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Working Paper

A Framework for Confident Digital Society

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About This Working Paper

In 2023, the Tech for Good Institute conducted research across six countries in Southeast Asia — Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam — to understand ambitions of the public, private and public sectors for the next phase of digital development following the rapid digitalisation catalysed by the pandemic. The resultant report *From Tech for Growth to Tech for Good* highlighted a shared broadening of goals, from a primary focus on digital economy growth to that of sustainable digital development.¹ Central to achieving such development is fostering a **confident digital society** as a parallel objective to industry transformation and economic growth.

This working paper builds on the 2023 report to propose a conceptual framework for understanding “Confident Digital Society” as both a foundation and outcome of digital economy growth. To support discussions around this framework, preliminary indicators are proposed to illustrate each pillar of the framework so that progress may be monitored, and to inform discussion and decisions on investment priorities.

This proposed framework is an early iteration, as are the identified indicators. By sharing preliminary thoughts, we invite dialogue to refine and improve this concept, framework and indicator selection. We particularly welcome views from across the public, private and civil sectors; please send feedback to info@techforgoodinstitute.org.

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About the Tech for Good Institute

The Tech for Good Institute is a non-profit organisation working to advance the promise of technology and the digital economy for inclusive, equitable and sustainable growth in Southeast Asia.

With a population twice the size of the US and strong demographics, Southeast Asia's digital economy is evolving rapidly. At the same time, the region's trajectory is unique, shaped by its diverse cultural, social, political and economic contexts. The Tech for Good Institute serves as a platform for research, conversations and collaborations focused on Southeast Asia 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.

The Institute was founded by Grab, to advance the vision of a thriving and innovative Southeast Asia 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.



Executive Summary

Southeast Asia's rapid digital transformation is continuing to drive growth in the region. In 2024, the region outpaced global growth, recording real GDP growth of 4.6%. 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. Key industries such as e-commerce, digital payments, transportation and online services have seen increased adoption and growth in total gross merchandise value in 2024.



Beyond economic growth, digitalisation can, and should, enable development goals. This paper builds on the 2023 report From “Tech for Growth” to “Tech for Good”, in which the Tech for Good Institute (TFGI) consulted over 130 policymakers and stakeholders on the next phase of their country’s digital development. One common area of investment is fostering a confident digital society for a trusted, inclusive and resilient digital ecosystem, nationally and regionally.

This working paper reviews the evolving definitions of and existing efforts to measure digital societies, before proposing a framework for **Confident Digital Society**. The proposed framework identifies two important perspectives: Foundations and Future-readiness. The former refers to the current state of digital transformation, while the latter assesses a society’s ability to seize opportunities and respond to future challenges. Sub-areas for each include:

Foundations

-  **Quality Access:** Affordable, reliable and high-quality digital connectivity.
-  **Meaningful Participation:** Leveraging technology to improve daily lives, increase access to goods and public services, and strengthen e-citizenship for active civic participation.

Future-readiness

-  **Productive Potential:** Economic empowerment in the current and future digital economy through skills development, readiness for emerging technologies and a vibrant innovation ecosystem.
-  **Digital Resilience:** Ability to respond to challenges posed by innovation and digital transformation through policy innovation, safety and sustainability.

To clarify each perspective and sub-area, illustrative indicators are proposed. These indicators reflect both longstanding and emerging issues, from digital platform penetration to attitudes towards AI and other emerging technologies, response to online scams and the integration of digital and sustainability roadmaps. Indicators not only enable measurement, but also to identify areas of strength, growth potential and investment to support sustainable digital development holistically.

This working paper is just the first step, serving as the foundation for stakeholder consultations across the digital ecosystem. Some indicators identified in this paper may not be readily available and will require additional data collection efforts. Therefore, this paper is also an invitation for potential data partners to collaborate in support of nurturing confident digital societies across Southeast Asia.



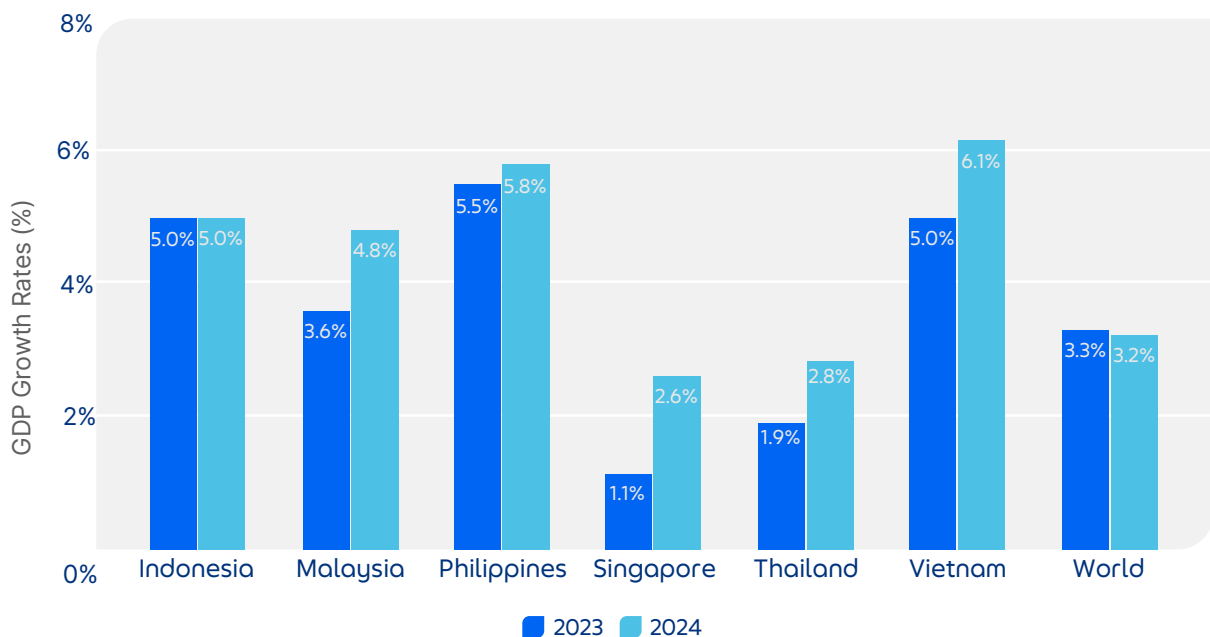
1. Keeping the Momentum: Southeast Asia's Digital Economy

1.1 Digital Economy Continues to Fuel Economic Growth

Southeast Asia continues to outpace global economic growth, with the region achieving a regional Gross Domestic Product (GDP) growth rate of 4.6% in 2024, compared to the global average of 3.2%.² This robust and steady growth underscores Southeast Asia's relevance in the global economic supply chain.

