as critically evaluating AI technologies, that many non-experts lack, because they often do not realize when they are interacting with AI.

The 2025 Government AI Readiness Index defines readiness as the extent to which a government can harness AI to benefit the public, and measures it through six pillars and 69 indicators (Iida et al., 2026a). Its indicators are mostly government-centered; population skills enter only marginally, through a digital skills indicator within the

Resilience pillar (Iida et al., 2026b). Whether enabling conditions such as those in the ASEAN Digital Masterplan 2025 translate into population capability is an empirical question.

METHOD

The study uses a comparative, descriptive secondary-data design covering six Southeast Asian countries. Government AI readiness is taken from the January 2026 edition of the 2025 Government AI Readiness Index, which supersedes the December 2025 release and publishes ranks and six pillar scores for each country. Digital literacy is taken from the Confident Digital Society Index of the Tech for Good Institute (TFGI, 2025a, 2025b), where it is a sub-pillar of Meaningful Participation built from indicators such as safe participation online, human capital, confidence and trust in using technology, platform use, and digital language support. It is therefore a population-level composite proxy, not a direct test of individual skills. For each country, the gap was calculated as AI readiness minus digital literacy. Countries were classified as readiness-led (gap above +2 points), aligned (between −2 and +2), or literacy-led (below −2); the ±2-point band is an analytical convention rather than a statistical threshold.

To interpret the numbers, national AI strategies and policy documents of each country were read for what they prioritize, what they say about public or end-user AI literacy, and which implementation gaps they acknowledge, and were compared with the ASEAN Foundation's digital literacy study (2024) and Indonesia's national literacy index. The sources are English-language documents and press summaries, so this reading is interpretive. With six cases, all analysis is descriptive.

RESULTS

Table 1 and Figure 1 summarize the comparison. Government AI readiness ranges from 59.9 (Indonesia) to 76.4 (Singapore), a spread of 16.5 points, while digital literacy ranges from 55.0 (Vietnam) to 67.8 (Singapore), a spread of 12.8 points. Singapore leads on both measures. The other five countries cluster within 3.4 points on AI readiness (59.9–63.2), yet differ by 11.7 points on digital literacy (55.0–66.7), so country order changes from one measure to the other. Ranked by readiness, the order is Singapore, Thailand, Malaysia, the Philippines, Vietnam, and Indonesia; ranked by digital literacy it is Singapore, Malaysia, the Philippines, Indonesia, Thailand, and Vietnam. Thailand therefore falls three places (second to fifth), Indonesia rises two (sixth to fourth), Malaysia and the Philippines each rise one, and Vietnam falls one.

Table 1. Government AI readiness, digital literacy, and deepfake perception in six Southeast Asian countries

Country	Oxford rank (of 195)	AI readiness	Digital literacy	Gap	Pattern	Perceived accuracy of deepfakes (1–5)
Singapore	7	76.4	67.8	+8.6	Readiness-led	2.41
Thailand	34	63.2	59.8	+3.4	Readiness-led	2.88
Malaysia	38	62.3	66.7	−4.4	Literacy-led	2.90
Philippines	43	60.5	62.7	−2.2	Literacy-led	2.81
Vietnam	45	60.0	55.0	+5.0	Readiness-led	2.62
Indonesia	46	59.9	60.7	−0.8	Aligned	2.94

Note. AI readiness = weighted sum of official pillar scores (Iida et al., 2026a, 2026b); digital literacy = TFGI (2025b) sub-pillar score; gap = AI readiness minus digital literacy; perceived accuracy from Ahmed et al. (2023, Table 1).

Three patterns emerge. Malaysia (−4.4) and the Philippines (−2.2) are literacy-led: population-level digital literacy exceeds government AI readiness. Indonesia (−0.8) is aligned. Singapore (+8.6), Vietnam (+5.0), and Thailand (+3.4) are readiness-led. The regional averages hide this divergence. Across the six countries, mean AI readiness (63.7) and mean digital literacy (62.1) differ by only 1.6 points, and without Singapore the means are almost identical (61.2 and 61.0). Yet individual gaps run from −4.4 to +8.6, with an average absolute gap of 4.1 points, because positive and negative gaps offset each other in the aggregate. A regional average would therefore suggest balance where the country data show imbalance in both directions.

