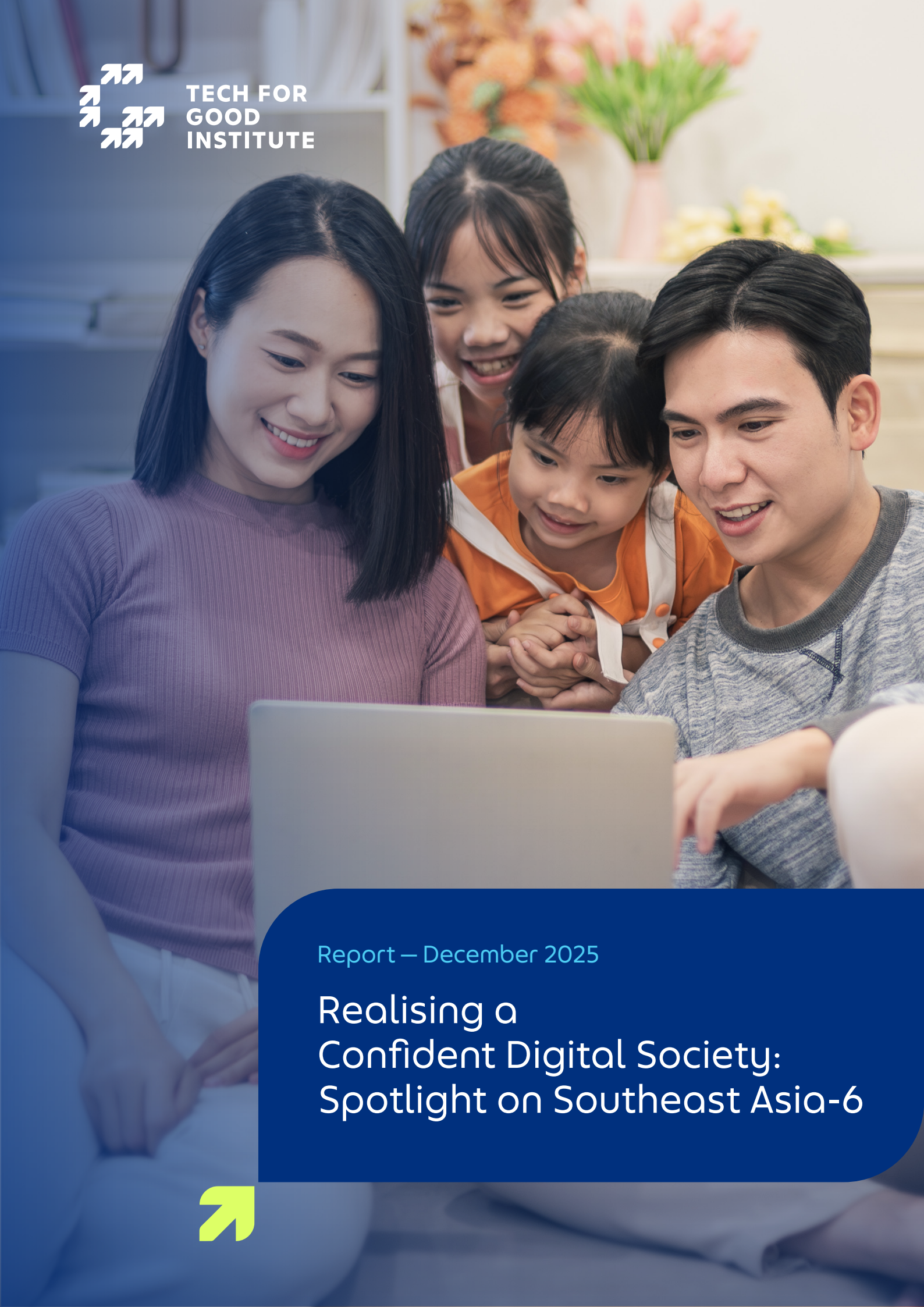




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Report – December 2025

Realising a Confident Digital Society: Spotlight on Southeast Asia-6



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About This Study

In 2023, the Tech for Good Institute (TFGI) published the report, *From Tech for Growth to Tech for Good*, which explored the ambitions of the Southeast Asia-6 countries (SEA-6) — Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam — for the next phase of digital development in the region. The report underscored a shared broadening of goals, shifting from a primary focus on rapid digital economy growth to a more holistic vision of responsible digital development. Central to this vision is fostering a “Confident Digital Society,” positioned as a parallel objective to industry transformation and economic progress.

This study examines the concept of a “Confident Digital Society”, including what it means, what it comprises, and how it can be measured. An earlier white paper released this year served as the basis for consultations with key stakeholders across the region. Using selected indicators and incorporating feedback from a range of experts, we have identified relevant data sources and refined the conceptual framework to better reflect regional realities and aspirations. Changes to the framework mainly involve the expansion of sub-pillar definitions to include, among others: equitability of access, user experience of internet services, digital rights and freedoms, safety and security of digital platforms as enablers for participation, online innovation outputs, outlook on emerging technologies, and e-waste and green energy policies.

This study primarily focuses on the SEA-6 countries. Brunei, Cambodia and Laos are assessed to inform the overall regional performance, but are not discussed at the country level due to missing data concerns. Future editions may expand the geographic scope, e.g., to the rest of the Association of Southeast Asian Nations (ASEAN), or deepen the empirical base, but this edition is intended primarily as a conversation starter for the region. Feedback and suggestions are welcome and may be directed to info@techforgoodinstitute.org.

About the Tech for Good Institute

The Tech for Good Institute (TFGI) is a non-profit policy research institute working to advance the promise of technology and the digital economy for inclusive, equitable and sustainable growth in Southeast Asia (SEA).

TFGI serves as a platform for research, conversations and collaborations focused on SEA, while staying connected to the rest of the world. Our work is centred on issues at the intersection of technology, society and the economy, and is intrinsically linked to the region's development. We seek to understand and inform policy with rigour, balance and perspective by using research, effective outreach and evidence-based recommendations.

TFGI works in partnership with the Mastercard Center for Inclusive Growth and Grab, to advance the vision of a thriving and innovative SEA for all. We welcome opportunities for partnership and support, financial or in-kind, from organisations and individuals committed to fostering responsible innovation and digital progress for sustainable growth in the region.

More information about the Institute can be accessed at www.techforgoodinstitute.org



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- **Chutima Suttiaprapa** Thailand Development Research Institute, Thailand
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- **Ellina Roslan** MyDigital, Malaysia
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Executive Summary

Southeast Asia (SEA) sustains its digital momentum, generating *USD 300 billion in gross merchandise value (GMV)* in 2025 and maintaining *growth at 15% year over year*. Digitalisation has also produced tangible social impact for the region at the national, organisational and individual levels. It is viewed as a tool for unlocking efficiencies, enhancing service delivery, broadening access to goods and services, and fulfilling sustainable development goals. However, it also brings new risks and harms, ranging from contributing to the widening developmental divide to cybercrimes.

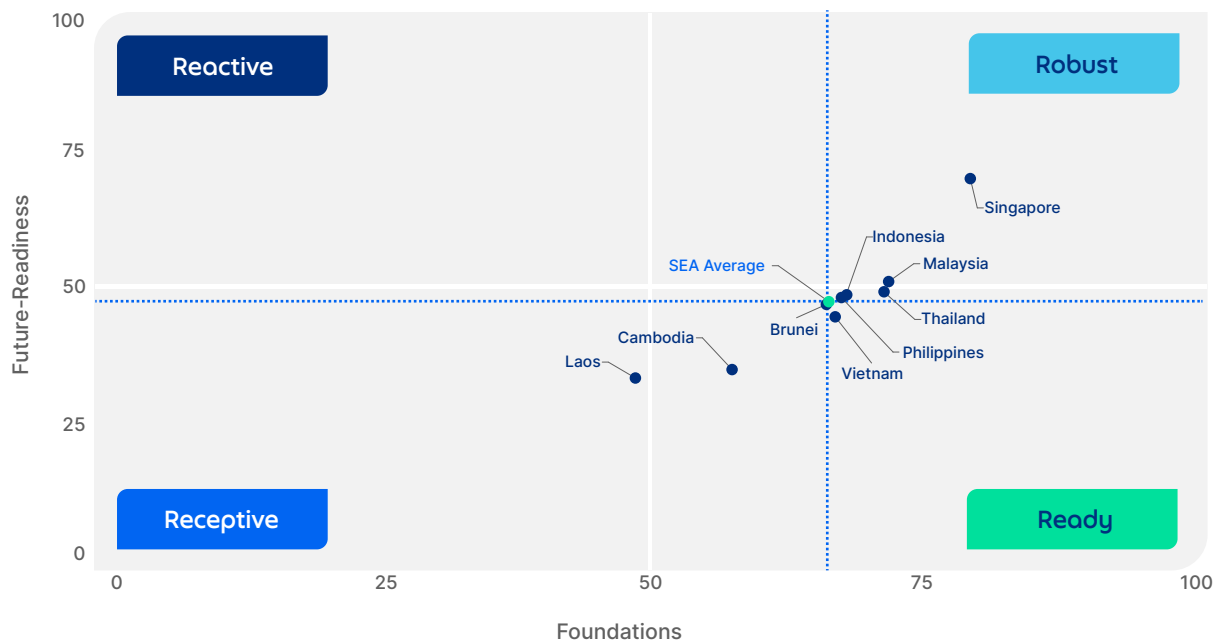
The 2023 TFGI report, *From “Tech for Growth” to “Tech for Good”*, identified a Confident Digital Society as an enabler for sustainable digital development. A confident digital society is one in which all stakeholders participate in, benefit from, and are empowered by digital technologies. Such a society fosters digital trust and advances the public interest, which in turn creates a continuous enabling environment for the adoption of digital goods and services.

Further consultations across the region in 2025 highlighted the need for a more holistic definition of digital society, going beyond access, infrastructure, and institutions to consider the long-term impact and sustainability of digitalisation. This report builds on the *initial framework* for defining and measuring *Confident Digital Society* by proposing metrics for each pillar and sub-pillar of the framework, with recommendations informed by insights generated through this inquiry. The Southeast Asia-6 countries (Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam) are the focus of the report, while Brunei, Cambodia and Laos are assessed to contextualise the overall regional performance.

The Confident Digital Society framework balances the current state of digital development (Foundations) with forward-looking initiatives (Future-Readiness). These dimensions span four pillars: *Quality Access, Meaningful Participation, Productive Potential* and *Digital Resilience*.

This study found that SEA countries have invested significantly in the foundations for digital development and display varied levels of future-readiness. Singapore and Malaysia lead the region in harnessing emerging opportunities brought about by digital technologies. Thailand and Indonesia show particular strengths in digital public infrastructure and digital resilience. Meanwhile, the Philippines and Vietnam exhibit stable *foundations* but have room to grow in building *future-readiness* in digital governance, infrastructure, and enterprise and workforce capabilities.

Figure 1. Confident Digital Society in SEA



Source: Tech for Good Institute, 2025

Opportunities for building confident digital societies across and for the region include:

- Addressing the growing need for equitable, affordable, and more importantly, reliable internet services, given that the speed, coverage and consistency of internet services in SEA lag behind that of global peers.
- Ensuring safe, secure and trustworthy digital platforms for empowered digital participation, amid growing distrust and lower confidence in technology use due to cyber threats and remaining gaps in digital public infrastructure.
- Leveraging digital transformation for productivity and innovation while mitigating the negative effects of technological disruptions, given limited digital talent pipelines, inadequate social protections, and fledgling business environments.
- Exploring new approaches to governance that strengthen digital resilience, in the context of increasingly sophisticated online risks and harms, growing vulnerability to climate risks, limitations in environmental sustainability strategies to address the burden of technology use, and the evolving digital landscape.

The cultivation of a Confident Digital Society is vital to continued digital economy growth, as well as the achievement of development goals. This requires SEA to broaden its digitalisation agenda to include priorities that promote a sustainable, inclusive and empowered digital society.

Digital integration efforts will be key to SEA leapfrogging towards its developmental goals by leveraging technology. Beyond this, there are general policy recommendations that each country can work towards, such as:

Facilitating inclusive, affordable and reliable access to digital goods and services through enhanced market policies and standards, streamlined application processes, and development of shared public resources.



Strengthening cybersecurity, data protection, right to information laws, and related measures to increase digital trust and deepen digital participation, supported by national digital literacy programmes and integrated digital public infrastructure.



Boosting workforce and enterprise productivity through integrated skills development pathways aligned with job demand for digital competencies, regulations for the use of disruptive technologies, university and industry partnerships to improve digital innovation output, and robust, fit-for-purpose policies for social protections, credit, investment and operational stability.



Developing, implementing and enforcing adaptive, evidence-backed strategies for digital resilience, including ramping up operationalisation of cybersecurity measures, integrating environmental sustainability and digital transformation roadmaps, and adopting novel governance tools and approaches.





1. Introduction

In January 2025, the Tech for Good Institute (TFGI) published the working paper, *A Framework for Confident Digital Society*, to present early ideas on a conceptual framework for measuring confidence in digital societies and lay the foundation for resulting stakeholder consultations.¹ This chapter presents the case for establishing an understanding of a *Confident Digital Society* in SEA and an updated framework, informed by insights gathered through two workshops with over 20 stakeholders representing the academe, government, and private sector from all over SEA.

1.1 Background

Southeast Asia (SEA) sustains its digital momentum, generating USD 300 billion in gross merchandise value (GMV) in 2025 and maintaining growth at 15% year over year.² Governments across the region recognise the potential for digitalisation to boost productivity, increase efficiencies, and improve service delivery in both the public and private sectors.


Digitalisation has also produced tangible social impact at the national, organisational and individual levels. In the public sector, for example, digitalisation has enabled streamlined operations such as the faster processing of permits and licenses and the disbursement of cash assistance via digital payments. At the organisational level, digitalisation has enabled the growth of Micro, Small and Medium Enterprises (MSMEs) by scaling operations and expanding market reach through enterprise technology solutions, and providing alternative means of financing. At the individual level, goods and services have become more accessible. For example, Digital Financial Services (DFS) and telemedicine serve communities that are typically underserved by traditional businesses and operating models. TFGI's report, *Advancing Digital Sustainability: Southeast Asia's Next Frontier for Impact and Innovation*, explores further how digital innovation has enabled Southeast Asia to bridge development gaps.³

However, digitalisation has brought about new risks and harms, potentially exacerbating existing social and economic inequalities,⁴ and compromising internet trust and safety. The digital divide may widen if no measures are taken to ensure equitable access and meaningful use of digital technologies across all demographics. Cybersecurity threats are increasingly becoming more sophisticated, compromising critical systems and infrastructure. Scams and frauds are also increasing in scale and sophistication through elaborate social engineering techniques and advanced technologies, such as AI-generated deepfakes.⁵


Sustainable digital development requires that everyone is empowered by, participates in and benefits from digital transformation safely and securely.⁶ Alongside leveraging digital transformation for better outcomes, digital solutions can be used to increase trust and mitigate digital risks, which in turn encourages long-term confident and productive use.

As the pace and impact of technology adoption accelerate, it is increasingly important for nations to ensure the equitable and sustainable development of digital societies. Furthermore, as innovations such as Artificial Intelligence (AI) and quantum technologies expand the scope and depth of disruption, a "developing/developed" spectrum may not be sufficient to assess how countries today may face the opportunities and challenges of tomorrow.