Figure 1. SEA-6 GDP Growth Rates vs. Global Growth Rates, 2023-2024

The region's projected growth rate outpaces global growth rates

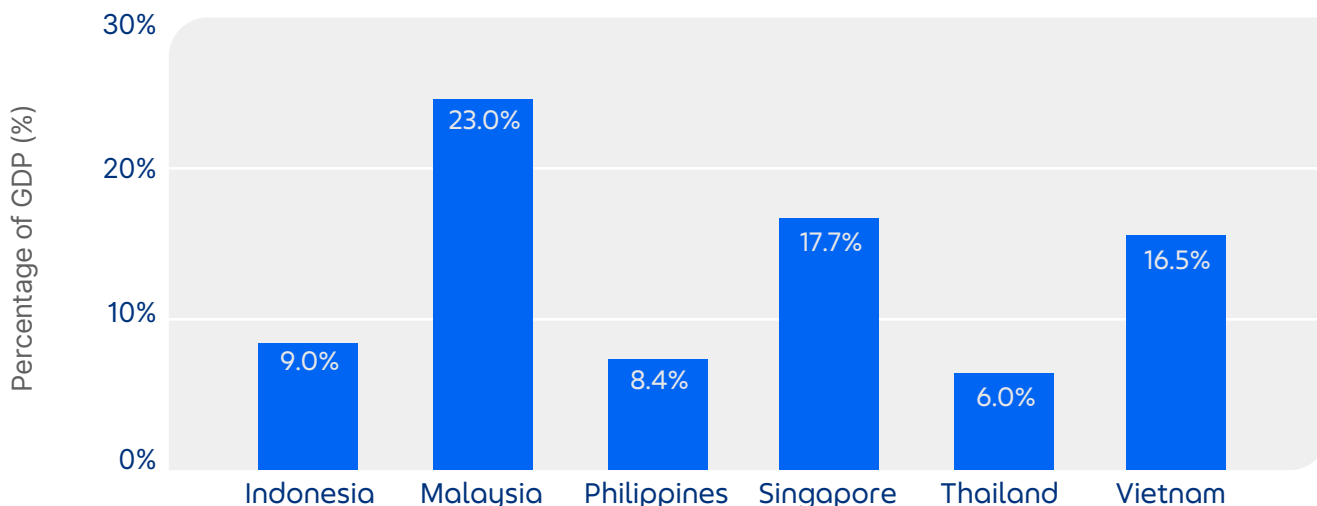


Source: International Monetary Fund, 2024

The region's economy has been significantly bolstered by digital transformation, maintaining double-digit growth in Gross Merchandise Value (GMV) and revenue since 2022.³ Key sectors include financial services, e-commerce, online travel, food delivery and transportation. Adoption of digital finance services has facilitated much of this growth, with the Gross Transaction Value (GTV) of digital payments increasing by 14% to US\$1.13 billion in 2024.⁴ E-commerce GMV in ASEAN reached US\$159 billion in the same year, reflecting a 15% year-on-year increase.⁵ Currently, the digital economy accounts between 6% to 23% of the GDPs of SEA-6 economies.

Figure 2. Digital Economy as Percentage of GDP, SEA-6 (various years)

The digital economy contributes to economic growth of SEA-6 economies



Note: Figures used are latest available data from various sources: Indonesia (Jakarta Post, 2021), Malaysia (Ministry of Digital, 2022), Philippines (Philippine Statistics Authority, 2023), Singapore (InfoComm Media Development Authority, 2023), Thailand (OpenGov, 2023) and Vietnam (VietnamPlus, 2023).

Source: Compiled by Tech for Good Institute, 2024

1.2. Understanding the social dimension of digital transformation

While a growing digital economy is important for development, how do Southeast Asians further benefit from digital transformation?

Digitalisation has produced tangible social impact at the national, firm and individual levels. In the public sector, for example, digitalisation has enabled streamlined operations such as faster processing of permits and licenses, disbursement of cash assistance via digital payments, and improved tax collection through automation. At the firm level, digitalisation has opened pathways for scaling operations and expanding market reach, including for micro, small and medium enterprises (MSMEs). At the individual level, digital goods and services are now more accessible due to rapid digital transformation. Digital platforms have transformed the way individuals work, live, and transact by acting as intermediary services between multiple user sets, such as buyers and sellers. These platforms digitalise interactions and transactions, creating efficient, accessible, scalable, and agile multi-sided marketplaces.⁶ For example, e-commerce and ride-hailing are now part of everyday life, whereas digital financial services and telemedicine serve communities that are typically underserved by traditional businesses and operating models.

However, digitalisation has also brought about new risks and harms. If not effectively managed, digitalisation could exacerbate existing social and economic inequalities.⁷ The digital divide, for example, may widen if there are no measures to ensure equitable access and meaningful use of digital technologies across all demographics. Furthermore, cybersecurity threats are increasingly becoming more sophisticated, compromising critical systems and infrastructure. Individuals are also being targeted by scams and frauds proliferated through elaborate social engineering techniques applied through digital platforms.

Sustainable digital development thus requires that **everyone is empowered by, participates in and benefits from digital transformation in a sustainable way.** Such a Confident Digital Society also fosters an enabling environment for digital goods and services adoption. In other words, a Confident Digital Society is also good for the digital economy.

Just as economic indicators help countries monitor progress, identify challenges and recognise areas of untapped potential, a framework and metrics for digital society can support efforts to build a Confident Digital Society. Existing frameworks for digital society do exist, covering aspects ranging from information and communications technology (ICT) infrastructure to digital inclusion and workforce readiness among others. This proposed framework and illustrative indicators builds on these existing frameworks, with the intention of informing further research and policy to leverage digital transformation as a force for inclusive, innovative and sustainable development.

1.3. Research objectives

In line with these motivations, this paper has three objectives.

First, to present an initial conceptual framework of the key perspectives for digital society today, and how to nurture a Confident Digital Society. These include: Foundations and Future-readiness, with sub-areas Quality Access, Meaningful Participation, Productive Potential and Digital Resiliency.

The second objective is to propose illustrative indicators for each area. Indicators are necessary for assessing progress, identifying challenges and pinpointing areas of potential. These indicators can be tailored to specific contexts to determine the impact of national or regional initiatives. These indicators will be subject to further consultation with stakeholders across the digital landscape within and beyond the region.

Third, this paper is an invitation to a conversation. Data for desired indicators may not always be publicly available. Additional data, such as enterprise data, could significantly enhance the depth and insights of this paper. This conceptualisation serves as an open invitation to potential data partners to collaborate and contribute to this effort to articulate and support Confident Digital Society.





2. Assessing Digital Society

The concept of the digital society is not new. While there is no standard definition for what constitutes a digital society, the term has been generally used to describe societies in which modern ICT systems mediate the flow of information.⁸ From this perspective, ICT systems play a role in shaping the fundamental structures of social organisation and governance.

Early conceptualisations of information or network society also examined social structures based on networks enabled by ICT systems. As interconnected global networks allowed seamless information flows, communication and collaboration across diverse regions and cultures, and new forms of social organisations emerged. Individuals and communities engaged, shared and innovated beyond the constraints of traditional boundaries, such as geographical limitations, physical society and national borders.⁹

The term digital society is also used to describe social arrangements that determine which demographics fully access and benefit from the use of digital tools. This perspective focuses on the enabling environment for ICT development and the inequities that are created, or exacerbated, as a result of digital transformation.¹⁰ Scholars have focused on how socio-economic class, gender and ethnicity affect participation in digital society, cautioning that societies risk entrenching inequalities if the opportunities promised by technology are not available to all.

Finally, digital society has also been understood as the integration of emerging and advanced technologies into society and culture,¹² transforming economic production and reshaping social relationships. In this conceptualisation, digital society is a result of how communities respond to challenges and opportunities enabled by digital technologies.¹³

Different Conceptualisations of Digital Society

Evolving definitions of digital society have different primary foci:

- An **infrastructure-focused** view defines digital society as 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.¹⁴
- An **inclusion-focused** perspective highlights digital society as 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.¹⁵
- Finally, an **impact-focused** view sees digital society as 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.¹⁶



These different concepts of digital society have guided frameworks and international cooperation towards inclusive digital outcomes. One important undertaking is the Global Digital Compact — a comprehensive framework for global digital technology governance negotiated by 193 United Nations Member States, which involves committing to closing digital divides, building a secure digital space and strengthening AI governance.¹⁷ Building on existing efforts and literature, the proposed conceptualisation of a Confident Digital Society framework incorporates the infrastructure, inclusion and impact components of digital society.

2.1. Measuring Digital Society

Existing global indices vary greatly on their philosophies, intentions, methodological design and coverage. Some focus on access, others on inclusion and participation, while others on security and trust. While the list below is not exhaustive, it demonstrates the range of efforts to date to understand and track the progress of achieving development outcomes through digitalisation.

