From Access to Empowerment:

DIGITAL INCLUSION IN A DYNAMIC WORLD
Acknowledgements

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Executive Summary

Digital inclusion is a critical foundation for shared economic and social progress, and it is important that no community or country is excluded from digital tools and technologies. Recognising this, ‘From Access to Empowerment: Digital Inclusion in a Dynamic World’ goes beyond the conventional focus on access and skills, and aims to present a holistic and multi-stakeholder approach for digital inclusion that is action-oriented and responsive to evolving global trends.

Drawing on ideas, innovations, strategies and case studies globally across the public sector, business and civil society, this report highlights the:

- Importance of a dynamic and holistic approach to digital inclusion, and toward deeper exploration of digital foundations, enablers, and the comparative advantages of each sector and stakeholder. This includes recognising the interplay between digital inclusion and emerging global trends – from the evolving nature of poverty, to the growing complexities and challenges posed by new technologies and ways of working.

- Need to shape full, meaningful, and broad-based participation in digital activities, whether economic, social, political or otherwise. Access and affordability of hardware and connectivity, as well as learning and skill acquisition are the foundational aspects of digital inclusion, to build other dimensions – participation in digital economy, engagement in civic and political life, as well as confidence and trust in the digital environment – that are iterative and mutually reinforcing.

- Crucial and catalytic role of government, with ‘public sector enablers’ serving as the bedrock for successful digital inclusion policies and programmes. These include having clear national vision, strategy and commitment; cross-government architecture and collaboration; lifelong development of digital skills and capabilities; and development of digital skills within government agencies.

- Recognition that digital inclusion is a whole-of-society and collaborative effort. Tapping into the potential of whole-of-society collaboration is key to tackling the multiple interlocking aspects of digital inclusion. This includes fostering people engagement, participation, and co-solutioning; harnessing businesses and public-private partnerships; and partnering civil society organizations.

We envisaged this as a ‘Playbook’, which also conveys the action-oriented intent to create immediate and tangible impacts in supporting countries to advance more effective digital inclusion strategies and initiatives. The UNDP Global Centre for Technology, Innovation and Sustainable Development (GCTISD) look forward to working with partners interested in using and adapting the material in this Playbook, to ensure that no one is left behind.

The UNDP GCTISD will also be initiating a 100-day Global Consultation that will run from June to September 2024 with the aim to generate collective insights on advancing digital inclusion in a dynamic world, leading to a substantively expanded and enriched Playbook that sits at the leading edge of policy and practice.
**Introduction**

Digital technologies are essential for the Sustainable Development Goals, with digital directly benefiting 70% of the SDG targets.1 The landscape of digital inclusion is and will be characterised by constant evolution and adaptation to emerging technological trends and political, economic, as well as societal dynamics. This includes new opportunities enabled by digital, but also new harms and threats – including growing cyber insecurity, and the interplay between online and offline factors (such as technology-enabled gender-based violence).

Drawing on broader research2, digital inclusion sits at the intersection of important and evolving global trends and priorities. These are by no means exhaustive, but highlight the complex, multidimensional, and dynamic nature of digital inclusion.

**Polycrisis:** With societies facing multiple simultaneous challenges in the social, economic and environmental spheres, governments face the demanding task of tackling simultaneous, cross-cutting and inter-dependent macro challenges, while managing mutual spillover effects, and working within fiscal and other resource constraints. Additionally, the interconnected nature of these crises may exacerbate existing digital divides, with disproportionate effects on marginalised communities. In certain countries, democratic backsliding adds to this complexity, making it more difficult to implement inclusive policies and programmes.

**Trust deficit in large institutions, both public and private:** Diminished trust in governments can hinder the effectiveness of digital inclusion efforts, as scepticism towards government-led initiatives may lead to reduced participation or adoption rates among people. This trend could be especially acute when compounded by diminishing trust in digital processes and systems, particularly with growing information pollution targeting state institutions, processes, officials and other policy actors in ways that undermine public confidence and erode capacity3 to develop new policy, legislation, or public services, as well as tackling digitally-enabled scams and to shape online and cyber protections4.