This report has three objectives:



First, to present an enhanced definition and conceptual framework of the key dimensions for digital society today, and how to nurture a Confident Digital Society. The framework looks at *Foundations* and *Future-Readiness*, which are further broken down into four pillars: *Quality Access*, *Meaningful Participation*, *Productive Potential* and *Digital Resilience*.



Second, to propose indicators that evaluate the state and potential of each pillar and sub-pillar of this framework. These indicators assess more than progress. They can also identify challenges and highlight untapped areas for growth. They can also be tailored to specific contexts to determine the impact of regional and national digital strategies and governance.



Third, to spur cross-sectoral collaboration in evidence-based policymaking for the sustainable digital development of societies. The report will present actionable insights on the opportunities and areas of improvement in the digital transformation of SEA nations. These can also serve as a catalyst for the public, private and people (e.g., academics, civil society, and end users) sectors to work together on engagements and programmes that can ensure the effective use of technology in facilitating sustainable, inclusive and equitable development in the region.

1.2 A Conceptual Framework for Confident Digital Society

“Digital society” is not a new concept. Its definition has evolved as technology has advanced, and its role in societal development has broadened. Early conceptualisations of digital society focused on distinct primary themes:



Infrastructure-focused

The digital society is one where "the flow of information is mediated by modern Information and Communications Technology (ICT) systems", emphasising the foundational role of ICT infrastructure in shaping social organisations.⁷



Inclusion-focused

The digital society is characterised by a "set of social arrangements that determine which demographics fully access and benefit from the use of digital tools," drawing attention to the importance of equitable access and addressing digital divides.⁸



Impact-focused

The digital society is one where "digital technologies reshape social relationships and transform modes of economic production", underscoring the profound influence of technology on societal dynamics and economic structures.⁹

TFGI's consultations across the region in 2023 and 2025 highlighted the need for a more holistic definition of digital society, going beyond access, infrastructure, and institutions to consider the long-term impact and sustainability of digitalisation.¹⁰

What is a Confident Digital Society?

The 2023 TFGI report identified a *confident digital society* as an enabler for sustainable digital development, with such a society initially characterised by affordable quality access, meaningful and productive participation, and resilient and flexible livelihoods in the digital economy.¹¹

The 2025 TFGI working paper built on this further, proposing four areas of consideration as pillars: *Quality Access*, *Meaningful Participation*, *Productive Potential* and *Digital Resilience*.¹² In particular, this evolution recognises that *Meaningful Participation* merits its own discussion, distinct from productive economic participation, while *Digital Resilience* highlights the importance of preparing for the future, in terms of guardrails, environmental impact, and policies. This proposed framework is premised on the belief that technology is more than a tool for efficiency and economic value creation, and acknowledges that economic growth and productivity do not automatically translate into equitable social development or responsible environmental stewardship.

These four areas also correspond with the stages of digital transformation needed to build a *Confident Digital Society*. *Quality Access* and *Meaningful Participation* cover the present state of digital transformation to measure how societies interact with and use digital technologies, or the *Foundations* of a digital society. *Productive Potential* and *Digital Resilience* look to the future, assessing society's *Future-Readiness* to meet emerging opportunities and challenges.

Thus, a Confident Digital Society ensures equal access, creates opportunities, and leverages trust, enabling all stakeholders to participate in and benefit from the digital economy and digital society now and in the future.¹³ Such a *Confident Digital Society* fosters an enabling environment for digital goods and services adoption, which also facilitates the growth of the digital economy.



Just as economic indicators help countries monitor progress, identify challenges and recognise areas of untapped potential, a definition and metrics for digital society can support policymaking efforts to ensure inclusion, build trust and encourage innovation for sustainable growth and development. Measuring the progress of digital society development allows countries to be better equipped and directed in their policymaking efforts.

The proposed Confident Digital Society framework integrates both the present state (Foundations) and capabilities to address emerging opportunities and risks (Future Readiness). Each dimension consists of two pillars: *Quality Access* and *Meaningful Participation* for *Foundations*, and *Productive Potential* and *Digital Resilience* for *Future-Readiness*. Further, each pillar comprises three sub-pillars that specify indicators for a more comprehensive definition.

1.2.1 Framing the Foundations Dimension

To understand better the conceptualisation of the framework, it is important to go into detail on dimensions, pillars and sub-pillars. First, the *Foundations* dimension is broken down into the pillars of *Quality Access* and *Meaningful Participation*.

Quality Access

Quality Access addresses who benefits from digitalisation. Beyond basic digital infrastructure, the affordability, quality and reliability of services are crucial to ensure meaningful adoption. Individuals can only use the internet effectively if there is consistent and dependable access that can improve their lives.

Quality Access consists of the *Access*, *Affordability* and *Reliability* sub-pillars:

Access

Generally, internet access refers to the ability of individuals, households and groups to connect to the internet via various devices (such as desktops, laptops, or mobile devices) and through different modes of connection (including fixed or wireless networks) and in various settings (whether private households or public infrastructure). In practice, this is typically understood to be the availability of digital infrastructure and access points for the majority. However, serving the majority does not necessarily equate to inclusivity; this necessitates the inclusion of metrics on the gender gap and net freedom based on obstacles to access.

Affordability

Affordability measures the economic cost of accessing internet services and other essential telecommunication services, such as Internet data, voice calls, text messaging, relative to income.¹⁴ The Broadband Commission of Sustainable Development defines affordable entry-level broadband services for low- to middle-income countries (LMICs) as constituting less than 2% of monthly Gross National Income (GNI) per capita.¹⁵ However, affordability cannot be measured only in terms of a specific type of internet access. Selected indicators thus evaluate prices for devices, fixed broadband, and data bundles at different usage levels, and also consider how reasonable these are for other socio-economic groups.

Reliability

Reliability ensures consistent and predictable internet connectivity, which can be further broken down into reliability of performance, connectivity and core services.¹⁶ Typical metrics include speed, latency or jitter, and the predictability of users successfully accessing the internet upon logging in. Apart from objective data, discussions have highlighted that direct user sentiment on experience using the internet is equally important to measure. Data based on surveys and ratings from actual user tests are thus included.

➤ Meaningful Participation

Meaningful Participation addresses the non-commercial public applications of digital technologies, emphasising their role in enhancing everyday lives for all, and facilitating a more informed and engaged citizenry. Examples include leveraging digital platforms to streamline government services or adopting digital payments to extend financial services to the unbanked. It also includes strengthening e-citizenship to help individuals actively engage in digital governance and civic participation. Crucially, basic digital literacy across society is a prerequisite for *Meaningful Participation*.

Meaningful Participation consists of the *E-Government*, *Digital Literacy* and *Open Data Access* sub-pillars:

E-Government

E-government leverages information systems and technology by government agencies to deliver public services and manage administration efficiently, enhancing productivity and citizen engagement.¹⁷ Digitalisation significantly improves numerous government functions, including administrative services (e.g. national identification), social services (e.g. cash assistance, healthcare and insurance) and operational processes (e.g. presence of e-government roadmaps). Public-facing applications include integrated digital ID systems based on digitised identity records, and one-stop shops for online public services. These efforts become more effective when underpinned by a strategy for digital transformation, particularly for government systems and processes.

Digital Literacy

Digital literacy forms the foundation of an inclusive digital society and a digital-ready workforce. It is defined as the fundamental ability to use a computer confidently, safely, and effectively. Additionally, this component encompasses a society's capacity to integrate technologies into daily life, such as the use of digital payments and services. Lastly, this dimension considers that safe, secure and trustworthy digital platforms are a prerequisite for digital literacy. Building digital trust requires that digital rights and freedoms are upheld, personal data is protected, and users are capable of detecting and guarding against online harms.

Open Data Access

Open data access refers to information and datasets provided by public government agencies that are made available for public use. Open data promotes freedom of information so that citizens can make informed decisions on public matters online. Measures include the availability and quality of formal mechanisms for data sharing, interoperable ICT systems within agencies, and public sector data strategies. The borderless nature of digital spaces necessitates international collaborations and regulations for cross-border data flows.

1.2.2 Framing the Future-Readiness Dimension

The second dimension of the framework is on *Future-Readiness*. This dimension is further broken down into the pillars of *Productive Potential* and *Digital Resilience*.

Productive Potential

Productive Potential builds on *Meaningful Participation*, referring to inclusive and long-term benefits from the digital economy. To build and maintain *Productive Potential*, the workforce requires continued investment in digital skills and competencies to ensure employability and relevance. These efforts enable sustained, high-value work even as the pace of innovation rapidly changes the nature of work. For organisations, especially MSMEs, technological transformation is key to improving competitiveness.

Productive Potential consists of the *Digital Competencies*, *Future-of-Work Readiness* and *Digital Innovation and Competitiveness* sub-pillars:

Digital Competencies

Digital competence encompasses the skills and knowledge required for an individual to use ICT to accomplish both personal and professional goals.¹⁸ These competencies include not only technical skills, but also cognitive and emotional skills needed to thrive in a digital environment. Skillsets specific to the digital context, such as cybersecurity or programming using specialised languages, are also considered.

Future-of-Work Readiness

This component assesses individual and societal readiness to adopt emerging technologies and adapt to new business models. The future of work entails maximising livelihood opportunities provided by these models while ensuring adequate protection for workers. Governance frameworks can work to ensure more adaptable, inclusive, and responsive social protection systems. Selected indicators therefore consider the availability of enablers for enterprise digitalisation, individual and institutional perspectives on emerging technologies, and new ways of working.

Digital Innovation and Competitiveness

Digital transformation uses technology to develop new goods and services, optimise processes and develop innovative software and systems, resulting in new revenue streams, enhanced competitive advantage and improved efficiency. The growth of digitally-transformed enterprises, especially of MSMEs, which comprise over 97% of all enterprises in the region, significantly contributes to national economies by boosting productivity and revenue.¹⁹ This component encompasses the vibrancy of the innovation ecosystem within a country, highlighting its capacity to foster creativity, support startups, and drive technological advancements. Evidence includes investments in advanced data management infrastructure to support complex data models, digital innovation output such as apps and domains, a thriving start-up ecosystem, and the overall business environment.

Digital Resilience

Digital Resilience focuses on the long-term sustainability of digitalisation. While digitalisation and innovation are inherently disruptive, resilience equips societies to govern current and emerging technology responsibly. This includes managing environmental impact, countering sophisticated cyber threats and keeping pace with new technologies and business models. Policy innovation is central to this effort.

Digital Resilience consists of the *Cyber Resilience*, *Environmental Sustainability* and *Policy Innovation* sub-pillars:

Cyber Resilience

Cyber resilience covers initiatives to strengthen the digital ecosystem against cyber threats. These include governance efforts such as plans, policies and regulations to identify, detect, respond and adapt to critical system threats. As SEA is particularly vulnerable to scams and fraud, data on attempts, losses, and citizens' ability to detect and report such threats are also included.

Environmental Sustainability

Environmental sustainability measures how ICT systems support the green transition. The threat of climate change necessitates sustainable economic restructuring; therefore, strategies and measures to reduce the environmental impact of digital development are essential in our carbon-constrained context. While measurements for the environmental impact of the use of digital technologies are still being developed and tracked, other data can be evaluated. These are on e-waste legislation, GHG²⁰ emissions, green energy policy, ecological sustainability as observed from energy use, and stance on renewable energy based on governance, policies, investments and utilisation.

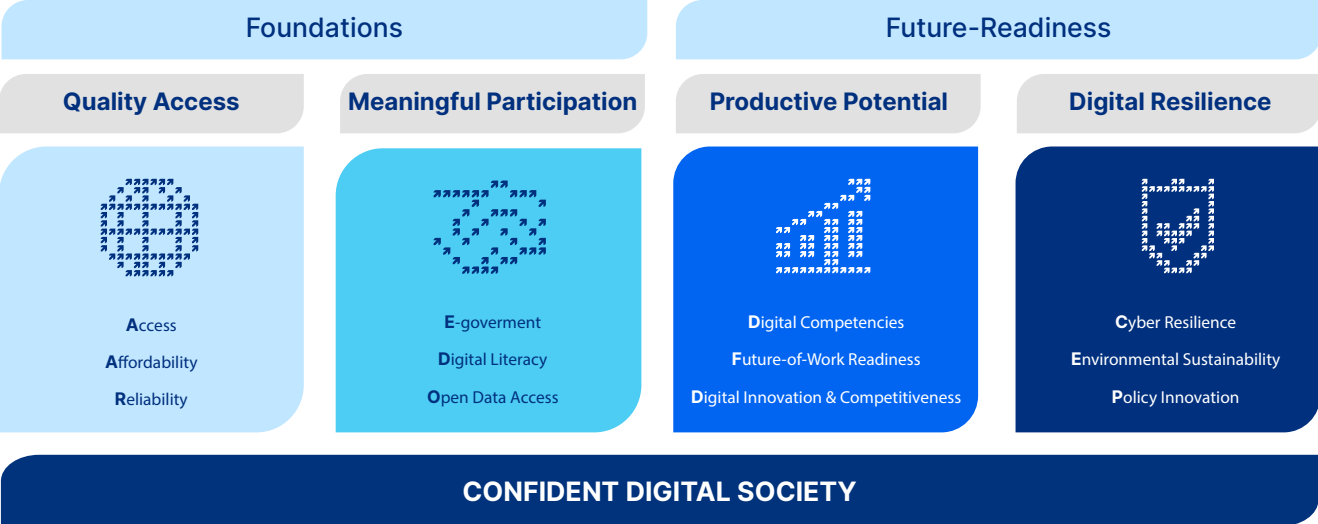
Policy Innovation

Policy innovation covers initiatives that use novel governance tools to address future digital challenges and complement business model innovations for sustainable development. Specifically, this is measured based on a country's regulatory regime, such as its application of best-practice policy design principles and articulation of its digital economy policy agenda. Government effectiveness and policy coordination are taken into account to determine whether these policies can consequently be enforced.

Altogether, this framework outlines how societies can benefit from current and future technology to foster robust, inclusive and sustainable societies. For the full list of indicators used, their definitions and sources, refer to the accompanying Technical Notes.