Table 1. Review of Relevant Digital Society Indices

	ICT Development Index	Inclusive Internet Index	Digital Economy and Society Index	Digital Intelligence Index	Digital Government Index	Network Readiness Index	Global Cybersecurity Index
Author	International Telecommunications Union	Economist Impact and Meta	European Union	Tufts University	Organisation for Economic Cooperation and Development (OECD)	Portulans Institute, University of Oxford Said Business School	International Telecommunications Union
Coverage	170 countries	100 countries	28 EU countries	90 countries	38 OECD countries	134 countries	172 countries
Time Period	2009 - 2017 / 2023 - 2024	2017 - 2022	2014 - 2024	2020	2019-2024	2020 - 2024	2020 - 2024
Frequency	Annual	Annual	Annual	2020,2017, 2014	Annual	Annual	Annual
Key Pillars	1. Universal Connectivity 2. Meaningful Connectivity	1. Availability 2. Affordability 3. Relevance -Local Content -Relevant Content 4. Readiness	1. Human Capital 2. Connectivity 3. Integration of digital technology 4. Digital public services	1. Digital Resiliency 2. Digital Trust	1. Digital by design 2. Data driven public sector 3. Government as a platform 4. Open by default 5. User-driven 6. Proactiveness	1. Technology 2. People 3. Governance 4. Impact	1. Legal 2. Technical 3.Organisational 4. Capacity Development 5. Cooperation
Number of Indicators	11	62	32	358	155	20	20





Source: Compiled by the Tech for Good Institute, 2024

ICT Development Index¹⁸

The **ICT Development Index (IDI)** aims to measure the state of digital connectivity across countries and track progress toward reducing digital divides. First introduced in 2009 by the International Telecommunications Union (ITU), the IDI initially focused on assessing the development of the ICT sector in participating countries. The ITU is the United Nations' specialised agency for ICT, which works to broker international agreements, build capacity, share knowledge and work with partners to support technology uptake around the world. It was published annually up until 2018, when it was discontinued due to challenges related to data availability and quality. The IDI was relaunched in 2023 following dialogues aimed at refining its methodology to better capture the evolving landscape of digital development. The updated framework centres on universal and meaningful connectivity, defined as the ability for everyone to access a safe, satisfying, enriching and productive online experience at an affordable cost.

Inclusive Internet Index¹⁹

The **Inclusive Internet Index** evaluates the extent to which the internet drives positive outcomes for individuals and communities. It was developed by the Economist Impact and supported by Meta. The index incorporates both quantitative metrics, such as network coverage and pricing, and qualitative measures, including e-inclusion policies and local language support. Its objectives include analysing the evolution of digital divides between countries and within demographic groups, such as income and gender. It also provides valuable insights to inform roadmaps and mobilise multi stakeholder efforts for bridging connectivity gaps. Launched in 2017, the index's most recent edition was published in 2022 and assesses digital inclusivity across 100 countries based on four pillars:

-  **Availability**, which examines the quality and breadth of available infrastructure required for access and levels of Internet usage;
-  **Affordability**, which examines the cost of access relative to income and the level of competition in the internet marketplace;
-  **Relevance**, which examines the existence and extent of local language and other relevant content, and;
-  **Readiness**, which examines the capacity to access the internet, including digital skills, cultural acceptance and supporting policy.

Digital Economy and Society Index²⁰

The Digital Economy and Society Index (DESI) monitors Europe's digital performance and tracks the progress of European Union (EU) countries in enhancing their digital competitiveness. Released annually since 2014 by the EU, the most recent edition was published in 2024. The DESI has been integrated into the EU's State of the Digital Decade report since 2023, which tracks the progress of EU nations in meeting established digital targets. It has also undergone several updates to improve its relevance and accuracy. These include modernising the skills indicators to better reflect current digital competencies, expanding connectivity metrics to encompass the use of diverse devices, and enhancing integration indicators to capture the adoption of advanced technologies like cloud computing. The DESI serves as a valuable tool for evaluating performance across identified pillars and addressing gaps in digital development.

The DESI evaluates the performance of 28 EU countries across four key pillars:

- **Human Capital**, which assesses internet skills and advanced digital skills by the population;
- **Connectivity**, which measures the degree of both fixed and mobile broadband take-up and coverage;
- **Integration of Digital Technology**, which measures the extent of digital technology absorption by businesses and SMEs, and;
- **Digital Public Services**, which measures the quality of e-government or government services facilitated through digital channels.

Digital Intelligence Index²¹

The Digital Intelligence Index (DII) was built to provide evidence-driven and actionable insights on global and national efforts towards sustainable digitalisation. Produced by the Fletcher School at Tufts University, it integrates two frameworks for measuring digital transformation. The first is the Digital Evolution scorecard, which assesses digital economy developments based on key drivers such as innovation and change, supply conditions, demand conditions and institutional environment. Assessments are based on research from 2008-2019, covering 90 economies and its performance on 160 indicators.

The second framework is the Digital Trust scorecard, which focuses more on norms and behaviours towards technology. Specifically, it assesses the attitudes of citizens, behaviour of users, safety environment and the quality of user experiences. The Digital Trust framework was introduced in 2017 to focus on aspects of transformation beyond growth. These include initiatives to enhance digital competitiveness, nurturing trust in the digital economy and fostering responsible use of emerging technologies for enhanced productivity and the greater good.

Digital Government Index²²

The Digital Government Index, published by the Organisation for Economic Development and Cooperation (OECD), covers government initiatives towards facilitating digital transformation in the public sector that is coherent and human-centred. It was designed to assess government progress in leveraging digital tools towards sustainable transformation. The index assesses digital government maturity along six dimensions:

- **Digital-by-design**, which measures how policies are designed for using digital tools and data in a coherent manner;
- **Data-driven**, which refers to the development of governance needed for effective data sharing and access;
- **Government as a platform**, which refers to the deployment of building blocks for the transformation of government processes and systems;
- **Open by default**, which refers to the openness of using data and technology for meaningful engagements;
- **User-driven**, which refers to whether user needs are at the core of the design and delivery of public services, and;
- **Proactiveness**, which refers to the ability of governments to anticipate the needs of users and providers.

Network Readiness Index²³

The Network Readiness Index (NRI) evaluates trends and provides insights into how online trust has evolved in the digital era. Published by the Portulans Institute and the University of Oxford Saïd School of Business, the NRI covers 134 economies and examines a broad range of factors related to a country's readiness to capitalise on the benefits of digitalisation. The NRI is organised around four key pillars:

- **Technology**, which assesses the technological infrastructure essential for a country's participation in the global economy;
- **People**, which evaluates the skills, inclusivity and capabilities of the population in leveraging digital technologies;
- **Governance**, which examines frameworks that ensure a comprehensive approach to user safety and holistic network management, and;
- **Impact**, which measures whether a nation's readiness in the networked economy translates into broad-based growth and social progress.

Published annually since 2019, the most recent edition of the NRI was released in 2024, offering up-to-date insights into the state of digital readiness worldwide.

Global Cybersecurity Index²⁴

The **Global Cybersecurity Index (GCI)** measures a country's commitment to cybersecurity on a global scale. While the previous indices mostly cover inclusion and access, the GCI focuses on digital security and is intended to inform on cybersecurity measures through publicly available data and verifiable evidence. Published by the ITU alongside the IDI, the GCI highlights the importance of security to realise the social benefits of digital tools. The GCI covers 172 countries and is published annually, with the first edition released in 2020. The GCI identifies potential areas for collaboration, enabling more effective responses to cybersecurity threats.

The GCI evaluates efforts across five pillars that reflect the depth of national initiatives aimed at strengthening cybersecurity governance and promoting long-term resiliency:

- **Legal measures**, such as laws and regulations;
- **Technical measures**, including the presence of incident monitoring mechanisms;
- **Organisational measures**, such as strategies and responsible agencies;
- **Capacity development measures**, including campaigns, research and training initiatives, and;
- **Cooperation measures**, such as bilateral, multilateral and other partnership agreements.



2.2. A conceptual framework for Confident Digital Society

The indices reviewed in the previous section highlight different features and elements of digital society. These include elements such as universal coverage, digital government, regulatory frameworks, digital adoption, digital literacy and skills for digitally-enabled work. For example, public sector-focused indices, such as the OECD DGI, do not include dimensions such as individual participation and digital safety. In TFGI's 2023 report, *From Tech for Growth to Tech for Good*,²⁵ over 130 stakeholder representatives from governments, the private sector, think tanks and academia across Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam provided views on priorities for advancing sustainable digital development nationally and regionally.²⁶ Stakeholders noted the importance of reviewing digital society holistically, including access, participation, livelihoods, sustainability and resilience to disruptions.