**Intersectional identity inequality:** Intersectional identity disparities can both exacerbate and be exacerbated by the digital divide, particularly where historically marginalised groups face systemic barriers to education and participation in the workforce that are compounded by systematic exclusion from online platforms. Conversely, if such identity inequalities are addressed robustly and sustainably, digital inclusion can also be enhanced, particularly if role models from appropriate intersectional groups feature prominently on digital platforms and exemplify the benefits of healthy digitalisation. Countries can end up on paths of either virtuous or vicious cycles, often with sudden transitions given the dynamic nature of digital technology.

**Evolving nature of poverty:** Digital access is becoming increasingly essential for socio-economic participation and accessing core daily services. At the same time, the world has been seeing decreased extreme poverty and inequality at the global level.

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1 ITU and UNDP, “SDG Digital Acceleration Agenda”, 15 September 2023
3 These include strengthening the capacity of public institutions to promote access to reliable and accurate information sources; improving media capacity to effectively manage information pollution; increasing public resilience to information pollution; and developing evidence-based, proportionate and rights-based information integrity policies. Collectively, these illustrate the multifaceted challenges and responses involved in maintaining institutional trust.
4 See, for example, forthcoming work from UNDP to tackle digital scams and harms.
but also increased inequality and new dimensions of poverty within countries. Consequently, governments keen to work on digital inclusion will increasingly need to deal with the parallel priority of poverty alleviation efforts to ensure that marginalised populations are not left behind in the transition to a digital economy – and the recognition that poverty can also include digital characteristics, including ‘data poverty’ and similar challenges. Responding to these issues can involve significant budgetary outlay, and countries with fiscal constraints may well find themselves facing stark choices between competing demands.

**Debt burden, particularly in developing countries:** High levels of debt can constrain governments’ ability to invest in digital infrastructure and literacy programmes, which can in turn impede progress towards digital inclusion. Balancing debt servicing with developmental priorities becomes crucial for governments seeking to bridge the digital divide but can involve acute trade-offs and difficult choices. Regional approaches and South-South cooperation offer opportunities to alleviate the current debt burden and lack of financial capacities in ways that are not exclusive to the digital domain, but can generate interesting new innovations in how they combine approaches for both digital and development challenges.

**Advances in digital and frontier technologies:** While digital technologies offer opportunities for development, there is a risk of exacerbating inequalities if access is not equitable. There can also be inherent uncertainties in particular technologies that require constant agility from governments, businesses and civil society organisations: while certain directions and trajectories of digitalisation are discernible today, such as the growing importance of social media and messaging platforms, others remain nascent and could reshape digital experiences profoundly in the future. For instance, what new digital experiences might be produced when existing wearable technologies are enhanced with generative Artificial Intelligence capabilities for extended conversations, and not just geolocation functions? New ethical considerations, novel data governance frameworks, and the potential impact on employment and skills requirements will become increasingly important.

**Evolving ethical considerations and challenges.** Multiple ethical issues may arise alongside such technology trends, including the need to deal with bias and structural prejudice in underlying algorithms; malign applications of technology; technological innovation outstripping legislation and regulation; and ever-expanding technological frontiers like machine–brain interfaces and human relationships with synthetic AI. Each will connect with digital inclusion in potentially novel ways, often with the greatest burdens on already marginalised groups. Governments will be pressed to both keep pace and, where possible, ameliorate these new challenges.

**Disparities in research and development:** Developing countries risk being left behind in the development of frontier technologies, while all countries risk being left behind should companies dominate the development of new foundational technology. Both trends widen the digital divide. Open science initiatives can facilitate knowledge-sharing and capacity-building, enabling developing countries to leverage emerging technologies for digital inclusion, but their application remains uneven. Above all, promoting research and development (and technology translation), as well as technology development more specifically, is an important aspect of national and sustainable development.