The figure below shows an overview of the proposed Confident Digital Society framework:

Figure 1. The Confident Digital Society Framework



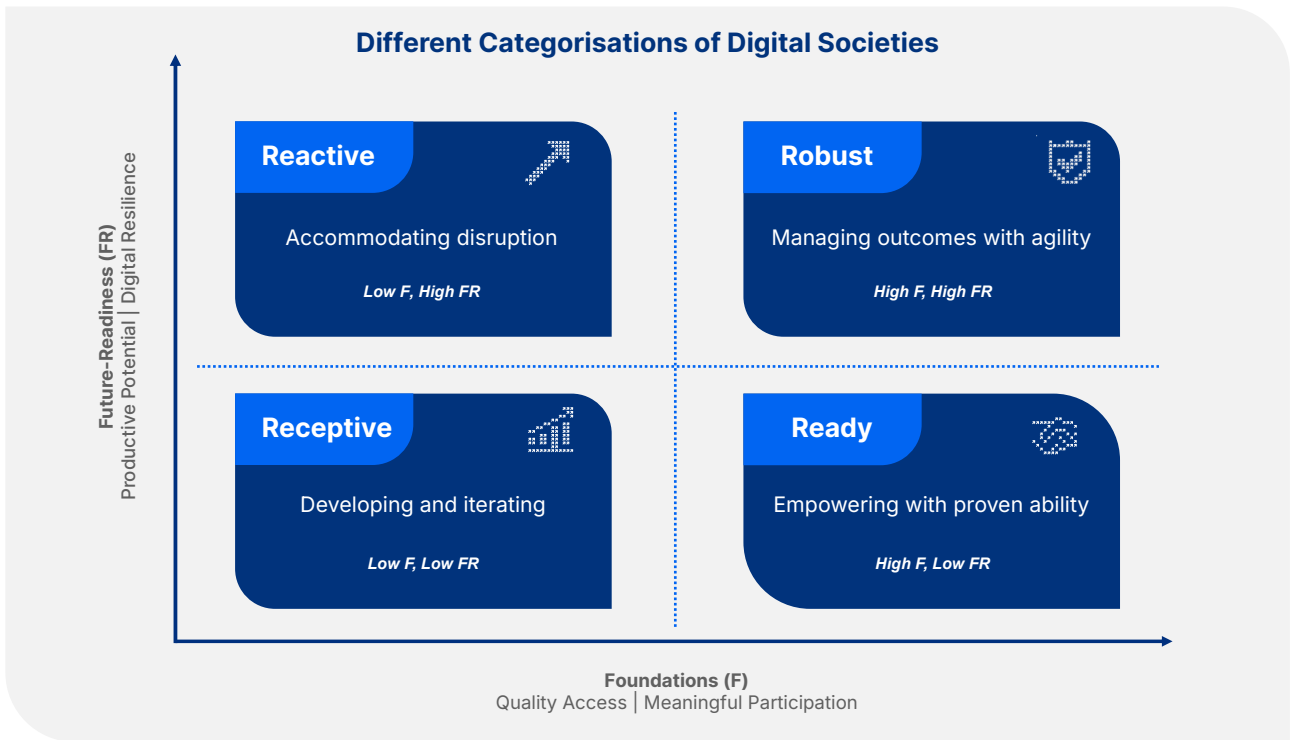
Source: Tech for Good Institute, 2025

1.2.3 Categorising Confidence in Digital Societies

Mapped against the dimensions of Foundations and Future-Readiness, digital societies may currently be categorised as:

- **Receptive** (Low Foundations, Low Future-Readiness): Digital societies in this category are receptive to digitalisation, but face key challenges in digital *foundations* (*Quality Access* and *Meaningful Participation*) and digital *future-readiness* (*Productive Potential* and *Digital Resilience*). These cases may include nations where digital adoption appears delayed, or that have long embarked on digital transformation journeys but are hindered by external factors such as environmental and man-made disruptions.
- **Ready** (High Foundations, Low Future-Readiness): Digital societies here have adequate *Quality Access* and established *Meaningful Participation* frameworks, but may need to increase readiness for future challenges, such as the risks of emerging technologies or sustainability considerations. Nations that fall into this category may not be primary producers or participants in the supply chain of digital goods and technologies, but are ready to act on leapfrog opportunities given solid fundamentals.
- **Reactive** (Low Foundations, High Future-Readiness): Digital societies that are forward-thinking and innovative, but due to foundational gaps in *Quality Access and Meaningful Participation*, are consequently reactive to current and future shocks. This may be the case for nations where digital adoption is concentrated in certain hubs, and are thus able to develop some consciousness of and ability to adapt to emerging trends, but are still lacking the capacity to scale nationally.
- **Robust** (High Foundations, High Future-Readiness): These are digital societies with solid foundations for digital transformation and are actively looking towards the future, pursuing broad participation while preparing for tomorrow's opportunities and challenges. Maintaining trajectory will be key for these nations, particularly given the unpredictability and pace of digital development.

Figure 2. Different Categorisations of Digital Societies



Source: Tech for Good Institute, 2025

1.3 Scope, Methodology and Limitations

1.3.1 Scope

This first report focuses specifically on the performance of the SEA-6 countries, which are Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam. It is intended for the *Confident Digital Society Index* and its conceptual framework to be applicable to other countries and regional blocs. Scores for Brunei, Cambodia and Laos have been included to contextualise the overall regional performance, but are not discussed extensively.

The report primarily aims to present key findings on regional and country performance according to the identified measures, though it may highlight country-specific initiatives to contextualise certain figures as deemed appropriate.

Recommendations are provided from a regional rather than country-specific lens. They are constructed to be generally actionable, and are intended to be supplemented by commentary and recommendations tailored to country context through a separate set of publications.

1.3.2 Methodology

Due to resource constraints, this study does not use primary data and instead draws largely from publicly available data sources with extensive country coverage. While the dimensions have been conceptualised, not all of them are currently being measured systematically, or if they are, data collection is typically sporadic and limited to certain countries. Hence, proxy indicators have been identified out of existing datasets to still establish an initial understanding of country performance based on the proposed conceptual framework.

Apart from relevance, indicators are selected based on the credibility of the data source and the availability of data for all SEA-6 countries. This means that if an indicator, though especially appropriate for the dimension it is intended to measure, lacks data for at least one SEA-6 country, it is dropped.

Generally, data is collected from the same and the latest available year across SEA-6 countries, within a five-year time frame (2020 to 2025) to ensure comparability and representativeness. However, in cases where data collection has been conducted in differing time periods, replacement using the most recent data is applied.

For computation purposes, the missing data rate must be less than 50%²¹ of indicators in a sub-pillar to generate a meaningful score. Missing values are excluded from calculation as long as the minimum data availability threshold at the sub-pillar level is met. This is a form of imputation that is implicit, redistributing the average of the available data among the remaining items.

Following data collection and treatment for missing values, certain indicators with outlier data were treated to reduce bias in the results and avoid an implosion to zero due to extreme observations. The percentile method for winsorisation²² is applied, trimming the values of not more than six outliers and assigning them to the next highest value. Out of 16 indicators classified as raw, quantitative measures, 9 were trimmed for outliers.

Given that the study utilises indicators with differing units of measurement, min-max normalisation is applied. The prevailing format is for indicators to be scored from 0 to 100, where a higher score indicates a better outcome. Both the linear and reverse min-max transformation formulas are utilised, depending on the direction of the original measure.

The study initially assumes equal weighting across indicators. Statistical and participatory methods for determining weights are not applied due to concerns regarding the immaturity of datasets, typically in the case of the *Future-Readiness* dimension, and the understanding that the importance of each pillar and sub-pillar in determining confidence is expected to change over time.

Lastly, scores are generated through successive aggregations via a simple average: an unweighted arithmetic mean aggregating (i) individual indicators within each sub-pillar, (ii) then the sub-pillars within each pillar, (iii) then the pillars comprising each dimension, and (iv) lastly, the overall composite score. This method of aggregation hinges on the basis that the defined pillars and sub-pillars are equally important and are interlinked in the broader objective of improving society's confidence in the use of, participation in and co-creation with digital technologies.

1.3.3 Limitations

The interpretation of the index results is subject to the following limitations:

- Due to prioritising the data availability for SEA-6 countries, indicators that are considered more closely relevant to a particular dimension may have been excluded.
- Due to limited data availability, data collection was expanded to five years rather than the preferred timeframe of two years. This has implications on the handling of missing values by carrying forward or backward the most recent data available. Readers should note this while interpreting data from certain indicators.
- While winsorisation is intended to reduce bias, the removal of outliers can mask real inequalities, such as disparities in pricing, digital skills acquisition, and investment amounts.
- The application of min-max normalisation, though necessary to standardise indicators for comparability, introduces an inherent sensitivity of scores to the reference group.
- Equal weighting assumes all indicators contribute equally to fostering a *Confident Digital Society*.
- The use of the arithmetic mean over a geometric mean in aggregation allows for performance in certain areas to compensate for poorer performance in other areas, which may not necessarily be reflective of the holistic nature of the framework.



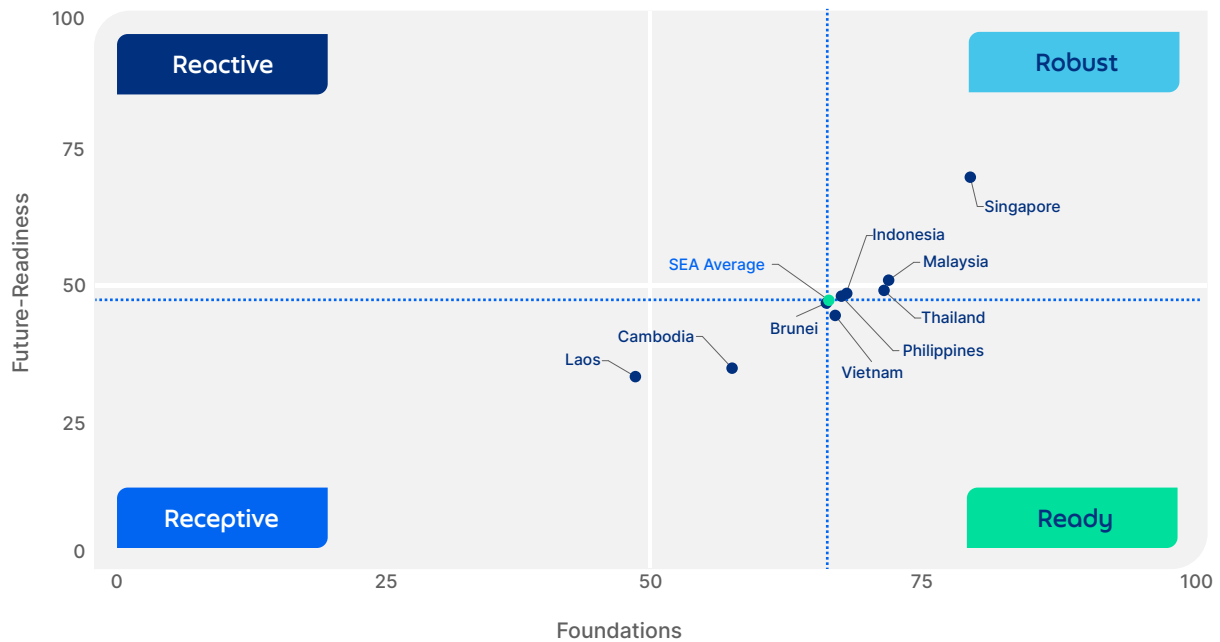
2. Confident Digital Society in SEA

The Confident Digital Society framework assesses SEA's progress toward building digital societies where everyone is empowered by, participates in and benefits from digital transformation, to identify areas for concerted effort and collaboration. This is in view of SEA's maturing digital integration efforts, including the ASEAN Digital Economy Framework Agreement (DEFA)²³ This chapter presents initial findings for SEA-6 countries across *Quality Access, Meaningful Participation, Productive Potential* and *Digital Resilience*.

Digital societies in SEA are characterised by having made strides in Foundations and varying levels of Future-Readiness. Singapore and Malaysia lead the region with high-capacity infrastructure and forward-looking strategies. Thailand breaks through by having solid enablers facilitating reliable internet, open data access and e-government. Indonesia has made improvements in digital public infrastructure, while the Philippines and Vietnam are both making progress, with the former slightly above SEA average. Apart from addressing remaining gaps in their *Foundations*, both can further improve their *Future-Readiness* through investments in digital infrastructure, competencies and innovation.

The figure below shows SEA-6, with scores for Brunei, Cambodia and Laos included for regional coverage. Country-specific observations in the following sections will focus on SEA-6, while Brunei, Cambodia and Laos are discussed only in the context of broader regional performance:

Figure 3. Confident Digital Society in SEA



Source: Tech for Good Institute, 2025



Singapore

Singapore’s robust digital society is enabled by the comprehensiveness and future orientation of its digitalisation initiatives. Its early efforts in modernising its government date as far back as 40 years ago, with the establishment of the Government Technology Agency that was first known as the National Computer Board in 1981.²⁴ This has translated to its strong fundamentals, particularly in ensuring affordable and reliable internet, delivering comprehensive e-government services, and high digital literacy among its constituents. Through programmes like SkillsFuture²⁵ and the National AI Strategy,²⁶ Singapore has shored up workforce capabilities in anticipation of disruptive technologies. The next phase of Singapore’s digitalisation journey is marked by the formation of the Ministry of Digital and Information (MDDI) in 2023, merging various government agencies to create a coherent national digital strategy.²⁷ This mindset shift is reflected in MDDI integrating previously separate digitalisation efforts, including the digital economy agenda, cybersecurity, digital inclusion, and digital infrastructure regulation.



Malaysia

Malaysia's solid technology infrastructure and legal frameworks are complemented by its openness to adopting novel governance tools. The Malaysia Digital Economy Blueprint, published in 2021, sought to transform the country into a digitally-enabled, technology-driven, high-income nation in three implementation phases from 2021 to 2030.²⁸ To facilitate collective access to the internet and bridge developmental gaps, the Malaysian Communications and Multimedia Commission (MCMC) launched the National Information Dissemination Centre (NADI) project, with over 1,000 NADIs operational by the end of 2024.²⁹ The establishment of the Ministry of Digital in 2023 has also been instrumental to the fulfilment of Malaysia's digitalisation agenda,³⁰ leading to initiatives such as: Rakyat Digital,³¹ a programme to enhance the general population's literacy in emerging technologies, including AI, Blockchain, and Cloud Computing; and updates to digital policies on areas like National Cloud Computing and Data Sharing.³² Additionally, Malaysia's digital investment attraction strategies have borne fruit, drawing in as much as USD 39.8 billion (MYR 163.6 billion) in 2024, largely in data centres and cloud infrastructure.³³ As it aspires to be a regional leader for the digital economy, Malaysia can focus on further strengthening its innovation output and advancing its cybersecurity capabilities.



Indonesia

Indonesia's e-government stands out in its digital transformation journey. Presidential Regulation No. 82 of 2023 on Accelerating Digital Transformation and Integration of National Digital Services is the most recent effort in advancing the nation's online public services.³⁴ This is supported by the ongoing public rollout of a Digital Population Identity (*Identitas Kependudukan Digital/IKD*), as part of Indonesia's digital transformation strategy, as set out in the Minister of Home Affairs Regulation Number 72 of 2022 on the Administration of Digital Population Identity.³⁵ Indonesia can consider increasing efforts in ensuring broader and more reliable connectivity, as well as improving the competitiveness of its digital economy.



Thailand

Thailand's performance is marked by its investment in reliability of internet services, online public services, open data access and cyber resilience. Part of this can be attributed to Thailand's foresight in crafting its Digital Economy and Society Plan³⁶ in 2016, which emphasised a knowledge-driven digital society through workforce development and a plan for open government. Ensuring citizens are equipped with the right digital skills and competencies, and enterprise adoption of digital technologies is facilitated by a stable business environment, should continue to be a priority moving forward.