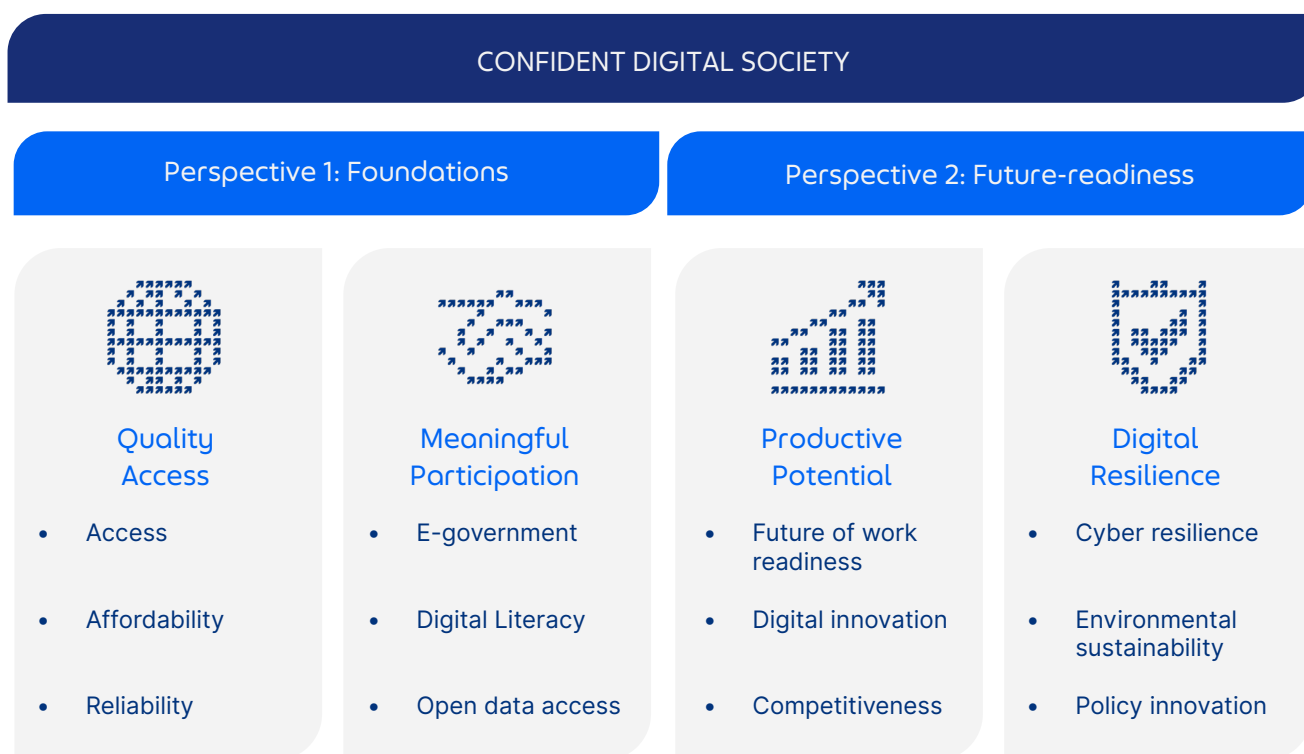
With the rapid pace of innovation, a forward-looking perspective is needed as technologies, business models and priorities emerge. For instance, advancements in AI will profoundly impact both high-skilled and low-skilled industries, potentially increasing productivity gains while accelerating job displacement or online harms. Governments are employing different approaches to capitalise on the potential of these technologies, while mitigating risks and building resilience. As such, a more holistic framework must capture the current state of digital transformation as well as the readiness for new opportunities and challenges.

Building on the definitions and concepts of digital society, as well as the feedback from the 2023 TFGI study, areas essential for societal progress included affordable quality access, meaningful and productive participation in the digital economy, and sustainable livelihoods. These areas formed the foundation for conceptualising this policy-relevant framework to understand how societies interact with, respond to and prepare for continued digital innovation and adoption.

Four areas of consideration are proposed: Quality Access, Meaningful Participation, Productive Potential and Digital Resilience. This evolution recognises that Meaningful Participation merits its own discussion, distinct from productive economic participation. Meaningful Participation captures user confidence in leveraging technology for daily life, beyond purely economic activities. Digital Resilience stands as its own separate area to highlight the importance of preparing for the future, including responding to threats such as cybersecurity risks, challenges such as environmental impact and opportunities through policy innovation.

These four areas also correspond with the stages of digital transformation needed to build a Confident Digital Society. Quality Access and Meaningful Participation covers the present state of digital transformation to measure how societies interact 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.

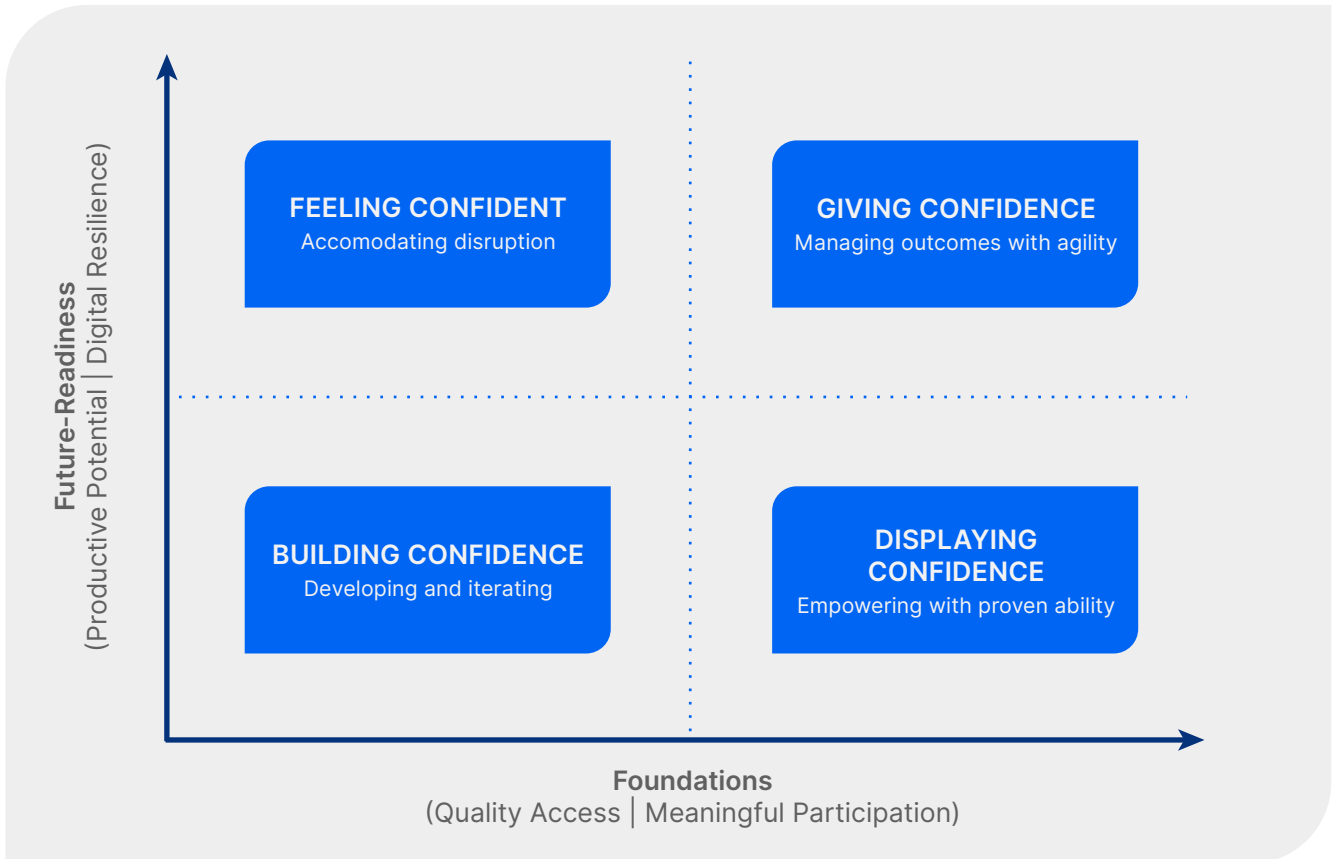
Figure 3. The Confident Digital Society Framework



Mapped against the perspectives of Foundations and Future-readiness, digital societies can be classified into four categories:

- ➔ **Building Confidence** (Low Foundations, Low Future-readiness): Digital societies in this category are at the initial stages of digitalisation, with key challenges in digital foundations (access and inclusion) and digital future-readiness (productive potential and digital resilience).
- ➔ **Displaying Confidence** (High Foundations, Low Future-readiness): Digital societies here have robust access and established participation frameworks but may need to increase readiness for future challenges, such as emerging technologies or sustainability considerations.
- ➔ **Feeling Confident** (Low Foundations, High Future-readiness): Digital societies that are forward-thinking and innovative, but still face foundational gaps in access and meaningful participation.
- ➔ **Giving Confidence** (High Foundations, High Future-readiness): These are digital societies with solid foundations for digital transformation but are actively looking towards the future, pursuing broad participation while preparing for tomorrow's opportunities and challenges.