**Environmental Impact:** The environmental impact of digital technology is increasingly well-documented – the Cloud is known to generate a greater carbon footprint than the entire airline industry, and a single data centre can consume
as much electricity as 50,000 homes. Governments and companies may find themselves facing difficult trade-offs about how to balance between digitalisation (and hence digital inclusion), and the commitments of a net zero transition.

**Renewable energy transition:** The shift towards renewable energy presents opportunities for sustainable development but requires substantial investment and political commitment. Digital technologies can play a crucial role in optimising energy systems and expanding access to clean energy, as has occurred with smart grids, but disparities in investment and geopolitical tensions may pose challenges for implementation, particularly where energy flows are transboundary.

**Global migration and displacement, amidst broader demographic shifts:**
Climate change and socio-economic factors drive global migration patterns, which can impact digital inclusion efforts in both host and origin countries. Digital technologies can facilitate integration and provide essential services for displaced populations, but can also facilitate flows of information pollution about such communities. Policy coordination and international cooperation will be essential for addressing the complex challenges of forced displacement and migration. Such trends will have varying effects in different regions; some with ageing populations (driven by declining fertility rates and increased life expectancy), and youth bulges in others.

These trends offer a snapshot of the many ways in which digital inclusion will interplay with other emerging challenges and opportunities. The core meta-challenge for all stakeholders - governments, businesses, and civil society alike - will be to stay vigilant in monitoring these inter-relationships, and to stay agile in responding. These are processes that this Playbook aims to support.

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Chapter 1 examines the importance of digital inclusion for societies and economies, focusing on strategies to achieve it while considering its complexities, costs of inaction, principles, and stakeholders. The rest of the Playbook outlines how governments, businesses, individuals, and civil society in different countries can begin tackling the complex, multi-dimensional and dynamically evolving nature of digital inclusion. Chapter 2 focuses on the public sector, while Chapter 3 centres on the equally important roles of businesses, people, and civil society groups.

Businesses refer to both technology companies and digital economy companies, since each shapes different aspects of the digital domain. Different firms provide technology, investment and pioneering innovation cultures that provide useful learning on digitalisation. Public sector enablers are important, since businesses need to be engaged through a range of policy and incentive-based mechanisms.

Each chapter covers two main concerns: (1) the current state of play, highlighting case studies where different players in multi-stakeholder ecosystems have made successful moves; and (2) areas where continued evolution and interaction with other macro trends may occur, and where stakeholders will need to demonstrate continued agility.

Across the chapters, people are firmly at the centre of digital inclusion efforts, since technology alone cannot solve deep-rooted challenges. Genuine progress comes at least in part from empowering deep-rooted challenges. Genuine progress comes at least in part from empowering communities – both directly, with technical solutions complementing and enhancing participatory policymaking and people engagement, as well as indirectly through government and business programmes where technology serves society and not the reverse.

Overall, the Playbook suggests steps for countries at any stage of their digital inclusion journeys, including highlighting opportunities and efforts for those with more mature strategies. These include steps to build inclusive digital ecosystems, or to enhance them where they already exist, as well as risk management techniques to deal with the challenges that can emerge from digital transformation. While the Playbook cannot tackle every challenge facing a country on its respective digital inclusion journey, there are important insights and learning that can accelerate and deepen digital inclusion efforts across different contexts.
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Notes:
- The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations or UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.
From Access to Empowerment: Digital Inclusion in a Dynamic World

Chapter 1: Digital Inclusion - A Growing & Evolving Imperative

Photo: Singapore IMDA

As applications of digital technology deepen and broaden, digital inclusion is rapidly emerging as a critical foundation for economic and social progress as well as the empowerment of individuals and communities. There are many possible definitions of the broad concept of digital inclusion; this Playbook uses the term to refer to full, meaningful, and broad-based participation in digital activities, whether economic, social, political or otherwise. In this context, particular emphasis is placed on leveraging digital to improve individual lives and livelihoods.