Philippines

The Philippines has shown progress in its approach to open government, data protection, cybersecurity and policy innovation. To further unlock the full potential of its digital society, which is touted to have among the highest penetration rates for social media,³⁷ investing in broader national coverage through high-capacity infrastructure will be key. With business process outsourcing (BPO) as a major industry,³⁸ the Philippines can also benefit from bolstering programmes for workforce and business development to respond to disruptions due to digital technologies. As a climate-vulnerable country, adaptation strategies coupled with conscious integration of environmental sustainability and digitalisation roadmaps will be critical as technology's impact on the environment increases.³⁹



Vietnam

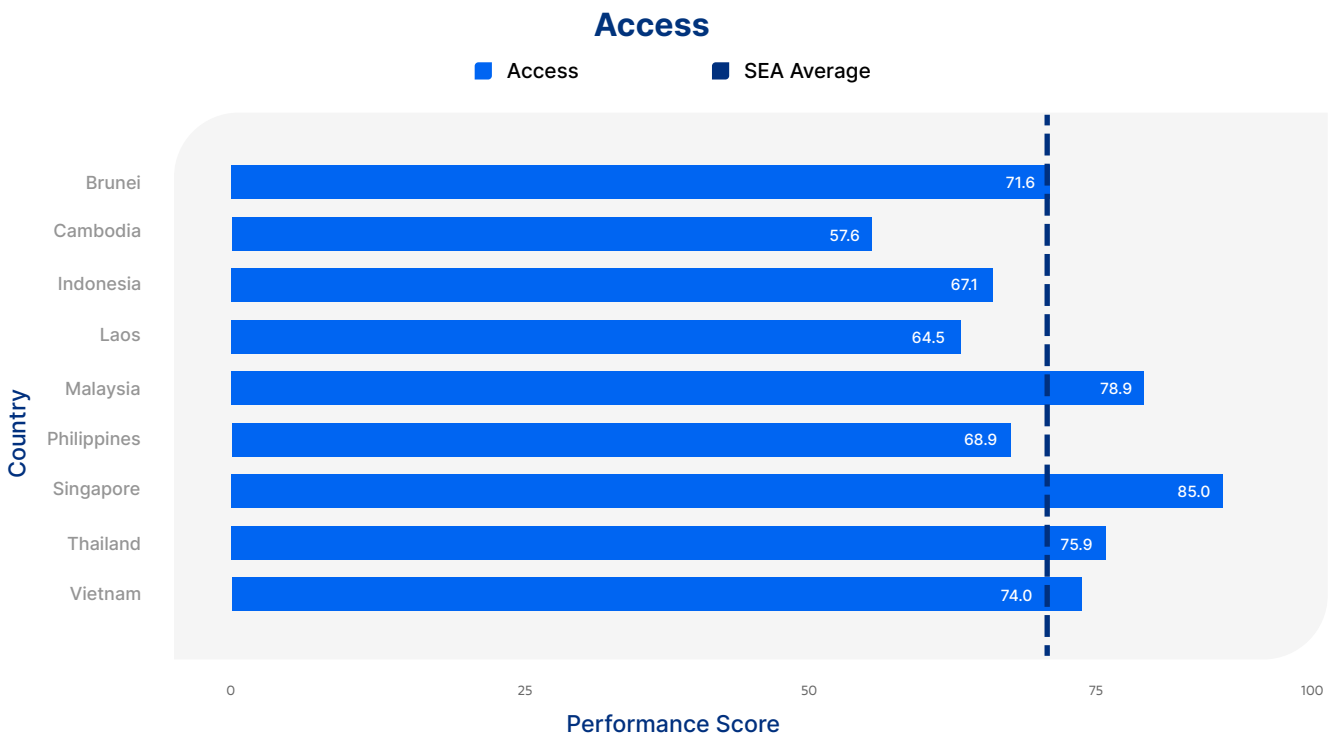
There is an opportunity for Vietnam to further strengthen its digital foundations, particularly in the affordability of online services, digital literacy and open data access. Vietnam is recognised for providing consistent and reliable 4G connectivity, and fast mobile upload speeds. It performs better in building *Future-Readiness* in adopting new ways of working, and is among the more competitive nations in the region when it comes to producing digital innovation outputs. Adapting its digital policy agenda and implementation can help enable further innovation for the country.

The findings for each pillar are detailed in the following sections.

2.1 Quality Access: A Growing Need for Reliable and Equitable Connectivity

SEA is a step closer to inclusive, equitable, affordable and reliable access, with the majority of the population able to come online on the basis of public infrastructure and public-private partnerships to deliver free internet access.⁴⁰ However, gaps still remain in individual and household capacity to maintain private subscriptions for fixed and mobile broadband, device ownership, affordability of internet for certain population segments, and the reliability of online services.

Figure 4. Quality Access: Access by Country



The past decade has seen SEA-6 prioritise the expansion of the internet to cover the broader population, with the region nearly doubling the average share of individuals using the internet from 48.9% in 2015 to 85.4% in 2023.⁴¹

Singapore's early initiative in ensuring universal connectivity can be traced back to its 10-year masterplan, The Intelligent Nation 2015 (iN2015), where next-generation infocomm infrastructure was identified as a priority.⁴² This has since been realised through initiatives like the Next-Generation Nationwide Broadband Network (NBN) aiming to reach broadband speeds of 1 Gigabit (GB) per second, and Wireless@SG spearheading free WiFi in public areas.⁴³

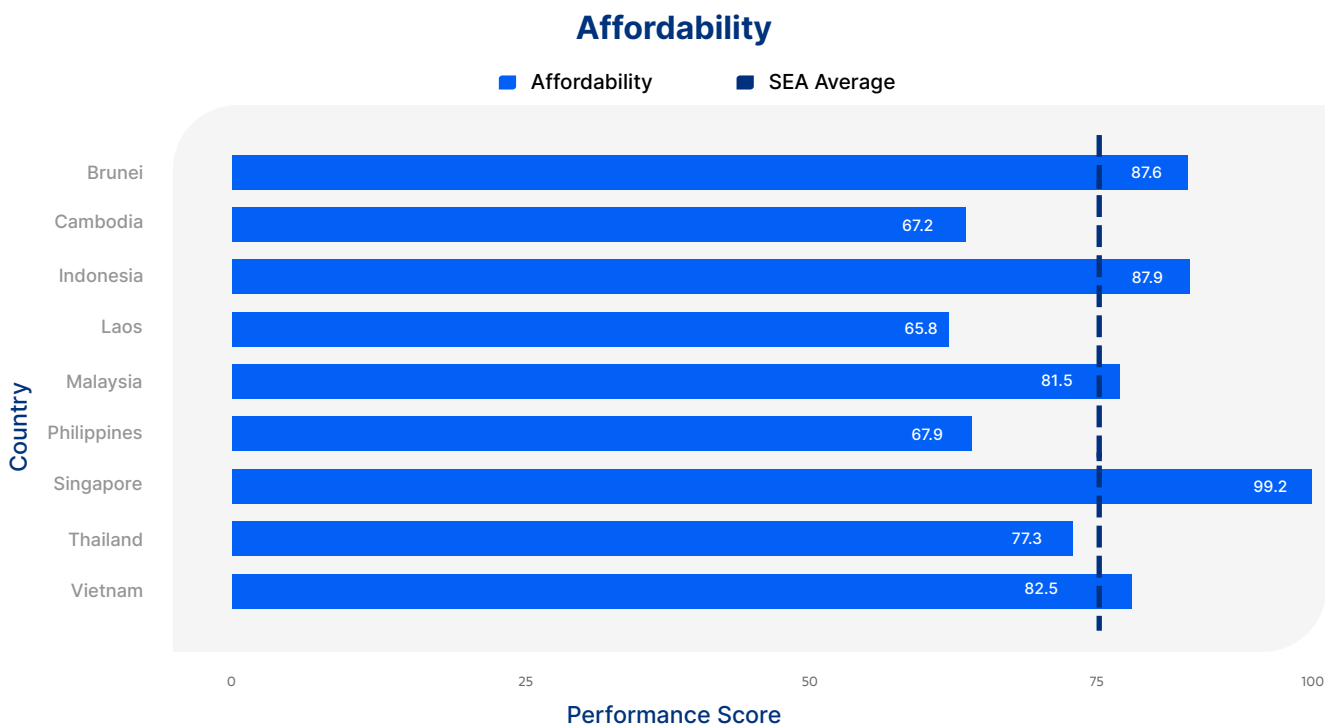
High-speed broadband has similarly been a priority for Malaysia. The country's National Broadband Initiative (NBI) was launched in 2010 by the Malaysian Communications and Multimedia Commission (MCMC), covering the implementation of Broadband Community Centres, e-Kiosks, expansion of public cellular coverage, and distribution of netbooks to the underprivileged, among others.⁴⁴

The Philippines has notably doubled internet coverage since 2019, despite its initial lag compared to peers. This is attributable to a budget of PHP5.1 billion (or approximately USD 86.5 million) earmarked by the Department of Information and Communications Technology (DICT) in 2019, of which PHP1.5 billion (or USD25.4 million) was allocated for free WiFi in public places and state universities and colleges (SUCs).⁴⁵

Mobile phones continue to be the primary entry point for accessing online services across the region. Market competition and the emergence of lower-end models⁴⁶ have effectively driven down the prices of mobile phones. Underlying income disparities, however, may tend to widen the inequity in access, as the poorest 40% in most of SEA find even entry-level cellular data services to be unaffordable.⁴⁷

Indonesia’s recent improvement in the affordability of its fixed broadband and mobile data bundles is enabled by the Ministry of Communication and Digital Affairs’ (KOMDIGI) wider commitment to digital equity.⁴⁸ Looking ahead, KOMDIGI is focused on optimising available frequency spectrums and frequency actions for cellular operators, to encourage providers to expand services to underserved areas.⁴⁹

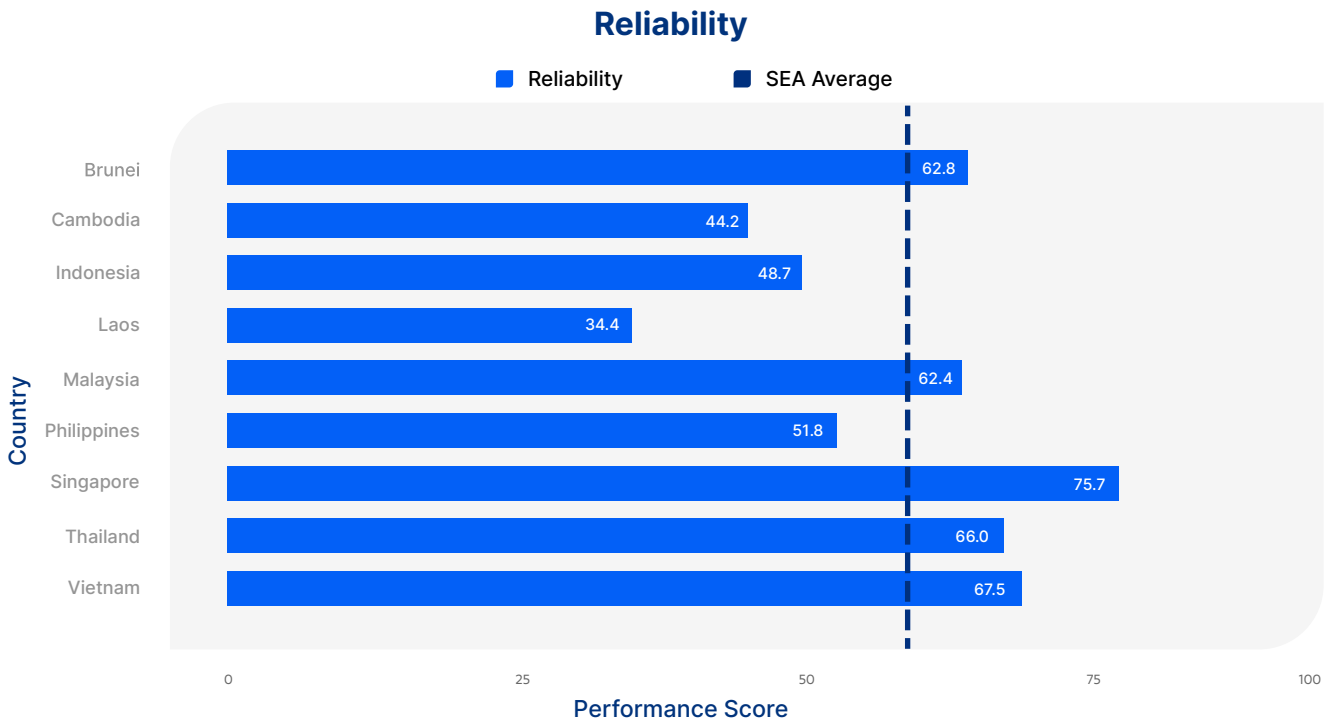
Figure 5. Quality Access: Affordability by Country



The reliability of online services remains the biggest challenge for SEA nations, though this issue is not unique to the region. Mobile broadband is particularly unstable and sees significant variance in performance quality and consistency. In fact, the average Southeast Asian does not perceive that they have good mobile coverage in their area.⁵⁰

Vietnam’s Digital Infrastructure Strategy has paved the way for the country’s recently competitive internet speeds and quality.⁵¹ The strategy covers initiatives such as the nationwide deployment of 5G, operation of undersea fibre optic cables, and accelerated adoption of Internet-of-Things (IOT) connections.⁵²

Figure 6. Quality Access: Reliability by Country



Looking ahead, internet coverage and quality remain a priority for SEA, as indicated in the ASEAN Digital Masterplan 2025, which identifies key areas of focus to improve service reliability.⁵³ The Masterplan explores specific actions, including but not limited to: encouragement of inward investment for digital and ICT, best practice permission and access rights for ICT infrastructure, consistency in regional regulations, increased spectrum allocation, and upgrades to international fibre optic links.⁵⁴

Policy focus on plugging the gaps in infrastructure, whether through incentivisation mechanisms or other measures, will remain critical to keeping SEA online. The degree to which citizens have equitable, on-demand access to digital platforms and internet services – where, when, and however they want to – is the next objective for solidifying the region’s digital fundamentals. SEA can look to organisations like the Global Digital Inclusion Partnership, which has identified key policy and regulatory practices to achieve this, involving concerted efforts from the public and private sectors.⁵⁵ These include nurturing a healthy and competitive market, updated competition policies, strong leadership, streamlined value chains, effective spectrum management, stronger taxation and affordability systems, and public infrastructure investment mechanisms.

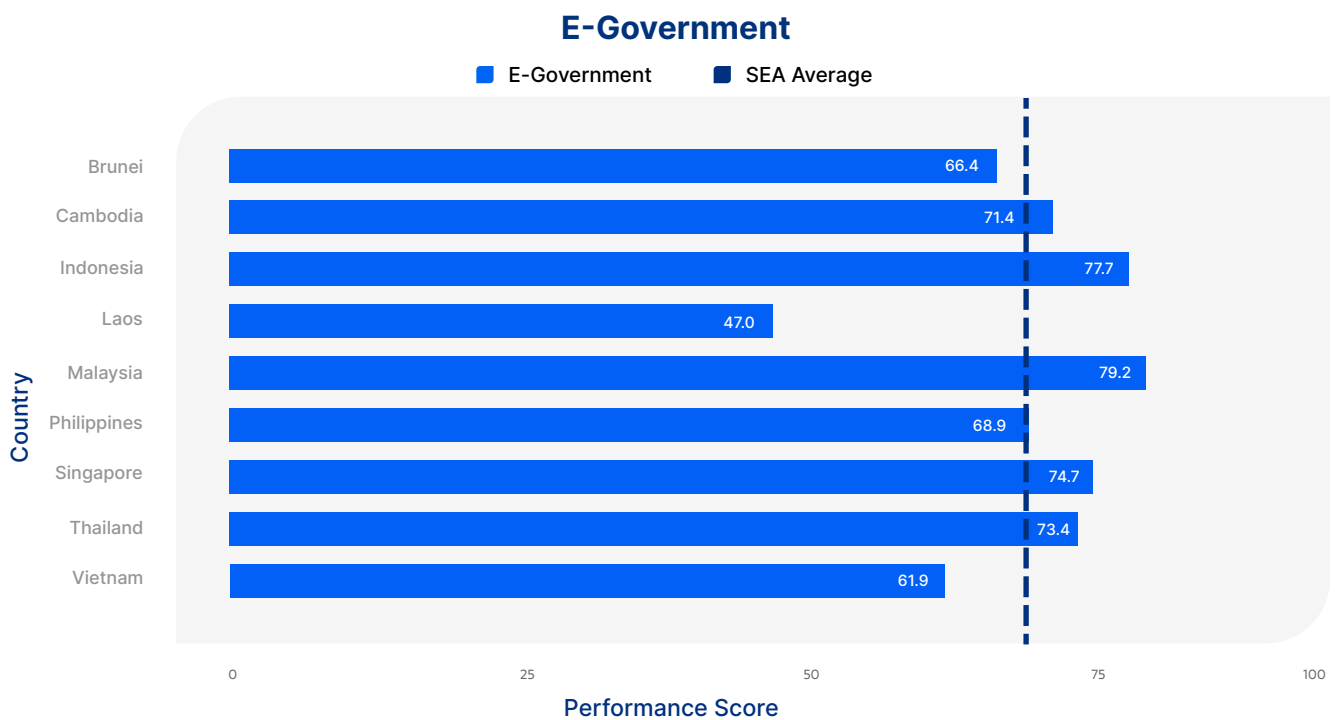
2.2 Meaningful Participation: Safe Platforms for Empowered Digital Participation

In SEA, curbing disinformation and fostering digital trust are emerging policy priorities as governments seek to facilitate meaningful participation in digital spaces. There is a shift toward revamped strategies for equipping citizens with cyber hygiene, including strengthening cybersecurity and data protection measures. SEA has also focused on upgrading e-government platforms, enhancing online public service delivery, and digitising and publishing public data.