Figure 4. Different Categorisations of Digital Societies



Source: Tech for Good Institute, 2024

We propose that the concept of “confidence” takes into account both the present and future digital landscape. Confidence is a dynamic outcome of continuous effort to provide the right conditions for individuals, enterprises and communities to fully benefit from the opportunities available through digital innovation while adapting to rapid changes. Confidence ensures the long-term viability of a digital society through agility, collaboration, coordination and shared responsibility. Thus, we believe a Confident Digital Society provides equal access, grants opportunities and leverages trust for all stakeholders to participate in and benefit from both the digital economy and digital society in a sustainable way.

Relevance to the region

Southeast Asia is a diverse region, encompassing over 1,200 languages, 350 ethnic minorities, and a wide array of religions and cultures. The region also exhibits diverse economic profiles and development trajectories, with national interests shaped by differences in political institutions, economies, traditions and history. Despite this diversity, inclusive and sustainable digital transformation remains a shared aspiration among ASEAN member states. All ASEAN countries have developed policy frameworks that address common digital priorities, including transformation of SMEs, which represents over 90% of the region's businesses, and the digitalisation of public and government services. The region also faces shared challenges and opportunities with exponential advancements of emerging technologies, such as AI, as it will impact Southeast Asian economies differently depending on each country's economic profile and developmental path.

While this paper proposes a Southeast Asia-inspired and a region-specific framework, the approach can apply to other countries and regional blocs. Many regions comprise heterogeneous societies with diverse ethnicities, languages and institutions. A regional framework may be well-suited to reflect this diversity, especially in tracking holistic digital progress.



3.

A framework for a Confident Digital Society

A Confident Digital Society ensures equal access, grants opportunities, and leverages trust, enabling all stakeholders to participate in and benefit from the digital economy and digital society now and in the future.²⁷ 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. Digital technologies shape individuals, communities and societies in transformative ways, while policy, market forces, culture and social norms shape the development, deployment and governance of technology. A Confident Digital Society therefore is empowered to utilise technology to strengthen institutions, foster social trust and advance the public interest.

With this in mind, the proposed framework for a Confident Digital Society combines two perspectives: **Foundations** and **Future-readiness**. As discussed in earlier sections, **Foundations** refers to the current state of digital transformation, while **Future-readiness** focuses on preparedness for new opportunities and merging challenges. These perspectives encompass key policy areas as outlined below.

Foundations



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 use. Individuals can only use the internet productively if there is consistent and dependable access so that it can improve their lives.



Meaningful Participation

The COVID-19 pandemic highlighted the value of digital technologies to facilitate communication and transactions between citizens, businesses and governments. Meaningful Participation addresses the non-commercial public applications of digital technologies, emphasising its 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. Basic digital literacy across society is a prerequisite for Meaningful Participation.

Future-readiness



Productive Potential

Productive Potential builds on Meaningful Participation, referring to inclusive and long-term benefits from the digital economy. For a workforce to build and maintain Productive Potential, continued investment in digital skills and competencies is needed to support employability and relevance in the economy. These efforts enable sustained rewarding work even as the pace of innovation rapidly changes the nature of work. For firms, especially MSMEs, technological transformation can improve competitiveness.



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, including managing environmental impact, countering sophisticated cyber threats and keeping pace with new technologies and business models. Policy innovation is central to fostering resilience.

Together, this framework outlines how societies can benefit from current and future technology to foster robust, inclusive and sustainable societies.

This next chapter explores each area in detail, along with illustrative indicators for each. In the future, weightage of indicators can reflect nuances specific to the region. For example, for Southeast Asia, we propose equal weighting on broadband and mobile devices and connections that aligns with the region's mobile-first, and in some cases, mobile-only, digital ecosystem.

3.1. Quality Access

Quality Access refers to how individuals can reliably and affordably connect to the internet, enabling them to consistently use online services. This definition emphasises not only the availability of internet services but also its quality, ensuring it is suitable for regular and productive use.

Without Quality Access, higher-level outcomes from digital technology cannot be realised. Ensuring Quality Access involves providing basic resources, particularly to the underserved members of the community. This is crucial for promoting equity in digital transformation across all population segments. The digital divide often stems from the disproportionate deployment of internet infrastructure in urban centres where services are more profitable, leaving rural areas underserved.²⁸ In short, quality access is not merely about connectivity, but it is a prerequisite for meaningful and productive engagement in the digital age.

➔ **Access:** 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 settings, whether through private households or public infrastructure. The United Nations Sustainable Development Goal (SDG) Target 9C aims to significantly expand access to ICT technology and ensure universal and affordable internet connectivity.

➔ **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.²⁹

➔ **Reliability:** Reliability ensures consistent and predictable internet connectivity, which can be further broken down into reliability of performance, connectivity and core services.³⁰ Performance reliability, also referred to as quality of service, ensures that a broadband service meets or exceeds specific performance targets within a given time frame. This is typically measured by metrics such as speed, latency or jitter. Connectivity reliability, on the other hand, pertains to a user's expectation and predictability of successfully accessing the internet upon logging in. Lastly, the reliability of core services ensures that online platforms consistently function as expected to deliver essential services.

Illustrative indicators

Potential indicators are proposed based on data availability. For instance, affordability indicators align with the UN Broadband Commission's target of broadband costs being less than 2% of GNI per capita for low and middle-income countries by 2025. 4G and 5G connections are needed to highlight the importance of quality access, which 3G networks may not be able to provide. Adding the gender gap metric ensures a more nuanced understanding of internet penetration, addressing how equitable access is across different population segments.




Table 2. Illustrative Indicators: Quality Access

Components	Indicators	Measurement	Potential Data Source
Access	Population using the internet	% of population	World Bank Open Data
	Percentage of households with access to internet	% of households	World Bank Open Data
	Active mobile broadband subscriptions	Ratio per 100 inhabitants	ITU Data Hub
	4G / 5G use by population	Per 100 inhabitants	ITU Data Hub
	Fixed broadband subscriptions	Per 100 inhabitants	World Bank Data Bank
	Possession of a personal computer or laptop	% of population	World Population Review
	Possession of a smartphone	% of population	World Population Review
	Internet access in schools	% of schools	Our World in Data
	Gender gap in internet use	ratio	ITU Data Hub
Affordability	Fixed broadband internet basket price	% GNI per capita	ITU Data Hub
	Average price of mobile device	% GNI per capita	Alliance for Affordable Internet
	Average price of desktop or laptop	% GNI per capita	Statista
	Fixed broadband internet connection charge (US\$)	USD value	Econstats
	Fixed broadband internet monthly subscription (US\$)	USD value	Cableco.UK
	Fixed broadband internet 5GB; as a % of GNI pc	% of GNI	Alliance for Affordable Internet
	High usage bundle (140 min; 70 SMS; 1.5 GB); as a % of GNP	% of GNI	ITU Data Hub
	Low usage bundle (70 min; 20 SMS; 500 MB); as a % of GNI	% of GNI	ITU Data Hub
	Data-only mobile broadband 1.5 GB; as a % of GNI	% of GNI	ITU Data Hub
Mobile cellular prepaid connection charge (US\$)	USD value	ITU Data Hub	

Reliability	Fixed broadband download speed (Mbps)	average speed mbps	Ookla SpeedTest Global Index
	Fixed broadband latency (ms)	average latency ms	Ookla SpeedTest Global Index
	Fixed broadband upload speed (Mbps)	average speed mbps	Ookla SpeedTest Global Index
	Mobile download speed (Mbps)	average speed mbps	Ookla SpeedTest Global Index
	Mobile latency (ms)	average latency ms	Ookla SpeedTest Global Index
	Mobile upload speed (Mbps)	average upload speed mbps	Ookla SpeedTest Global Index

3.2 Meaningful Participation

Even with Quality Access, a second-order digital divide often exists when particular demographics use digital technologies more effectively than other groups.³¹ Meaningful Participation ensures all individuals across all levels of society actively engage in the digital society to fully harness the benefits of digital technologies while safeguarding their freedoms and safety. Beyond mere internet access, it focuses on fostering inclusion across all levels of society, ensuring equitable access and opportunities for participation. Meaningful Participation also means individuals actively engage in e-citizenship to access public services effectively and utilise open data for informed decision-making and innovation. Lastly, we propose that Meaningful Participation includes the protection of online freedoms, such as the freedom of information, freedom from censorship and the right to privacy in online space. The online space must be a place where citizens' fundamental rights are protected and where digital spaces can be fully exercised.