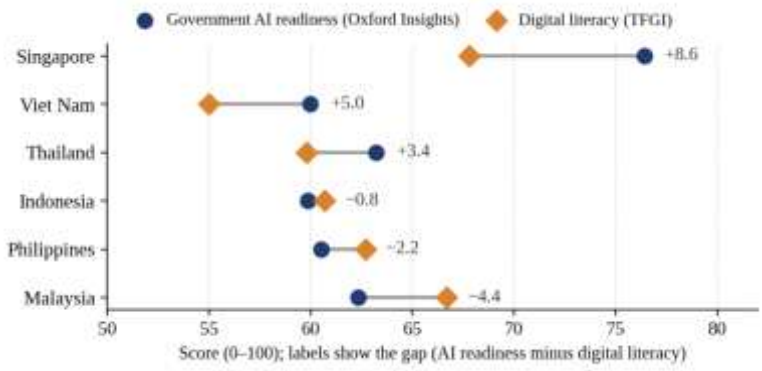


Figure 1. Government AI readiness and digital literacy by country

Pillar scores show where readiness is uneven (Table 2). Singapore leads on four of the six pillars, but Thailand has the highest Policy Capacity (88.00) and Vietnam the highest Governance score (88.05), although Vietnam has the lowest Policy Capacity (53.50). The lowest scores differ by pillar: AI Infrastructure in the Philippines (49.50), Public Sector Adoption in Malaysia (64.78), and Development and Diffusion in the Philippines (43.96). Resilience, the pillar that contains the digital skills indicator, ranges from 76.42 in Singapore to 37.35 in Thailand and is also low in Malaysia (38.33) and Vietnam (43.28). Thailand thus combines one of the highest Public Sector Adoption scores (85.86) with the lowest Resilience, which shows how a country can look ready at the level of government while remaining weak on the pillar closest to population capability.

Table 2. Official pillar scores, Government AI Readiness Index 2025

Country	Policy Capacity	AI Infrastructure	Governance	Public Sector Adoption	Dev. & Diffusion	Resilience
Singapore	85.00	74.46	78.30	92.50	64.15	76.42
Thailand	88.00	56.38	70.44	85.86	52.58	37.35
Malaysia	80.50	60.52	78.48	64.78	55.36	38.33
Philippines	84.50	49.50	83.34	69.17	43.96	58.17
Vietnam	53.50	57.41	88.05	73.21	47.03	43.28
Indonesia	77.00	60.28	61.25	73.77	44.09	58.27

Note. Source: Iida et al. (2026a), full rankings (January 2026 edition).

Cross-national survey evidence adds an information-behavior perspective (Ahmed et al., 2023). On the five-point scale, mean perceived accuracy of the deepfakes was lowest in Singapore (2.41), followed by Vietnam (2.62), the Philippines (2.81), Thailand (2.88), and Malaysia (2.90), and highest in Indonesia (2.94). All six means fall below the scale midpoint, and the spread across countries is 0.53 points. The order does not follow the literacy scores: Singapore has both the highest literacy and the lowest perceived accuracy, but Vietnam, with the lowest literacy, has the second-lowest perceived accuracy. These patterns are descriptive: the surveys used four viral deepfakes with online panels, so they do not show that literacy scores predict discernment.

DISCUSSION

The results show that government AI readiness and population-level digital literacy diverge in all six countries except Indonesia, and that regional averages hide this divergence. Policy documents help explain why. Singapore's gap of +8.6 comes mainly from a readiness score of 76.4, built on sustained state investment, including more than S$500 million committed to AI research (GovTech Singapore, n.d.), yet its high literacy average sits beside reported disparities in computer access among seniors and low-income households (ASEAN Foundation, 2024). Thailand's lowest Resilience score (37.35) fits a national strategy that targets more than 30,000 AI professionals but public awareness education for only 600,000 citizens by 2027 (OECD.AI, n.d.-a). Vietnam combines the highest Governance score (88.05) with the lowest literacy (55.0), and its strategy sets targets for rankings and computing centers while leaving AI skills provisions without a numeric goal (Vietnam Prime Minister, 2021). In the literacy-led countries, Malaysia's guidelines address end users directly and inform them of their rights (Chambers and Partners, 2024), which is consistent with its strong literacy (66.7). The Philippines' literacy average (62.7) coexists with the lowest reported privacy competence among surveyed communities (17.42%) and an acknowledged shortage of computing and human resources (OECD.AI, n.d.-b; ASEAN Foundation, 2024). Indonesia's alignment should not be read as success: both scores sit near 60, and the national literacy index identifies digital safety as its weakest pillar (Warta Ekonomi, n.d.). Taken together, these documents suggest that AI strategies are built around institutions and talent pipelines,

while public literacy receives small or unquantified attention and national averages conceal who is left behind.