E-government development in SEA has improved in recent years, at par with global benchmarks, with a focus on establishing long-term roadmaps and governing bodies. Currently, countries have adopted some form of national digital ID – though maturity varies – and digitisation of public data as an enabler for online public services. TFGI’s report on digital sustainability in August 2025 documents the variety of SEA-6’s approaches to digital identity systems: from Malaysia’s MyKAD integrating authentication and multiple service applications across entities, to the Philippines’ national ID system that has faced challenges in implementation.⁵⁶

However, not all governments in the region have established core government systems, rolled out comprehensive online public service portals, or invested in engaging citizens through digital platforms. Developing a strategy for continuous public sector innovation as government technology applications mature is also a consideration.

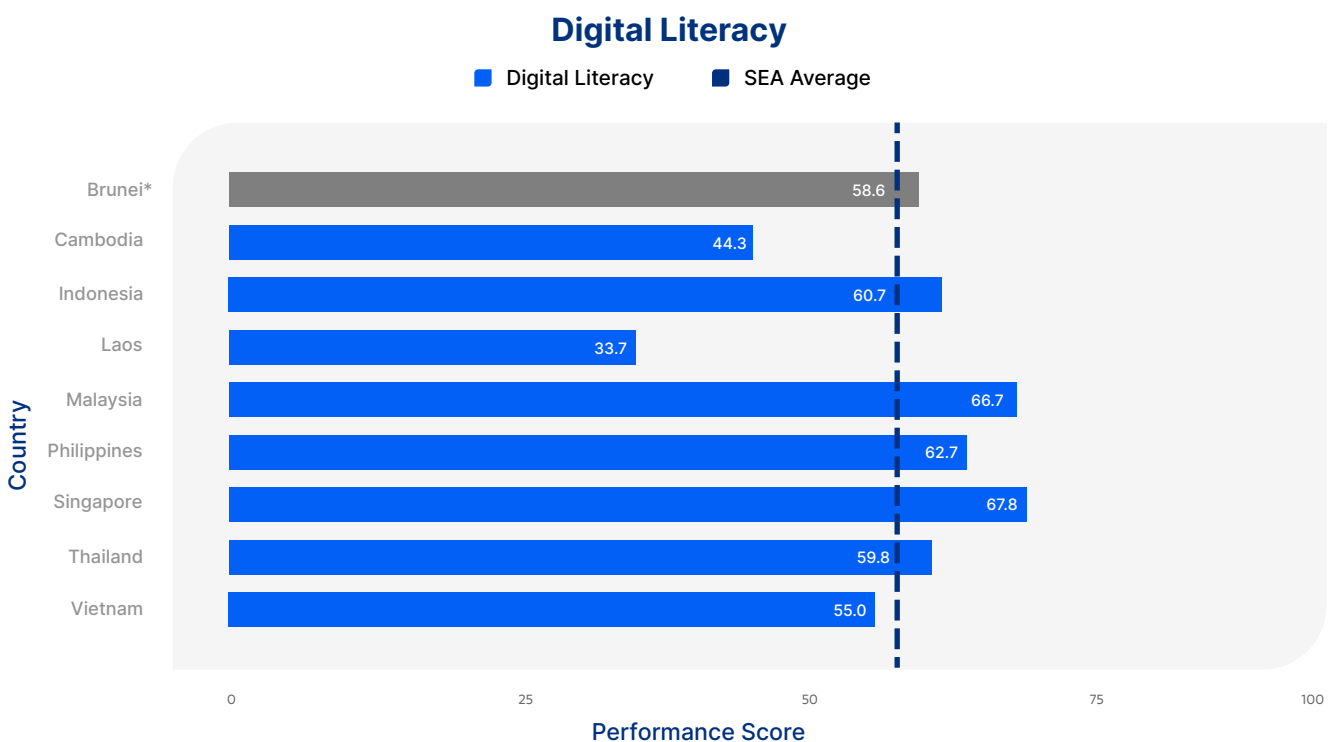
Figure 7. Meaningful Participation: E-Government by Country



Digital literacy in the region is a work in progress, facilitated in part by widespread adoption of DFS, particularly e-payments and e-transfers, and social media usage. The region has pivoted toward “digital literacy for all” as a policy agenda, amidst diversity in frameworks, implementation plans, and skills levels.⁵⁷ SEA-6 digital literacy initiatives have grown to encompass information, media and cyber literacy in response to increasingly complex online harms.⁵⁸

This wider technology adoption is hampered by growing distrust. While governments have cybersecurity policies and campaigns in place, Southeast Asians are beginning to profess that they don’t feel protected against many of the online harms that exist today and are concerned about the misuse of their data.⁵⁹ The SEA average for confidence in using new technology is 34%.⁶⁰ SEA-6 countries are generally highly rated in their approach to ensuring digital rights and freedoms, with fewer content restrictions and violations of user rights.⁶¹ However, there is a divide across SEA when it comes to freedom of expression and access to information. In fact, disinformation on social media continues to be a major concern for the region.⁶²

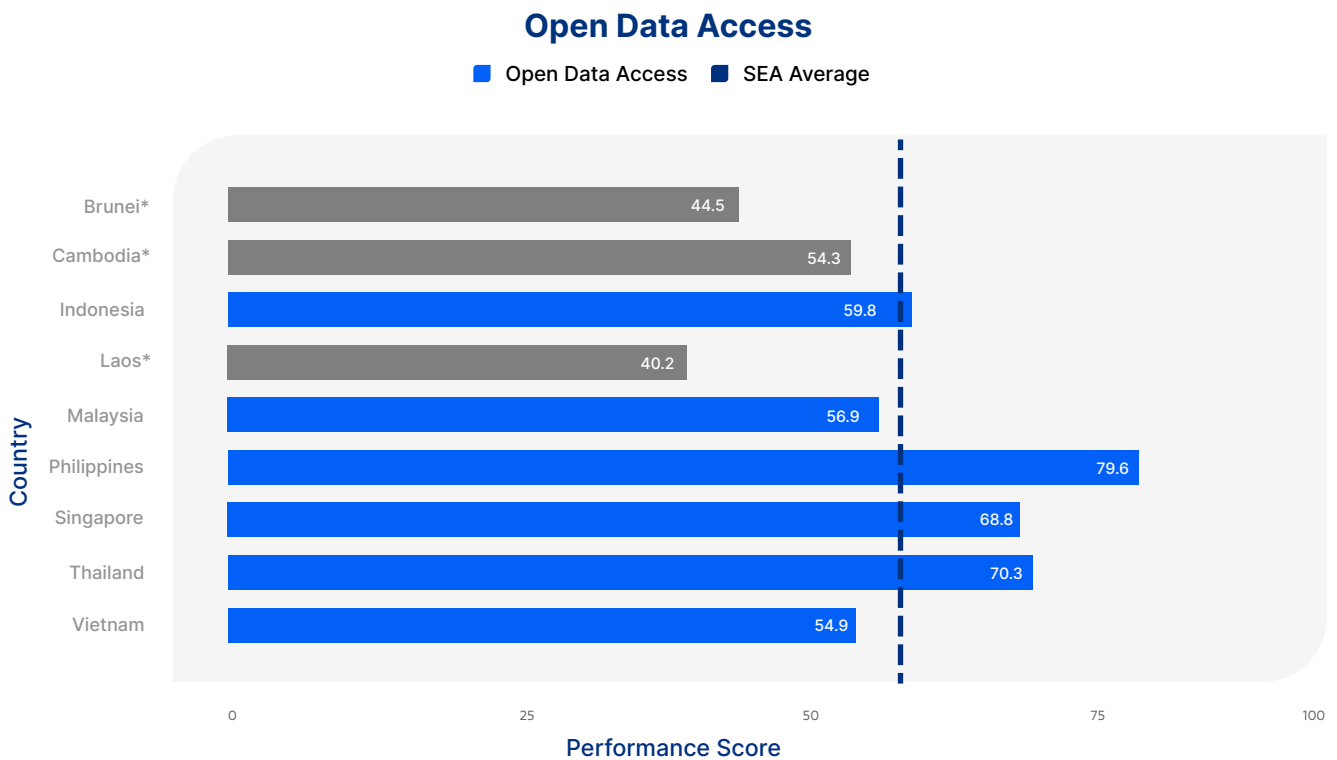
Figure 8. Meaningful Participation: Digital Literacy by Country



Note: *(Grey) denotes countries with high missing data rate (≥50%) for at least one of the sub-pillars. (Brunei = 58% for Digital Literacy)

Countries have taken the initiative to digitise public records and enact freedom of information laws, speeding up the progress of open data access. They have introduced frameworks, rolled out open data portals that have varied in scope and depth, and have, of late, focused on shoring up data protection and privacy laws. Most national statistical agencies have committed to diversifying data collection strategies, particularly to track progress in the accomplishment of sustainable development goals.⁶³

Figure 9. Meaningful Participation: Open Data Access by Country



Note: *(Grey) denotes countries with a high missing data rate ($\geq 50\%$) for at least one of the sub-pillars. (Brunei = 56%; Cambodia = 56%; Laos = 56% for Open Data Access)

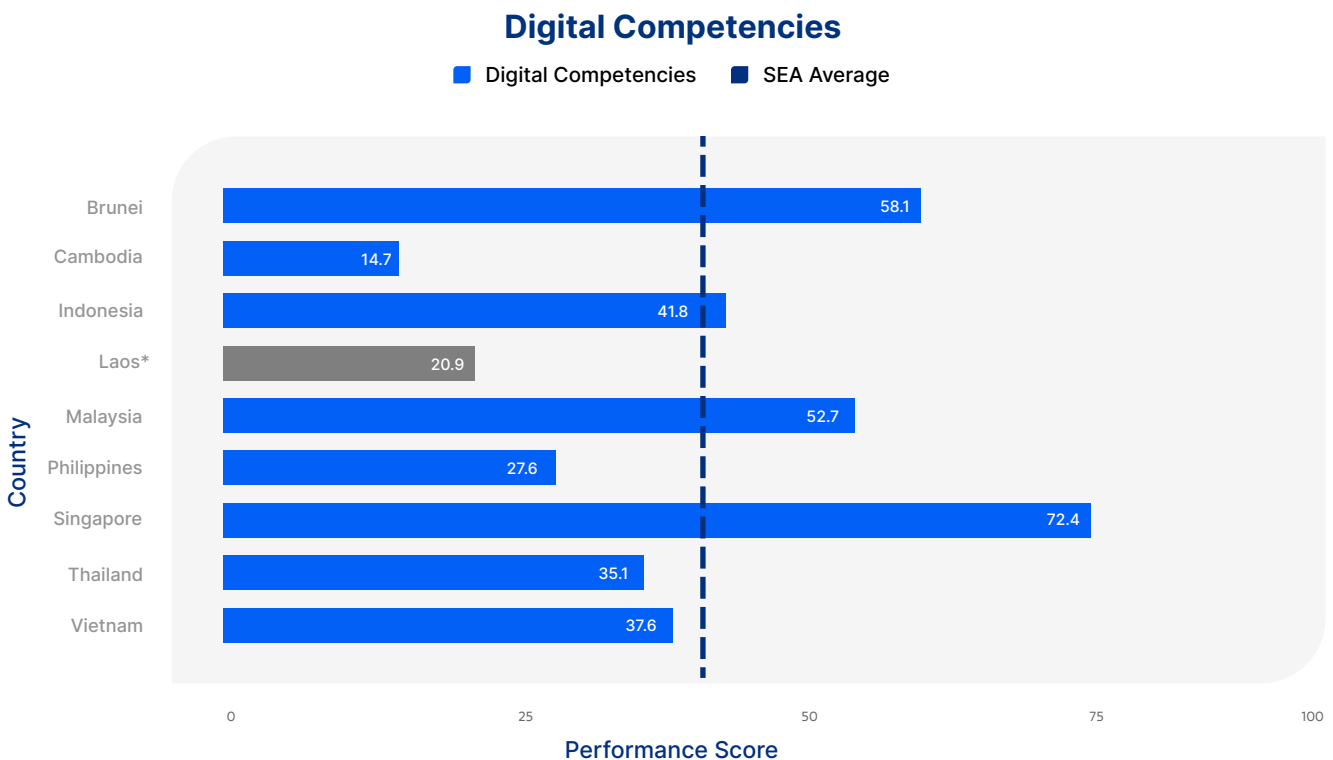
As online services and platforms traverse traditional jurisdictions, regional talks in the past year have included establishing harmonised cross-border data policies as an enabler for digital integration.⁶⁴ In January 2021, ASEAN released the Model Contractual Clauses for Cross-Border Data Flows, to serve as a voluntary standard for baseline considerations in the transfer of personal data, intra-regionally or with non-ASEAN member-states.⁶⁵ At the country-level, Malaysia has recently released Cross-Border Personal Data Transfer Guidelines in April 2025, allowing data transfers between Malaysia and countries outside of Malaysia, if laws are substantially similar or are determined to provide an adequate level of protection, determined through the conduct of a Transfer Impact Assessment (TIA).⁶⁶ Meanwhile, Singapore has Digital Economy Agreements with Australia and the United Kingdom for seamless digital trade and connectivity, including rules to facilitate the free flow of data.⁶⁷

2.3 Productive Potential: Unlocking Innovation Through Workforce Development

While new technological breakthroughs improve the quality of life, they disrupt traditional systems, including ways of working. The next industrial phase is touted to have advanced technologies such as AI at the forefront, and early estimates believe it will impact 300 million jobs globally.⁶⁸ In a recent LinkedIn report, *Harnessing AI: Transforming Southeast Asia's Workforce*, around 164 million jobs in SEA are estimated to be augmented, disrupted or insulated by the adoption of Generative AI (GAI).⁶⁹ Roles that are augmented by GAI represent a significant share of both GAI-replicable and human-centric skills, or are insulated due to core skills not being GAI-replicable, at nearly 70% of SEA occupations on LinkedIn.⁷⁰ On the flip side, 31 to 32% are in occupations that may be disrupted due to the majority of skills being GAI-replicable.⁷¹ This calls for SEA to tailor workforce development strategies to the outlook of different roles and industries.