-  **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.³² 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). Developing e-government capabilities expands citizens' access to public services, thereby fostering greater inclusivity and efficiency.
-  **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. Activities such as the use of digital payments and services are included as indicators of the effective utilisation of digital technologies.
-  **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. Additionally, this ensures individuals, organisations and researchers to utilise these resources for innovation, informed decision-making, policy development and addressing social challenges. Governments can promote open data by creating formal mechanisms for data sharing, designing interoperable ICT systems within agencies and promoting public sector data strategies.

Illustrative indicators

The indicators for Meaningful Participation emphasise coordinated policy efforts such as over isolated initiatives.

Inspired by the Digital Economy and Society Index (DESI), this framework proposes indicators for digital public services for citizens and businesses. While equivalent data is unavailable for Southeast Asia, we acknowledge the importance of capturing this component. Therefore, proxy indicators are instead used to address data gaps, such as the availability of e-government roadmaps, legal enablers to electronic IDs and the digitalisation of government procurement processes. Equal weight is also given to the digitalisation of public services, such as health, cash and housing assistance, to assess whether e-government mandates translate into tangible public goods and services.

Digital literacy is also a key component of Meaningful Participation. Foundational skills, such as the use of office software, serve as essential measures of digital literacy. Furthermore, the focus on digital payments, e-wallets, and banking services is included in this conceptualisation as an indicator of how effectively technology is being integrated into users' daily lives. This approach also helps gauge individuals' capability to meaningfully participate in the digital economy.

The emphasis on e-wallets and digital banking is particularly significant, as debit and credit cards are typically accessible only to individuals who are banked or have regular employment. In many developing economies, including those in Southeast Asia, a substantial proportion of the population remains unbanked or has limited access to traditional financial services. This makes e-wallets a more relevant and accessible option for facilitating financial inclusion.

Open data access indicators are crucial for the region, empowering citizens through transparency and accountability while fostering greater research and innovation within the digital society.

Table 3. Potential Indicators: Meaningful Participation Sub-Pillar

Components	Indicators	Measurement	Potential Data Source
E-government	E-ID birth registration	Availability	Global ID4D Dataset
	Legal enablers to E-ID	Score	Global ID4D Dataset
	Digitised national ID card	Availability	Global ID4D Dataset
	Digital public services for citizens (Administrative)	For discussion	For discussion
	Digital public services for businesses (Administrative)	For discussion	For discussion
	Digitalised social services (education, health, insurance)	Availability	UN E-Government Knowledgebase
	Digitalisation of government procurement	Availability	UN E-Government Knowledgebase
	E-government roadmap	Availability	UN E-Government Knowledgebase
	Legal framework's adaptability to digital business models	Scale score	Global Competitiveness Index




Digital Literacy	Literacy rate, adult total (% of people ages 15 and above)	% of people ages 15 and above)	Worldbank
	Use of online learning resources	For discussion	For discussion
	Use office software: Word, spreadsheets, editing	% of population	UNESCO Statistics Digital Literacy Tools
	% of population using internet banking	% of population	Worldbank Financial Inclusion Database
	Mobile money account [% age 15+]	% of population	Worldbank Financial Inclusion Database
	Made digital payments in the past year (% age 15+)	(% age 15+)	Worldbank Financial Inclusion Database
	Received wages: Into a digital banking account (% wage recipients, age 15+)	(% wage recipients, age 15+)	Worldbank Financial Inclusion Database
	Paid utility bills: Using a digital banking account (% paying utility bills, age 15+)	(% paying utility bills, age 15+)	Worldbank Financial Inclusion Database
	Sent or received domestic remittances: Using a digital banking account	(% senders and recipients, age 15+)	Worldbank Financial Inclusion Database
	Received wages: Through a mobile phone	(% wage recipients, age 15+)	Worldbank Financial Inclusion Database
	Paid utility bills: Using a mobile phone (% paying utility bills, age 15+)	% paying utility bills, age 15+	Worldbank Financial Inclusion Database
	Received government transfers: Through a mobile phone	% transfer recipients age 15 +	Worldbank Financial Inclusion Database
Sent or received domestic remittances: Through a mobile phone	(% senders and recipients, age 15+)	Worldbank Financial Inclusion Database	
Open Data Access	Public sector data strategy	Availability	Digital Trade and Data Governance Hub
	Net freedom: Obstacles to access	Ranking	Freedom House
	Open government data	Ranking	Global Open Data Index
	Secure cross-border data flows	For discussion	For discussion
	Formal mechanisms for data sharing between public institutions	Availability	Digital Trade and Data Governance
	Global open data index	Ranking	Global Open Data Index
	Data interoperability system	Availability	Digital Trade and Data Governance Hub

3.3. Productive Potential

Productive Potential refers to the utilisation of digital tools for economic opportunities and enhanced competitiveness across businesses of all sizes. At the individual level, digital technologies are now integral to the modern work contexts, with numerous roles and jobs requiring a command of digital tools alongside other skills.³³ From an industry perspective, emerging technologies such as AI and Machine Learning (ML) drive significant transformation across all sectors, making regular upskilling essential for the workforce.

The Confident Digital Society framework can assess a country's readiness and ability to invest efficiently and effectively in its future and current workforce to ensure alignment with the evolving demands of the digital economy.³⁴

Components

-  **Digital competencies:** Digital competence encompasses the skills and knowledge required for an individual to use ICT to accomplish both personal and professional goals.³⁵ These competencies include not only technical skills, but also cognitive and emotional skills needed to thrive in a digital environment. Digital competencies also increases the talent pool among the population especially for highly sought after ICT skilled jobs for future industries.
-  **Future of work readiness:** This component builds on digital literacy for productivity, assessing a society's readiness to adopt emerging technologies and adapt to new business models. Emerging technologies such as AI and algorithmic literacy helps prepare individuals to understand, engage with and contribute to the development, deployment and adoption of these technologies. Additionally, the future of work includes both individual and societal readiness to adapt to business model innovations. Digitalisation has enabled a global shift in work modalities, from hybrid and remote work as viable options for highly-skilled workers, to gig work platforms where labour is used for short-term task-based arrangements. Digital platforms have allowed gig workers to create economic and livelihood opportunities, especially for those with no access to traditional employment. Productive Potential entails maximising livelihood opportunities provided by these models while ensuring adequate protections for workers. The future of work has expanded approaches and has created more flexible models for social protection. Protections previously based on a one-employer model such as insurance, unemployment benefits, leaves, and savings schemes can be extended to new work arrangements. At a societal level, governance frameworks can also ensure more adaptable, inclusive, and responsive social protection systems.
-  **Digital innovation and competitiveness:** Digital transformation uses technology to drive new business models, 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 significantly contribute to national economies by boosting productivity and revenue. For example, in Southeast Asia, digital transformation of MSMEs is particularly vital as it comprises over 97% of all firms in the region. This component also encompasses the vibrancy of the innovation ecosystem within a country, highlighting its capacity to foster creativity, support startups and drive technological advancements. Indicators under this component assess the capacity to leverage technology for growth and innovation, ensuring the region remains competitive in the evolving global landscape.

Illustrative indicators

The indicators for digital competencies include proxy measures to gauge the presence of advanced digital skills and assess their availability for use when opportunities arise. These indicators focus on higher-level digital competencies, such as coding and data science. For example, there is a growing need for algorithmic literacy, especially in the age of AI, to enable individuals to understand, interact with and effectively utilise AI-powered tools and systems.³⁶

For future of work readiness, this covers factors that reflect the workforce's readiness to cope with and thrive in continued digital transformation. Other indicators include attitudes to technology and digital platform penetration. Platforms are particularly significant in Southeast Asia as it enables small businesses, informal workers and remote users access and benefit from the digital marketplace. Existence of skills and competency roadmaps are also included as strategies for upskilling the population for modern industries. Finally social protection schemes both at the government and firm levels are included as indicators to ensure wellbeing and security of workers.