This reading is consistent with prior research on the digital divide. Van Deursen and van Dijk (2019) find that inequalities persist at the level of material access, that is, devices, peripherals, and running costs, even in a highly connected country, which is how high national averages in Singapore can coexist with unequal capability. The literacy-led pattern is harder to explain from index data alone, but a review of four ASEAN member states shows that Malaysia, the Philippines, and Thailand have made teacher digital skills a demand-side priority. Malaysia set a target of basic digital skills for all teachers, the Philippines aims to train most public secondary teachers in basic computer skills, and Thailand's Net Pracharat program reached more than 1.2 million people by 2018 (McFarlane et al., 2024). Such programs may help explain relatively strong population literacy where government AI readiness is modest, although this study cannot test that link. The same review cautions that these interventions largely treat students as a homogeneous group and that female students and those from lower socio-economic backgrounds face greater barriers (McFarlane et al., 2024).

Prior studies also clarify what a digital literacy composite can and cannot show. AI literacy is a distinct set of competencies: Long and Magerko (2020) identify 17 competencies, including recognizing when AI is in use and critically evaluating it, which general measures of platform use, trust, and human capital do not capture. A country may therefore score well on digital literacy and still hold weak AI literacy. Research on AI in education has also focused mainly on technical applications, with little critical reflection on risks (Zawacki-Richter et al., 2019), an emphasis that parallels the strategies reviewed above. Moreover, literacy can be taught, but its effects depend on context. A short media literacy intervention raised discernment between mainstream and false news by 26.5% in a national US sample and by 17.5% in a highly educated online sample in India, but the Indian gain faded after several weeks and no effect appeared in a rural sample with low social media use (Guess et al., 2020). Awareness campaigns such as Thailand's 600,000-person target therefore need follow-up, evaluation of persistence, and design for lower-use communities, not only broad reach.

The index design reinforces this reading: the digital skills indicator carries roughly 1.25% of the overall readiness score (author's calculation from Iida et al., 2026b), so readiness is largely silent on population capability.

A capability-oriented framework (Figure 2) makes the missing link explicit. Government AI readiness shapes people's opportunities only through conversion factors such as school curricula, teacher training, affordable access, and local-language resources, which determine whether access becomes real capability (McDougall et al., 2018; Casal-Otero et al., 2023). At the same time, AI-mediated information environments raise the demands on that capability: deepfakes produce uncertainty and erode trust (Vaccari & Chadwick, 2020), and sharing is driven by perceived accuracy and social-

psychological traits rather than access alone (Ahmed et al., 2023). Educational equity then depends on whether all learners can develop the critical, evaluative, and adaptive capabilities these environments require.

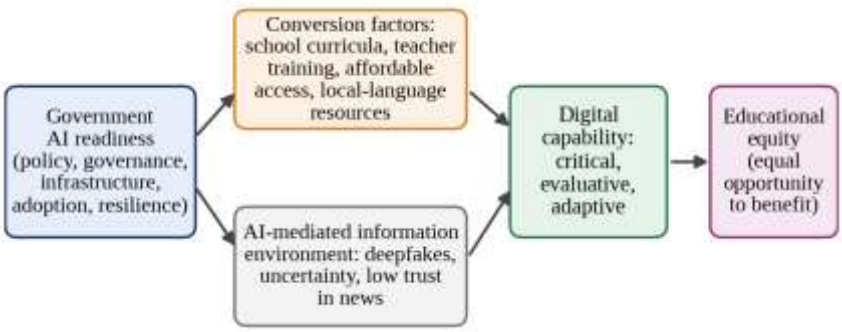


Figure 2. A capability-oriented framework linking AI readiness to educational equity

Three policy implications follow. First, AI governance and education policy should be planned together, with strategies setting measurable school-level AI literacy and teacher-preparation targets (ASEAN Secretariat, 2021). Second, monitoring should move beyond access and institutional readiness to measure digital capability directly, with data disaggregated for seniors, low-income households, and other groups hidden by national averages. Third, ethical attention to fairness and agency in AI in education (Holmes et al., 2022) should reach groups with formally equal access but unequal capability.

Limitations: six cases, descriptive analysis. The TFGI score is a composite proxy (TFGI, 2025a), and readiness scores are computed from published pillar scores. The policy evidence comes from English-language documents and press summaries and does not capture how teachers and learners experience these policies.

CONCLUSION

Government AI readiness and population-level digital literacy are related but distinct dimensions of digital transformation in Southeast Asia. Singapore leads on both, but Malaysia and the Philippines are literacy-led, Indonesia is aligned at a modest level, and Thailand, Vietnam, and Singapore are readiness-led. Policy documents and prior studies suggest why: strategies prioritize institutions and talent, and national averages hide unequal capability. Educational equity in the AI era therefore cannot be inferred from access or from government readiness alone. Future research should add interviews with teachers and learners, use performance-based measures, and cover all ASEAN members.

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