At present, while ICT skills are present in most SEA countries' curricula, there remain disparities in the cultivation of competencies for professional goals. For example, performance on aspects such as creating electronic presentations and being able to problem-solve software installation is uneven. Research and programming skills tend to be underdeveloped. On the bright side, cybersecurity training has strengthened in an effort to ensure safe, secure and trusted online platforms. There have also been recent efforts in revamping national skills frameworks to incorporate new digital skills branches and proficiency levels, such as the Philippine Skills Framework,⁷² Malaysia's National Skills Registry,⁷³ and Singapore's SkillsFuture.⁷⁴

Figure 10. Productive Potential: Digital Competencies by Country

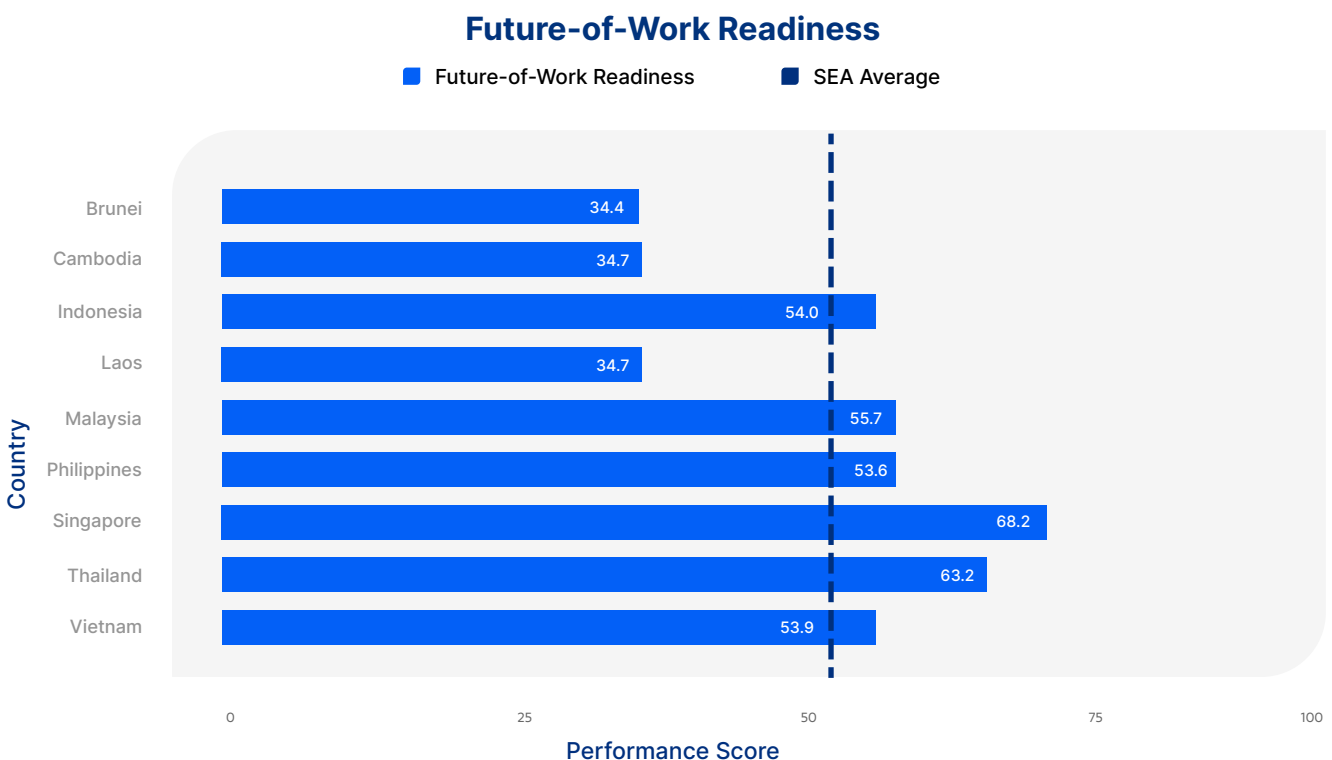


Note: *(Grey) denotes countries with high missing data rate ($\geq 50\%$) for at least one of the sub-pillars. (Laos = 56% for Digital Competencies)

SEA nations have been proactive in responding to AI trends. This is evidenced by high scores in having a vision for AI, though the region as a whole still sees a spread in readiness levels and developments in national strategies for disruptive technologies. As a next step, governments will need to address concerns regarding the ethical use of AI and other emerging technologies, including the trustworthiness of applications and the implications these will have for SEA's talent pool. Responsible AI deployment is a clear theme in SEA's policy direction on the future of work, though approaches have varied from Singapore's flexible, non-binding guidelines to Indonesia's and Malaysia's preference for binding regulation.⁷⁵ In terms of putting AI in practice, countries can look toward the ASEAN Responsible AI Roadmap (2025-2030), a strategic framework which provides actionable steps for SEA policymakers to deploy AI in an integrated and interoperable manner.⁷⁶

Operationalising roadmaps for the adoption of emerging technologies while ensuring a just transition for workers is another challenge. Since 2016, less than half of the population of SEA countries are graduates of tertiary institutions in Science, Technology, Engineering and Mathematics (STEM),⁷⁷ indicating the lack of a research and technology talent pipeline that is aligned with industry demand. There is similarly a call for human-centred social protections in the age of digital transformation, as coverage of existing measures are seen as inadequate.⁷⁸ A recent TFGI roundtable on digital platform work in SEA has surfaced the region's high informal work rate in the digital space, necessitating a renewed approach to social protection policies and work models considering the evolving nature of digital work.⁷⁹

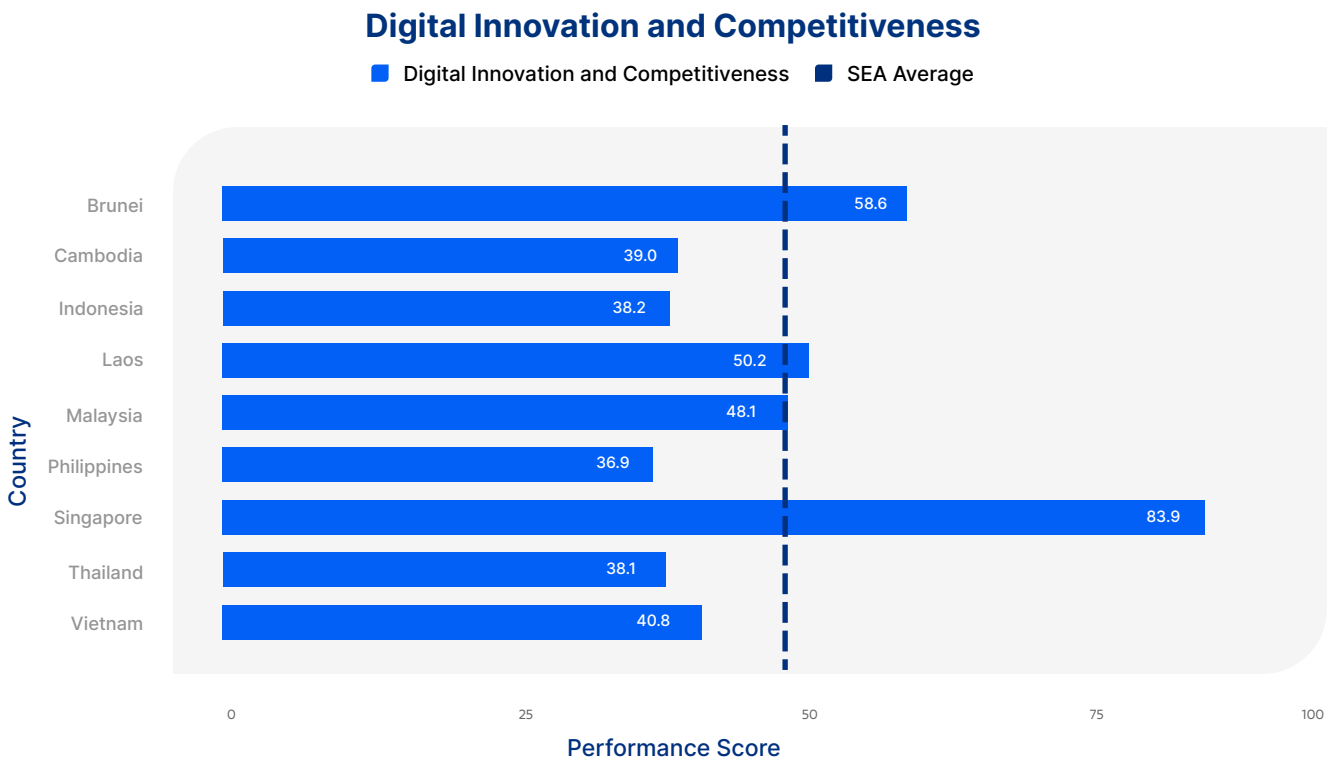
Figure 11. Productive Potential: Future-of-Work Readiness by Country



To date, there remains a high variance in SEA-6 countries' regulatory approaches for building an enabling environment for businesses, which is needed to boost the region's innovation output. SEA nations still have areas of improvement in digital innovations, such as the release of locally developed apps and the creation of top-level domains (TLDs). Investment in advanced data management infrastructure, such as in data centres, compute and storage, is in the beginning stages for most of SEA-6.⁸⁰ Singapore is an exception in this regard, concentrating 60% of the region's data centres on its shores.⁸¹

Enterprise readiness for digital technology adoption is still developing. Access to capital is key to enabling holistic digital transformation for MSMEs, but SEA's credit and investment environments continue to be a work in progress. While the funding scene has started seeing a surge in AI-related investments,⁸² governments are still working on diversifying investor attraction strategies across sectors. Efforts include granting new visa types⁸³ or increasing the allowable share of foreign ownership⁸⁴ in highly-regulated industries. Leading SEA countries in digital investment have improved governance and enhanced coordination among their investment promotion agencies to better meet investor requirements. Malaysia, for example, set up the Digital Investment Office (DIO), a collaboration between the Malaysian Investment Development Authority (MIDA) and the Malaysia Digital Economy Corporation (MDEC), complemented by an agile incentives regime.⁸⁵

Figure 12. Productive Potential: Digital Innovation and Competitiveness by Country



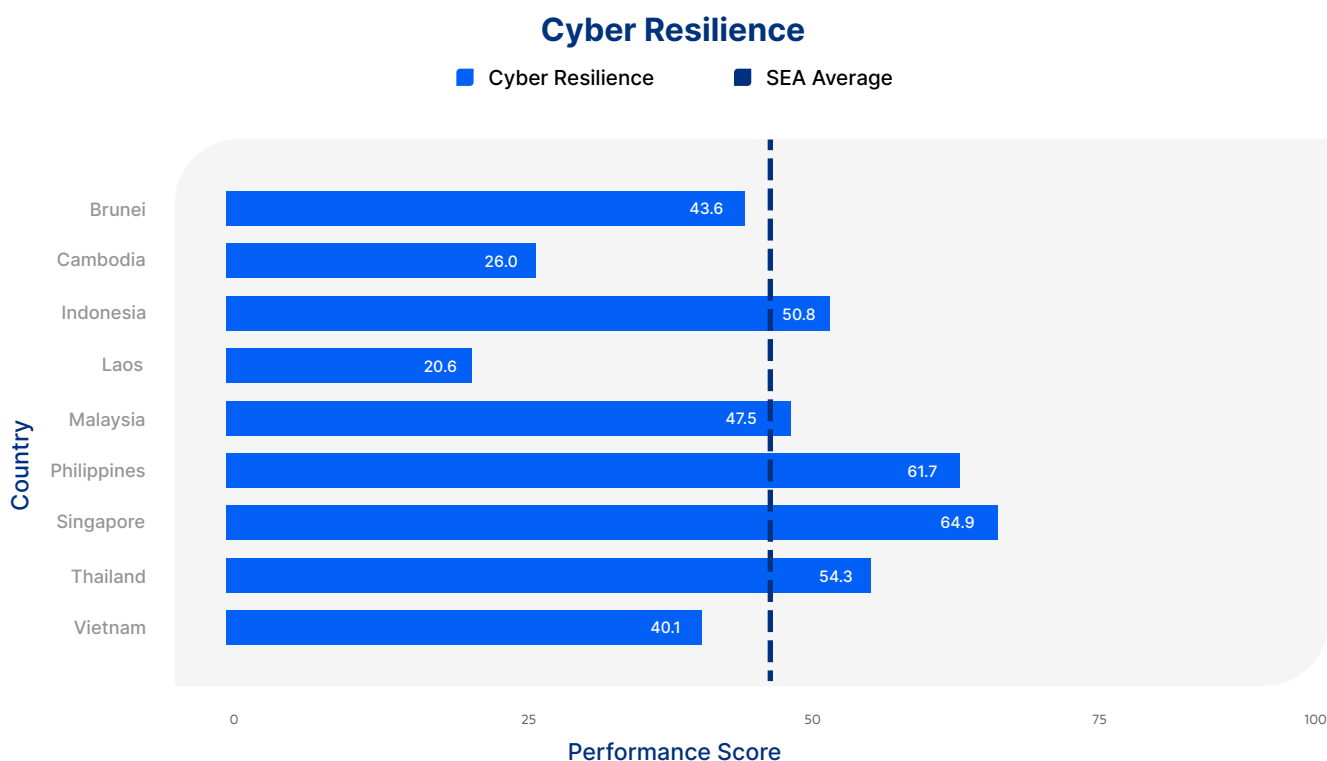
2.4 Digital Resilience: A New Approach to Governance

Resilience in the digital landscape requires adept management of cyber threats and crimes, environmental sustainability of digitalisation initiatives in terms of resource consumption and generated byproducts, and openness to innovative governance tools and frameworks. Overall, SEA has made some headway in bolstering institutional capacity to handle the ever-changing challenges of digital transformation. However, countries appear to still be cautious in adapting approaches, particularly for environmental sustainability and policy innovation.