Digital innovation and competitiveness measure governance levers for promoting innovation and competitiveness across industries. These include policies for ease of doing business, promoting entrepreneurship and the absence of protectionist measures such as data localisation. Additionally, indicators are selected to assess business model innovation, including firm availability of latest technologies and startup investments. These combined indicators empower societies for innovation and a commitment to global competitiveness.

Table 4. Illustrative Indicators: Productive Potential

Components	Indicators	Measurement	Potential Data Source
Digital Competencies	Proportion of youth and adults with ICT skills, by type of skills	% of population	ITU ICT Indicators
	Proportion of adults employed in the ICT sector	% of population	ITU ICT Indicators
	Population with digital skills in the dimensions of information, communication, problem solving and software for content creation and safety	% of population	UNESCO Statistics Digital Literacy Tools
	STEM education enrolment	percentage	2023 Southeast Asia Report - Technology in Education
	Share of Github coders to total global Github coders	% of total	Github Regions
	AI literacy and algorithmic literacy	availability	For discussion
	Enterprises offering ICT training	% of enterprises	2023 Southeast Asia Report - Technology in Education

Future of Work Readiness	Tech attitudes: Optimism about emerging technologies	% of respondents	Ipsos Global Views on AI
	Tech attitudes: Concern about job loss due to automation	% of respondents	Ipsos Global Views on AI
	Tech attitudes: Concern about job loss due to freelance / gig economy	% of respondents	Ipsos Global Views on AI
	Tech attitudes: Concern about job loss due to lack of training and skills	% of respondents	Ipsos Global Views on AI
	Digital platforms penetration	% of respondents	World Bank Prosperity Data 360
	Percentage of freelancers in the workforce	% of population	World Bank Prosperity Data 360
	Skills and competency roadmaps	Availability	For discussion
	Social protection index	Ranking	ADB
Digital Innovation and Competitiveness	Contribution of digital platforms to GDP	% of GDP	For discussion
	Number of local startups	Range	Global Innovation Index
	Startup investments	In USD	Global Innovation Index
	Policy stability for doing business	1-7 not at all - greatest extent	Global Competitiveness Index
	Firm availability of latest technologies	Scale score	Global Innovation Index
	No data localisation	Availability	Global Competitiveness Index
	Ease of Doing Business	Scale	Global Competitiveness Index
	Entrepreneurship policies and culture	Ranking	Global Innovation Index
	Total VC funding	Volume	Global Innovation Index
	Time to exit	Time	Global Competitiveness Index

3.4 Digital Resilience

Digital Resilience refers to a society's ability to mitigate, respond to and recover from disruption. Digital transformation has brought about new challenges, such as maintaining a safe and sustainable online environment. To address these challenges, data protection standards to counter evolving cyber threats are essential. For example, online scams and fraud have developed malicious actors to exploit individuals at unprecedented scale and speed, while cyberattacks on critical infrastructure can jeopardise national security and public welfare. A digitally-resilient society should create comprehensive policies and develop institutional capacities to effectively mitigate these threats, ensuring the stability and security of the digital ecosystem.

Moreover, resiliency tackles the challenge of sustainability. Southeast Asian governments, for example, have recognised the importance of combining green and digital transitions.³⁷ Digital Resilience means mitigating the environmental costs of technological adoption. Data centres, for instance, require abundant energy resources and produce a significant carbon footprint. Aligning sustainability roadmaps, standards and regulations in step with digital development will address the environmental impact of digital growth.

Finally, resilience that involves policy innovation helps states to effectively adapt to technological changes and disruption. Policy innovation includes adopting new approaches to governance, such as sandboxing, adapting legal frameworks to emerging technologies, and government-industry cooperation on emerging issues.

Illustrative indicators

-  **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.
-  **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.
-  **Policy innovation:** Policy innovation covers initiatives that use novel governance tools to address future digital challenges, complementing business model innovations for sustainable development.

Indicator selection

Indicators were selected to cater to a diverse range of countries, including those in Southeast Asia. Cyber resilience, for example, is informed by the Tech for Good Institute’s Cyber Resilience Framework.³⁸ Special attention is given to combating scams and fraud, which are increasingly prevalent in the region. According to the Global Anti-Scam Alliance, more than 60% of global financial losses to scams occur in Asian countries.³⁹ This is alarming, as it threatens trust in the digital ecosystem. Understanding this landscape is crucial for enhancing resilience, therefore adding the National Scam Hotline as an indicator highlights the importance of addressing this issue.

Furthermore, tacking sustainability roadmaps is vital for sustainable digitalisation. Having a long-term strategy indicator shows that green transitions are a national priority. This includes renewable energy in a country’s energy mix and the use of smart grids. A holistic approach depends on whether digital and sustainability roadmaps are integrated to ensure countries align their strategies to address these interconnected goals effectively.

Finally, under policy innovation, assessing government agility to adapt to emerging technologies is important. Several proxy indicators can be used to evaluate a government’s capability to adjust and respond to the challenges of the digital age. For instance, adopting governance tools beyond traditional regulations, such as regulatory sandboxes, demonstrates a willingness for regulatory learning. Existing indices, such as the Network Readiness Index, provide insights into how adaptable a legal framework is to new technologies. Additionally, government research and development spending measures prioritisation of new technologies.

Table 5. Illustrative Indicators: Digital Resilience

Components	Indicators	Measurement	Potential Data Source
Cybersecurity	UN Global Cybersecurity Index	Ranking	Global Cybersecurity Index
	Malware hosting sites per 1,000 Internet hosts	Per 1,000	Microsoft Digital Defense Report 2024
	Phishing sites per 1,000 Internet hosts	Per 1,000	Microsoft Digital Defense Report 2024
	Malware encounter rate	Encounter rate	Microsoft Digital Defense Report 1-4
	Organized crime, 1-7 (best)	Scale	GASA Global State of Scams Report
	Reported scam cases	Volume	GASA Global State of Scams Report
	Reported financial losses to scams and fraud	Volume	GASA Global State of Scams Report
	Presences of a national scams hotline	Availability	GASA Global State of Scams Report
	Cybersecurity laws	Availability	Global Cybersecurity Index
	Cybercrime laws	Availability	Global Cybersecurity Index
	Data protection laws	Availability	Global Cybersecurity Index
	Sectoral CSIRTs	Availability	Global Cybersecurity Index

Environmental sustainability	% of renewable energy	% of total energy mix	Worldbank Prosperity Data 360
	Quality of electricity supply (1-7)	Scale	Worldbank Prosperity Data 360
	EV Charging Infrastructure	Availability	IMF Climate Change Dashboard
	Presence of a Sustainability Roadmap	Availability	IMF Climate Change Dashboard
	Integration of Digital and Sustainability Roadmaps	Availability	IMF Climate Change Dashboard
	Water Use Efficiency	Rank	Worldbank Prosperity Data 360
	Startups in the Green and Digital Sector	Volume	IMF Climate Change Dashboard
	Corporate sustainability reporting	Percentage	IMF Climate Change Dashboard
	Smart Grid Penetration	Percentage	IMF Climate Change Dashboard
	Product Life Cycle Management Standards	Availability	IMF Climate Change Dashboard
Policy Innovation	Presence of regulatory sandboxes in various industries	Scale	Tech for Good Sandbox to Society
	Regulatory quality	Scale	Network Readiness Index
	ICT regulatory environment	Scale	Network Readiness Index
	Adaptability to emerging technologies	Scale	Network Readiness Index
	Future orientation of government	Scale	Worldbank Prosperity
	ICT regulatory tracker: Regulatory regime	Benchmark	ITU
	University-industry collaboration in R&D	Scale	Worldbank Prosperity
	Transparency of government policymaking	Scale	Worldbank Prosperity
Government spending in R&D and higher education	Scale	Network Readiness Index	



4.

Moving Forward: Refining the Framework

This proposed framework introduces the concept of a Confident Digital Society, where all individuals are empowered to participate in and benefit from digital transformation in a sustainable way. It balances foundational elements of digital development, such as Quality Access and Meaningful Participation, with areas that support adaptation in the face of rapid innovation, such as continued Productive Potential and Digital Resilience.

The framework and indicators presented are early iterations developed through prior research and stakeholder consultations and serves as an invitation for dialogue and collaboration with policymakers, academics, private sector representatives and digital advocates. This will be key to validate the framework's components, address data collection challenges and establish appropriate weightings for Southeast Asia. We also welcome partnerships with data providers to enrich the indicators. We hope that the framework, indicators and regular data presentations may serve as a resource for researchers, policymakers and businesses to prioritise policies and inspire innovative solutions.

We welcome your feedback to help refine the framework to ensure it fulfils its intended purpose: to guide policy and action towards building a more equitable, inclusive and sustainable digital ecosystem that serves as the foundation for an innovative, interoperable and investable digital economy.

References

References

1	Tech for Good Institute. (2023, June). From “Tech for Growth” to “Tech for Good”: Shaping the next phase of Southeast Asia’s Growth through Sustainable Digital Development. Retrieved November 8, 2024 from https://techforgoodinstitute.org/wp-content/uploads/2023/07/TFGL_TFG_Report_Digital_report.pdf
2	International Monetary Fund. (2024, October). Southeast Asia: Datasets. Retrieved November 8, 2024 from https://www.imf.org/external/datamapper/profile/SEQ
3	Google, Temasek, & Bain. (2024). e-Conomy SEA 2024. Retrieved November 8, 2024 from https://services.google.com/fh/files/misc/e_conomy_sea_2024_report.pdf
4	Google, Temasek, & Bain. (2024). e-Conomy SEA 2024. Retrieved November 8, 2024 from https://services.google.com/fh/files/misc/e_conomy_sea_2024_report.pdf
5	Google, Temasek, & Bain. (2024). e-Conomy SEA 2024. Retrieved November 8, 2024 from https://services.google.com/fh/files/misc/e_conomy_sea_2024_report.pdf
6	Tech for Good Institute. (2024). Leveraging digital platforms for public benefit. Retrieved November 8, 2024 from https://techforgoodinstitute.org/wp-content/uploads/2024/08/TFGL_Leveraging-Digital-Platforms-for-Public-Benefit-Report.pdf
7	United Nations Economic and Social Commission for Asia and the Pacific. (2021). The digital divide and COVID-19: Impact on the socioeconomic development in Asia and the Pacific. Retrieved November 8, 2024 from https://www.unescap.org/sites/default/d8files/knowledge-products/The%20Digital%20Divide%20and%20COVID-19%2C%20Impact%20on%20the%20Socioeconomic%20Development%20in%20Asia%20and%20the%20Pacific_1.pdf
8	Redshaw, T. (2020). What Is Digital Society? Reflections on the Aims and Purpose of Digital Sociology. <i>Sociology</i> , 54(2), 425-431. Retrieved November 8, 2024 from https://doi.org/10.1177/0038038519880114
9	Centre for Transatlantic Relations. (2005). The Network Society: From Knowledge to Policy. Retrieved November 8, 2024 from https://www.dhi.ac.uk/san/waysofbeing/data/communication-zangana-castells-2006.pdf
10	Van Dijk, J. A. (2006). Digital divide research, achievements and shortcomings. <i>Poetics</i> , 34(4-5), 221-235.
11	Author, Wessels, B. (2013). The reproduction and reconfiguration of inequality. In Ragnedda, M. & Muschert, G. W. <i>The Digital Divide: The Internet and Social Inequality in International Perspective</i> . (pp. 17-28). Routledge. Retrieved November 8, 2024 from https://doi.org/10.4324/9780203069769
12	Prantosh, P. & Aithal, P. S., (2019, June 14). Digital Society: Its Foundation and Towards an Interdisciplinary Field: Proceedings of National Conference on Advances in Information Technology, Management, Social Sciences and Education. SSRN. Retrieved November 8, 2024 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3397902
13	Katzenbach, C. & Bächle, T. C. (2019). Defining concepts of the digital society. <i>Internet Policy Review</i> , 8(4). Retrieved November 8, 2024 from https://doi.org/10.14763/2019.4.1430 .

14	Centre for Transatlantic Relations. (2005).
15	Van Dijk, J. A. (2006).
16	Katzenbach, C. & Bächle, T. C. (2019).
17	United Nations. (n.d.). Global Digital Compact. United Nations Office of the Secretary-General's Envoy on Technology. https://www.un.org/techenvoy/global-digital-compact
18	International Telecommunication Union. (n.d.). The ICT Development Index. Retrieved November 8, 2024 from https://www.itu.int/en/ITU-D/Statistics/Pages/IDI/default.aspx
19	Economist Impact. (2022). Inclusive Internet Index 2022. Retrieved December 2, 2024, from https://impact.economist.com/projects/inclusive-internet-index/2022
20	European Commission. (n.d.). Digital Economy and Society Index (DESI). Retrieved December 2, 2024, from https://digital-strategy.ec.europa.eu/en/policies/desi
21	Digital Planet. (n.d.). Digital Intelligence Index. Fletcher School, Tufts University. Retrieved December 11, 2024, from https://digitalplanet.tufts.edu/digitalintelligence/
22	OECD. (2024). 2023 OECD Digital Government Index: Results and key findings. OECD Public Governance Policy Papers, No. 44. Retrieved December 2, 2024 from https://doi.org/10.1787/1a89ed5e-en
23	Portulans Institute. (2024). Network Readiness Index. Retrieved December 2, 2024, from https://networkreadinessindex.org
24	International Telecommunication Union. (n.d.). Global Cybersecurity Index. Retrieved December 2, 2024, from https://www.itu.int/en/ITU-D/Cybersecurity/pages/global-cybersecurity-index.aspx
25	Tech For Good Institute. (2023, June).
26	Tech For Good Institute. (2023, June).
27	Tech for Good Institute. (2023, June).
28	Fong, M. W. L. (2009). Digital divide: The Case of Developing Countries. <i>Issues in Informing Science and Information Technology</i> , 6(2), 471-478.
29	International Telecommunication Union. (2023). Measuring digital development: ICT price trends 2023. Retrieved December 3, 2024, from https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2023/ICTPriceBrief2023.pdf
30	Lehr, W., Heikkinen, M., Clark, D., & Bauer, S. (2011, September). Assessing Broadband Reliability: Measurement and Policy Challenges. In <i>Research Conference on Communication, Information and Internet Policy (TPRC)</i> .

31	Scheerder, A., Van Deursen, A., & Van Dijk, J. (2017). Determinants of Internet skills, uses and outcomes. A systematic review of the second-and third-level digital divide. <i>Telematics and informatics</i> , 34(8), 1607-1624. Retrieved December 3, 2024 from https://ris.utwente.nl/ws/portalfiles/portal/25252975/determinants.pdf
32	Carter, L., Yoon, V., & Liu, D. (2022). Analysing e-government design science artifacts: A systematic literature review. <i>International Journal of Information Management</i> , 62, 102430. Retrieved December 3, 2024 from https://www.sciencedirect.com/science/article/abs/pii/S0268401221001237
33	Ulfert-Blank, A. S., & Schmidt, I. (2022). Assessing digital self-efficacy: Review and scale development. <i>Computers & Education</i> , 191, 104626. Retrieved December 3, 2024 from https://www.sciencedirect.com/science/article/pii/S036013152200197X
34	Digital Planet. (n.d.). African Leapfrog Index: Getting Lions to Leapfrog. Fletcher School, Tufts University. Retrieved December 13, 2024, from https://digitalplanet.tufts.edu/african-leapfrog-index/
35	United Nations Conference on Trade and Development. (2019). Digital skills and competencies for the twenty-first century. In <i>Building digital competencies to benefit from frontier technologies</i> (pp. 3–8). United Nations. https://doi.org/10.18356/22e60334-en
36	Lim, S. (2022, December). Deepening digital literacy through algorithmic explainers. Tech for Good Institute. Retrieved November 8, 2024, from https://techforgoodinstitute.org/blog/expert-opinion/deepening-digital-literacy-through-algorithmic-explainers/
37	Tech For Good Institute. (2023, June).
38	Detros, K. (2023, May). Towards a Resilient Cyberspace in Southeast Asia. Tech for Good Institute. Retrieved November 30, 2024 from https://techforgoodinstitute.org/research/tfgr-reports/towards-a-resilient-cyberspace-in-southeast-asia/ .
39	Rogers, S. (2024, October 15). New GASA Report Estimates \$688 Billion in Scam Losses Across Asia Amid Rising Cyberthreat Worldwide. Global Anti-Scam Alliance. Retrieved November 30, 2024 from https://www.gasa.org/post/2024-asia-scam-report-688-billion-lost