Cyber resilience in the region has improved, but now has to evolve further to respond effectively to the surge in online scams, fraud and cyber threats. In recent years, the region has been seeing some of the highest amounts of cyber-enabled fraud, reaching USD 36.5 billion annually,⁸⁶ and is associated with scam centres targeting other parts of the world.⁸⁷ In addition, many Southeast Asians are not yet confident in being able to recognise scams and are also not equipped to report such attempts to authorities.⁸⁸ The TFGI report, *Building Resilience Against Digitally-enabled Scams and Fraud in Southeast Asia: A Whole-of-Society Approach*, highlights systemic challenges in the region's fight against digitally-enabled scams and fraud, such as inadequate digital literacy efforts, fragmented national response, limited coordination, and outdated legislation.⁸⁹

The Philippines and Thailand have recently strengthened cybersecurity efforts. The former is noted for its operationalisation of the fight against cybercrime, with the Department of Justice (DOJ) prioritising capacity building for advanced cybercrime response and management in 2025.⁹⁰ The latter performs well in cyber threat and awareness raising, and incident response, backed by national strategies like The Policy and Plan on Maintaining Cybersecurity (2022-2027).⁹¹

Figure 13. Digital Resilience: Cyber Resilience by Country



Environmental sustainability is a particular stumbling block as most countries in SEA struggle with meeting decarbonisation targets⁹² and are growing increasingly vulnerable to climate risks.⁹³ While governments have ramped up efforts to incentivise the build-out of renewable energy plants, resulting in significant capacity additions through to 2028,⁹⁴ much of SEA's energy mix weighs heavily on fossil fuels. Additionally, many countries still lack adequate climate risk adaptation strategies. While regional efforts such as the ASEAN Climate Resilience Network exist, empirical evidence shows these initiatives have underperformed against other regions in emissions reduction.⁹⁵

Indonesia and Vietnam have shown progress in its renewable energy stance, and focusing on e-waste and ecological sustainability, respectively. Indonesia is ramping up its energy transition efforts through the National Medium-Term Development Plan 2025–2029, facilitated by the formation of the cross-functional Energy Transition and Green Economy Task Force.⁹⁶ Meanwhile, Vietnam has recently introduced Extended Producer Responsibility (EPR) regulations under Decree No. 08/2022/ND-CP, holding producers as primarily accountable for managing end-of-life products rather than consumers and the government.⁹⁷

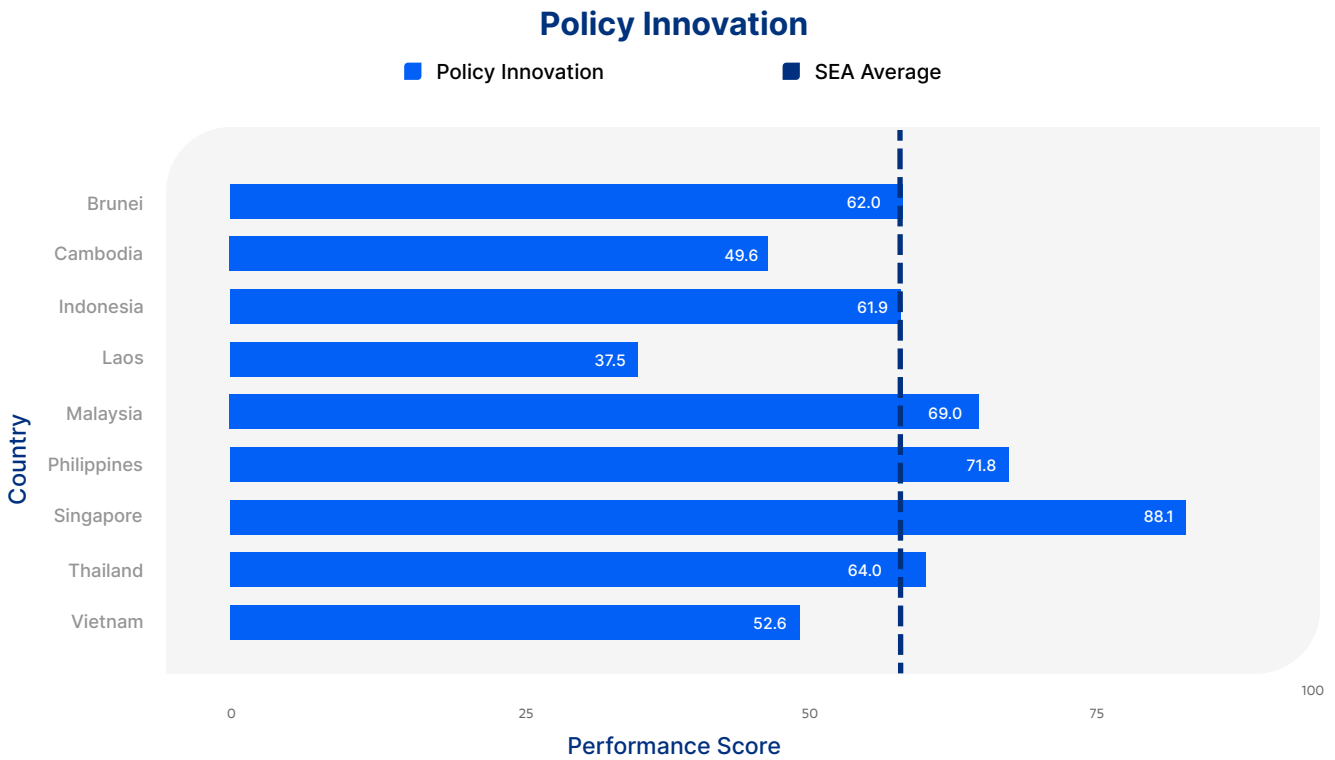
Figure 14. Digital Resilience: Environmental Sustainability by Country



Note: *(Grey) denotes countries with high missing data rate (≥50%) for at least one of the sub-pillars. (Brunei = 56% for Environmental Sustainability)

In SEA, the diversity in regulatory systems is reflected in the countries' varying outlooks on innovating public sector tools and governance. TFGI's recent report, *The Evolution of Tech Governance in Southeast Asia-6*, investigates the state of technology regulations in the region in 2024.⁹⁸ There is an opportunity to reinvent governance in the region with the next generation of governance tools and approaches enabled by emerging technologies, and guided by key principles to adapt to the pace of change, such as instituting tech-neutral, living agreements. As a next step, SEA governments can look into forward-looking policy approaches and cultivate transparency in policymaking.

Figure 15. Digital Resilience: Policy Innovation by Country





3. Recommendations

Overall, SEA has demonstrated varying degrees of readiness across the dimensions that define a *confident digital society*. While some countries may appear more prepared than others, an overarching theme is that there remains room for improvement, particularly in *Future-Readiness*, given the continuously and rapidly changing technological landscape.

While the digital economy is a key area influenced by digital transformation, the digital society is equally important to this discussion. This requires SEA to broaden its digitalisation agenda to include priorities that promote a sustainable, inclusive and empowered digital society. This ensures that Southeast Asians remain agile by integrating new skill sets and perspectives, while also helping to shape a shared future.

Digital integration efforts will be key to SEA leapfrogging towards its developmental goals by leveraging technology. Regionally harmonised standards and regulations are seen as a driving force in addressing many of the challenges that remain in SEA's digitalisation journey. Beyond this, there are general policy recommendations that each country can work towards as an initial step for facilitating empowered, meaningful and future-ready participation in the digital landscape.

This chapter proposes policy recommendations for SEA countries that can be implemented at the country level, based on the dimensions where regional performance shows gaps.



3.1 Quality Access

3.1.1 Public-private collaboration to increase coverage in underserved segments.

Governments can collaborate with service providers to deploy infrastructure in areas with poor coverage and repackage offerings for different budgets. Specific actions can include:

- Incentivisation of infrastructure build-out through mechanisms like subsidies, tax exemptions, and extended operational period to recoup investment
- Streamlined permits, application requirements and right-of-way obligations for the deployment of broadband infrastructure
- Device distribution programmes in underserved areas

3.1.2 Facilitate the development of shared resources to access online services.

Local governments can consider localised initiatives such as:

- Community networks
- Device rental or borrowing programmes
- Expansion of public hotspot for free WiFi
- Deployment of satellite WiFi in geographically isolated areas

3.1.3 Improve device affordability through market policies.

Regulators can consider to:

- Revisit taxation schemes on imported devices
- Develop research and manufacturing capacity for the local production of digitally-enabled devices and related technologies
- Strengthen trade agreements and supply chain position to reduce tariffs

3.1.4 Incentivise consistent high-capacity and high-performance internet services through enhanced competition policy.

Regulators can consider the following actions:

- Update existing competition laws to ensure that they remain relevant in their application to the digital space
- Upgrade capacity and performance requirements for national telecommunications infrastructure
- Uphold quality of service standards and guarantees for advertised speeds by internet service providers
- Improve spectrum management for wireless networks through greater transparency of spectrum assignments, application of robust allocation standards, and increased supervision of user fees

3.2 Meaningful Participation

3.2.1 Prioritise roll-out of integrated digital ID authentication system across e-government services.

The next generation of digital ID systems should be usable for multiple government services and applications, even when done remotely. Complementary actions include to:

- Upgrade the underlying architecture and databases needed for e-government services to authenticate digital IDs
- Revamp government data management, storage and transfer systems to digitise and compile personal data records across government agencies with a single associated ID

3.2.2 Ensure digital platforms are safe, secure and trustworthy through continued adaptation of cybersecurity measures.

Governments can remain agile in cybersecurity response by:

- Collaborating with industry experts and the private sector to continuously monitor, identify and respond to threats as they emerge
- Upholding digital platform accountability by setting standards for user safety and security

3.2.3 Facilitate universal digital literacy through an integrated national strategy.

Adaptive skills development strategies can help to address the digital skills gaps of different population segments. This includes:

- Anchoring the digital literacy agenda on a national strategy with a legislative mandate
- Addressing infrastructure and resource gaps, such as the availability of devices for training and equipping teachers with digital competencies
- Employing agile and consultative processes to develop, monitor and adjust digital literacy initiatives

3.2.4 Commit to ensuring the transparency of online government platforms by:

- Accelerating the digitisation of public data records and establishing digital data collection systems
- Enforcing Freedom of Information (FOI) regulations

3.2.5 Continuously enhance data protection measures.

Governments can learn from international best practices on how to effectively ensure compliance with enhanced data protection standards, through efforts to:

- Improve detection and response mechanisms for data breaches
- Coordinate national efforts against data privacy attacks through a dedicated regulating body

3.3 Productive Potential

3.3.1 Facilitate acquisition of competencies through workforce upskilling and reskilling programmes.

Labour and education-focused government agencies should partner with the industry to:

- Develop integrated skills development pathways aligned with sector-specific job demand, complemented by lifelong learning systems, targeted incentives, and career coaching frameworks
- Strengthen education-to-industry pipelines through co-designed curricula and expanded apprenticeship/internship pathways
- Redesign educational systems to incorporate digital skills alongside 21st-century soft skills such as critical judgment and empathy, broadening the utility of education beyond employability to also consider civic participation
- Launch new digital skills courses for vocational schooling and alternative learning
- Partner with Massive Open Online Course platforms (MOOCs) to offer certification tracks in advanced digital skills
- Nurture a cybersecurity talent pipeline through establishing formal and alternative learning channels

3.3.2 Develop national strategies for the regulation, adoption and usage of disruptive technologies.

Beyond known technologies such as AI, governments should develop tech-agnostic and adaptable guidelines for disruptive technologies that:

- Identify national and sector-specific use cases
- Define and measure the societal impact of emerging technologies to guide growth opportunities
- Adapt governance mechanisms and policies to address corresponding risks
- Launch new skills development pathways
- Develop credential programmes for new tech-enabled skillsets

3.3.3 Enhance labour and social protection policies to increase digital talent retention, which includes:

- Establishing governance on new ways of working, including regulating remote and freelance work, facilitating talent mobility by aligning with regional and global standards for skills certifications, and strengthening labour migration policies
- Enhancing protection of labour rights in the context of new technologies influencing job loss and reskilling
- Co-designing social protection schemes with the private sector to consider new types of workers in the digital economy (e.g., platform workers)

3.3.4 Promote alternative means of financing to fund enterprise technology adoption.

Governments should explore working with multilateral banks, start-ups and other organisations to de-risk and increase access to financing, such as by:

- Developing new credit and risk models using alternative data
- Localising micro and group finance initiatives
- Providing investor incentives for underdeveloped sectors
- Revamping government loan programmes for MSMEs

3.3.5 Update national innovation strategies to enable increased digital innovation output and commercialisation.

Governments can consider to:

- Develop university and industry partnerships centred on research and programming output, through initiatives like grants, competitions and hackathons, conferences, and mentorship

3.3.6 Invest in increasing digital export capabilities.

Develop strategies for increasing the country's manufacturing output and quality in high-technology and ICT products, ensuring the right enablers are in place, such as:

- Optimising supply chains, potentially through expanding logistics capabilities, and identifying and building new manufacturing, warehousing, transportation and fulfilment hubs
- Providing training sessions, grants, and other incentives to the labour pool for app and domain development

3.4 Digital Resilience

3.4.1 Establish a coordinating body and framework for agile cyberthreat monitoring and response.

As new cyberthreats emerge, governments should remain agile and aware of how the threat landscape changes, through actions such as:

- Establishing a coordinating body and adaptable guidelines for monitoring and response
- Localising micro and group finance initiatives

3.4.2 Integrate sustainability and digital transformation roadmaps.

Countries should consciously incorporate sustainability measures in digitalisation initiatives:

- Define, collect and monitor environmental data related to digitalisation, such as resource consumption and emissions production
- Update e-waste legislation to address the entire product lifecycle of digital devices and the waste production of data management and transmission infrastructure
- Incorporate environmental impact assessments in the project evaluation for digitalisation initiatives
- Establish new environmental standards centred on the preservation of resources consumed in digital-related infrastructure and manufacturing

3.4.3 Commit to decarbonisation and climate risk adaptation measures.

Governments can explore ramping up investment in sustainably decarbonising their energy mix, given the increased energy and resource use of digital technologies, as well as:

- Develop investor attraction strategies to encourage renewable energy build-out and roadmaps for transitioning out of fossil fuels
- Enhance disaster monitoring and response systems

3.4.4 Develop interactive digital platforms to increase citizen engagement and participation in policymaking.

Governments should consider:

- Launching online national feedback platforms for government projects
- Using local government online assets for polling on policy priorities
- Adopting transparency measures in the evaluation and integration of gathered feedback in the final draft

3.4.5 Create strategies and roadmaps for continuous innovation in governance.

This includes:

- Continued and adaptive digitalisation of government processes and services
- Identifying, piloting and scaling the use of innovative governance tools, principles and mechanisms, such as regulatory sandboxes for new business models

Afterword

This first edition of **Realising a Confident Digital Society: Spotlight on Southeast Asia-6** proposes an initial understanding of current *Foundations* and *Future-Readiness* of digital society. As such, indicators were selected primarily from publicly available data sources, prioritising relevance to the framework, recency of the collected data, and credibility of source and collection method.

However, not all dimensions are currently being measured or are regularly updated. The pace of digitally-enabled change also necessitates regular review of the dimensions most relevant to the evolution of digital societies, including how they are being defined and measured.

Consequently, there are potential improvements to indicator selection and methodology for future editions of the Confident Digital Society Index. The following sections present these considerations, while assuming the underlying conceptual framework remains the same.

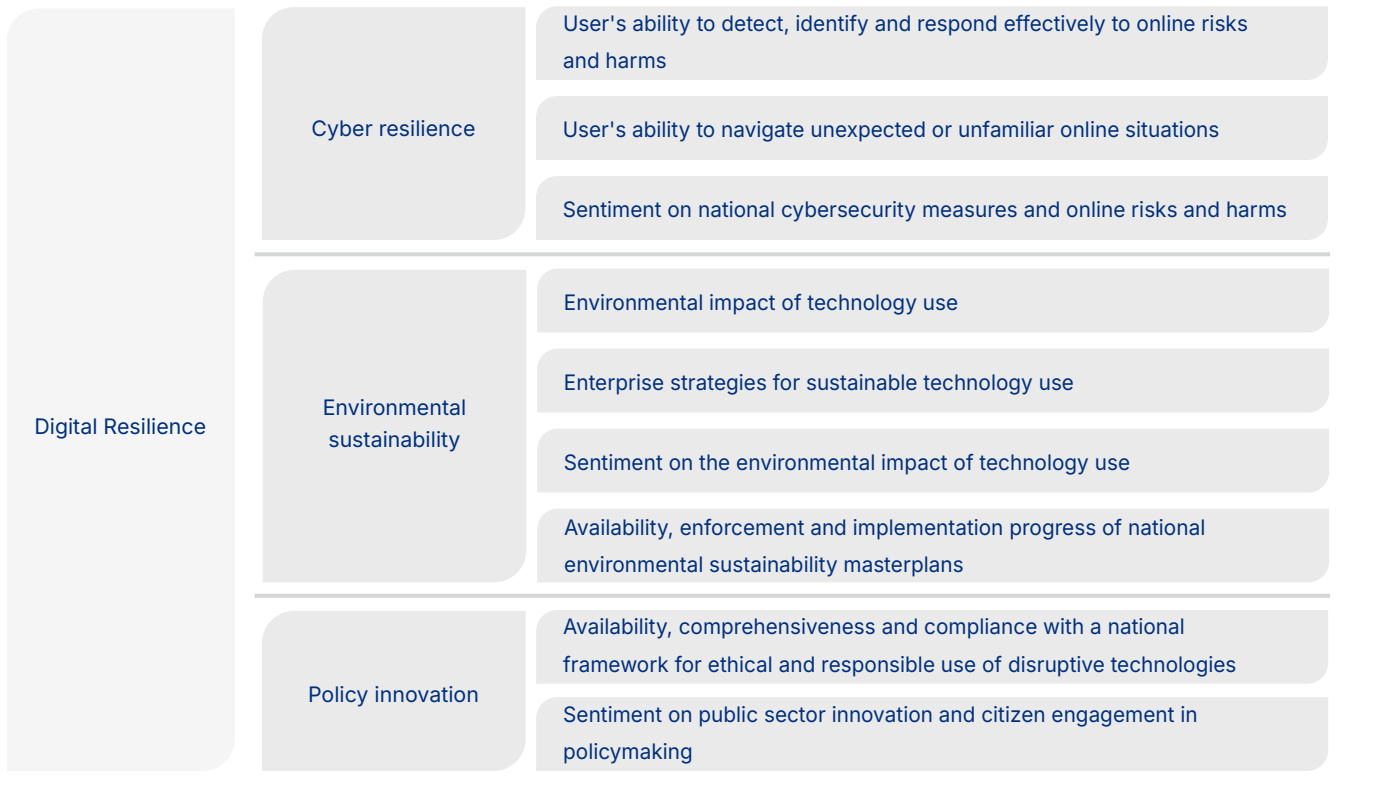
Considerations for Indicator Selection

In selecting indicators for future editions, key considerations focus on dimensions currently unmeasured or lacking suitable proxies. The table below provides a non-exhaustive list of these dimensions:

Pillar	Sub-Pillar	Indicators to Measure
Quality Access	Access	Equitability and types of internet access
		Sentiment on inclusivity and equitability of internet access
	Affordability	Equitability of device and internet affordability
		Sentiment on the affordability of devices and internet services
	Reliability	Sentiment on the consistency and quality of internet services

Meaningful Participation	E-government	Quality and performance of e-government services
		Sentiment on the quality and availability of e-government services
	Digital literacy	Free, informed and widespread civil participation in digital platforms
		Critical media literacy (e.g., ability to confirm the legitimacy of online information)
		Sentiment on the safety, security and trustworthiness of the internet
		Prevalence of foundational digital skills versus perception of digital literacy skill level and ability to develop new digital skills
	Open data access	Availability and comprehensiveness of country guidelines on data quality and representation
		Sentiment on the quality and comprehensiveness of open data platforms

Productive Potential	Digital competencies	Availability and quality of schooling and programmes focused on digital competencies
		Performance in digital competencies required for professional goals versus perception of skill level
	Future-of-work readiness	Penetration of enterprises with digital platforms
		Enterprise readiness for emerging tech trends
		Sentiment on the impact of technology and business model innovation
	Digital innovation and competitiveness	Volume and quality of international, cross-border and multi-stakeholder collaborations
		Volume and value of new or emerging business models
		Strength of entrepreneurship culture and policies
		Sentiment on the availability and quality of enablers for innovation and entrepreneurship



Considerations for Methodology

Potential adjustments to methodology in future editions should consider the need to maintain index stability for comparison over time. The accompanying *Technical Notes* further detail the methodology used in the first edition. However, changes in the digital landscape may necessitate reviewing the approach in certain aspects of index development, namely:

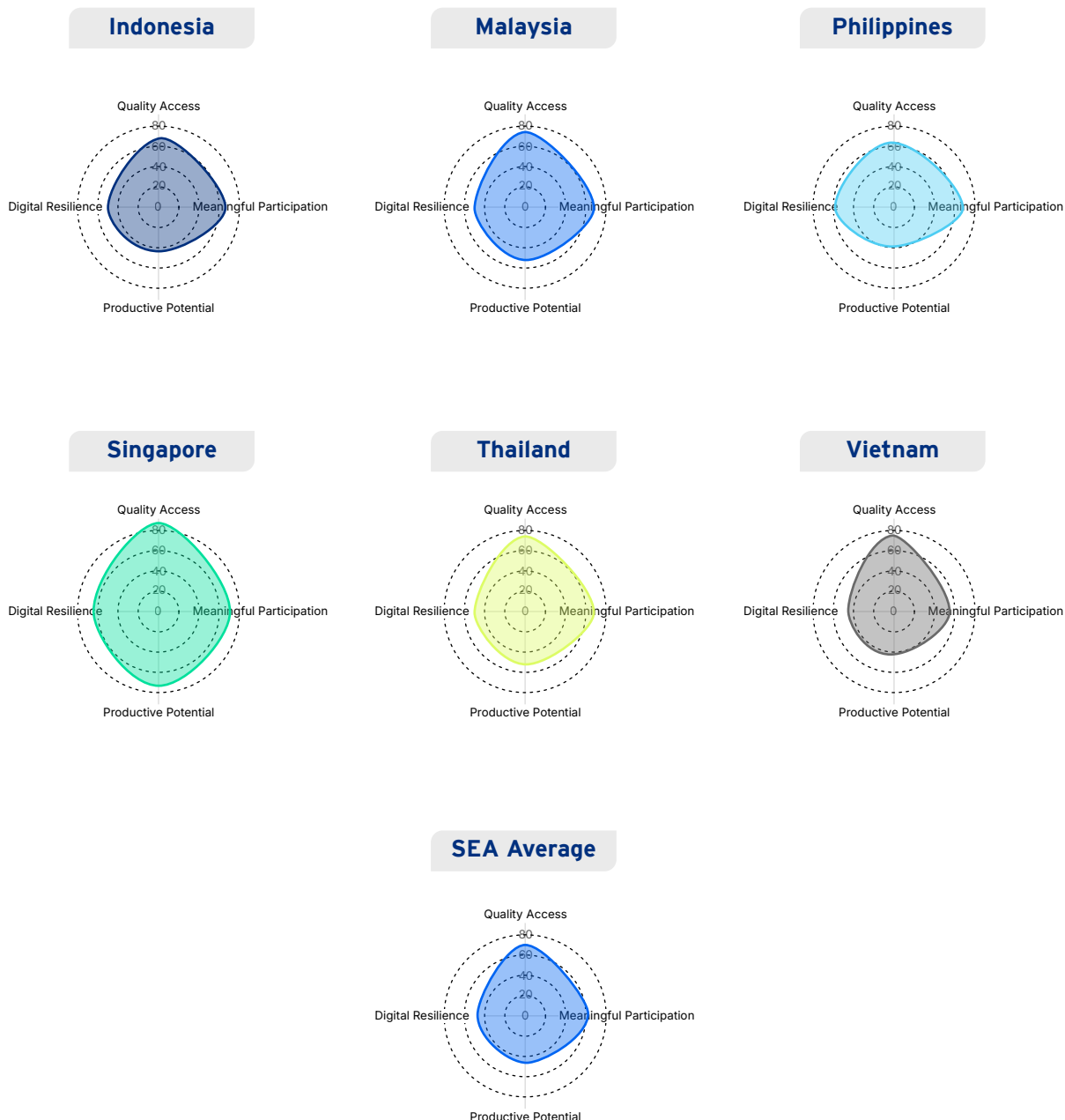
- Minimum data availability threshold for including an indicator and/or economy in the index calculations
- Adjustments in assigned weights per indicator, sub-pillar and policy area, dependent on their measurable impact on societal confidence in digital participation
- Treatment of missing values, including in the imputation approach and in aggregation
- Normalisation approaches and methods
- Introduction of additional multivariate analyses, particularly for correlations between indicators and sub-pillars



Appendix A. SEA-6 Country Profiles

The Southeast Asian nations are diverse in their strengths and opportunities for growth. This chapter details individual country performance, broken down by sub-pillar, and includes the highlights of their digital society development.

- Indonesia
- Malaysia
- Philippines
- Singapore
- Thailand
- Vietnam
- SEA Average



The table below provides an overview of each SEA-6 country's scores by dimension, pillar and sub-pillar. Refer to the following country one-pagers for further details.

Figure 16. Overview of Country Performance by Dimension, Pillar and Sub-Pillar

Country	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Foundations	67.0	70.9	66.6	78.5	70.5	66.0
Quality Access	67.9	74.3	62.9	86.6	73.1	74.7
Access	67.1	78.9	68.9	85.0	75.9	74.0
Affordability	87.9	81.5	67.9	99.2	77.3	82.5
Reliability	48.7	62.4	51.8	75.7	66.0	67.5
Meaningful Participation	66.1	67.6	70.4	70.4	67.8	57.2
E-Government	77.7	79.2	68.9	74.7	73.4	61.9
Digital Literacy	60.7	66.7	62.7	67.8	59.8	55.0
Open Data Access	59.8	56.9	79.6	68.8	70.3	54.9
Future-Readiness	48.0	50.5	47.5	69.7	48.6	43.9
Productive Potential	44.7	52.2	39.4	74.8	45.4	44.1
Digital Competencies	41.8	52.7	27.6	72.4	35.1	37.6
Future-of-Work Readiness	54.0	55.7	53.6	68.2	63.2	53.9
Digital Innovation and Competitiveness	38.2	48.1	36.9	83.9	38.1	40.8
Digital Resilience	51.4	48.8	55.6	64.7	51.8	43.7
Cyber Resilience	50.8	47.5	61.7	64.9	54.3	40.1
Environmental Sustainability	41.6	29.9	33.2	41.0	37.2	38.3
Policy Innovation	61.9	69.0	71.8	88.1	64.0	52.6

A.1 Indonesia

Ready 57.5 / 100

SEA Average



Indonesia performs strongest in *Meaningful Participation* and *Digital Resilience*.

It is among the leaders for *E-Government* in the region, though there remain gaps, such as the full integration and usage of a comprehensive digital ID authentication system.

It also demonstrates a particular focus on *Environmental Sustainability*. Indonesia has made significant strides in solidifying its stance on renewable energy by setting up the right governance mechanisms and enablers for levelling the playing field for renewables.

There are opportunities for Indonesia to facilitate broader and more reliable internet access, the establishment of a supportive environment for digital innovation, and the further development of its ICT regulatory regime and digital economy policy agenda.

A.2 Malaysia

Robust 60.7 / 100

 SEA Average



Malaysia is adept in both fundamentals and forward-looking strategies.

The nation is a regional benchmark for *Quality Access*, demonstrating among the most consistent and fastest performance in internet speed and coverage. It has some of the most affordable costs for the internet, whether for fixed or mobile broadband, though pricing for entry-level data is not as competitive.

Malaysia also exhibits strong workforce readiness and enabling environments for businesses, as indicated by its above-average score in *Productive Potential*. It has developed a steady technology talent pipeline, enablers for enterprise technology adoption, and readiness for emerging technologies. It has prioritised investments in advancing data management infrastructure. The next step for future-proofing the Malaysian workforce is resolving the issue of under-employment due to skills mismatch⁹⁹, through enhanced job demand, matching and placement strategies corresponding to industry requirements. Notably, it underperforms in coverage of ICT skills in the formal education system.

Central to its performance is excellence in governance, with well-established e-government services and a robust ICT regulatory regime.

However, Malaysia requires more effort in the integration of environmental sustainability in its digitalisation plans. Potential areas to reinforce include clarifying and enforcing its stance on renewable energy, further developing its green energy policy, and enhancing environmental standards to consider the energy and resource requirements of technology use.

A.3 Philippines

Ready 57.1 / 100

 SEA Average



The Philippines' strength is in facilitating *Meaningful Participation* for its citizens.

It scores well in *Open Data Access*, having invested in ensuring policies are in place for data privacy and protection, and democratising the use of public information. Various national agencies have also steadily rolled out e-services in the past five years, adhering to the Philippines E-Government Masterplan,¹⁰⁰ while the country's Freedom of Information portal has been in operation since 2016.¹⁰¹

Cyber Resilience is also improving. The Philippines is noted for its operationalisation of the fight against cybercrime, with the Department of Justice (DOJ) prioritising capacity building for advanced cybercrime response and management in 2025.¹⁰² It can continue to refine cybersecurity policy implementation to effectively address rising scam and fraud losses in the past year.

Access, *Affordability* and *Reliability* of internet services are areas that require further attention to boost the country's digital *foundations*. Moving forward, the Philippines will also need to consider how to strengthen the *future-readiness* of its workforce. Priorities should be *Digital Competencies*, covering digital skills development to meet evolving demand, and *Future-of-Work Readiness*, in areas like investment in advanced data management infrastructure and enablers for enterprise technology adoption.



A.4 Singapore

Robust 74.1 / 100

SEA Average



Singapore exhibits mastery in the *Foundations* and *Future-Readiness* of its digitalisation initiatives. Its highest scores are in *Affordability*, *Reliability*, *E-Government*, *Digital Competencies* and *Policy Innovation*.

Singapore has attained broad coverage and consistency in internet connectivity, facilitated by territorial features that have enabled wider infrastructure rollout¹⁰³ across the island-state. The median monthly household income in the country is US\$8,368,¹⁰⁴ classifying it as a high-income economy,¹⁰⁵ which likely drives the higher-than-average affordability of services and prevalence of device ownership.

Singapore posts some of the fastest internet speeds globally. It has invested early in e-government services and the incorporation of ICT skills in the national curriculum. It has also designed advantageous incentives for investing in enterprises and increasing spending on research and development. Apart from a marked commitment to public sector innovation, Singapore stands out for its effective governance and highly developed digital toolbox.

Open Data Access and *Environmental Sustainability* are areas where Singapore can further tighten its initiatives.

A.5 Thailand

Ready **59.6** / 100

 SEA Average



Thailand is relatively consistent across policy areas.

Its top performance is in *Meaningful Participation*, with its *E-Government* exhibiting stable infrastructure. This indicates that Thailand's recent efforts in ramping up its e-government have borne fruit, following the approval of the Bureaucratic Development Strategy 2024-27 in July 2024.¹⁰⁶ Part of the strategy's mandate is to achieve a fully digital government by 2025 through the implementation of a new e-Office system across government agencies.

It also performs well in *Cyber Resilience*, with high scores in cyber threat and awareness raising, and incident response. These are fostered by national strategies like The Policy and Plan on Maintaining Cybersecurity (2022-2027).¹⁰⁷

Thailand can unlock further growth through boosting its *Productive Potential*: individual ICT skills, whether basic or advanced, are still lacking among its population. It can also consider enhancing strategies for increasing the country's innovation output, and supporting enterprises in obtaining access to finance and easing the business environment.

A.6 Vietnam

Ready 54.9 / 100

SEA Average



Vietnam's performance is relatively stable, though its digitalisation potential is yet to be fully realised.

Its highest scores are in *Quality Access*, particularly in *Reliability*. Vietnam's internet speeds, latencies and connectivity are competitive within the region. It also has a well-developed *E-Government*, *Future-of-Work Readiness* strategy, and approach to *Environmental Sustainability*.

To capitalise on the growth opportunities of digital transformation, Vietnam can specifically work on addressing the gaps that remain in *Digital Literacy*, *Open Data Access*, *Cyber Resilience* and *Policy Innovation*.

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