Digital inclusion means closing a digital divide that exacerbates existing social and economic inequalities, perpetuates historical marginalisation of vulnerable groups (particularly those with intersectional identities across dimensions like gender, disability, poverty, residency in rural areas, and others) and hampers individuals’ ability to thrive in an increasingly digitalised world. Across this broad spectrum of issues, a range of emerging data illustrates the growing breadth, complexity and importance of digital inclusion. Across these and other domains, digital inclusion intersects substantively with the various dimensions of the Sustainable Development Goals. The intricate interplay between technology and aspects of daily life underscores the need to ensure that all members of a community have equitable access to digital resources and proficiency in digital tools, as well as the skills and knowledge to use these resources meaningfully for economic and broader benefits.

Digital inclusion is important not only immediately, but also over time. It both shapes and is shaped by many of the most critical trends defining the future of societies, countries, and the international system. Some of these relationships are obvious and direct, like the interaction of digital inclusion with the level of trust in government, gender equality and poverty. Others are more subtle but equally critical, including how digital inclusion both affects and is affected by the polycrisis in social, economic and environmental systems; transboundary challenges like climate change, biodiversity loss, ecosystem degradation, and pollution; and increasing stresses to the multilateral regime of trade and capital flows. Each trend interacts with digital inclusion, often affecting marginalised communities disproportionately, and governments face the uphill tasks of tackling these challenges.
simultaneously, managing their mutual spillover effects, while working within fiscal and other resource constraints.

This chapter delves into the multifaceted dimensions of digital inclusion, outlining several key areas. First, why digital inclusion is imperative for societies – where this study outlines its intrinsic and instrumental importance for societies and economies. Second, how to achieve digital inclusion, taking into account its multidimensionality while avoiding the costs that emerge from inaction. Third, how to achieve digital inclusion in terms of underlying principles, and harnessing multi-stakeholder system enablers. Finally, where digital inclusion connects with key long-term trends and challenges, leading to emerging risks, opportunities and trade-offs for governments, businesses, people, and civil society stakeholders.

The Imperatives of Digital Inclusion

Digital inclusion transcends mere technological access; it embodies a broader ethos of societal equity, skill-building and empowerment. At its core, several driving imperatives underscore why digital inclusion is indispensable for countries at all stages of development.

Enabling Full and Flourishing Lives

Digital inclusion is a fundamental prerequisite for individuals to lead fulfilling lives. Access to digital resources empowers people to engage fully in civic life, access educational opportunities, and participate meaningfully in the workforce. In countries like the United Kingdom, discussions to establish a Minimum Digital Living Standard highlight the broad-based recognition of digital access as a basic right. From accessing government services and educational resources to connecting with loved ones and exploring new opportunities, the ability to navigate the digital landscape is increasingly integral to modern life. Moreover, digital inclusion fosters a sense of belonging and empowerment, enabling individuals to participate in civic life and contribute to their communities' welfare.

Modalities of digital inclusion can vary across a population. Significant variations already occur for cultural or individual reasons, where some choose to opt out of digital tools; inclusion in this case would encompass whether they continue to have access to public goods and services, e.g. through hybrid approaches and human interfaces between the digitally included and excluded.

Similarly, digital is not a panacea and tackling key development challenges and priorities requires a broad toolkit – with digital an important, but single, tool.

Driving Economic Transformation

Digital technologies have revolutionised industries, reshaped traditional business models and created new opportunities for innovation and growth. From e-commerce and digital marketing to telecommuting and remote work, the digital economy offers unprecedented avenues for economic participation and advancement. Fostering digital inclusion helps countries to unlock the full potential of their workforce, drive productivity gains, and stimulate innovation ecosystems that in turn fuel further economic growth and prosperity.

The fullest, most substantive digitalisation of economies hinges upon universal access to digital infrastructure, resources and skills. In an increasingly interconnected global marketplace, nations’ competitiveness is intricately linked to their digital readiness and innovation capacity. The experience of multiple countries and cities demonstrate that embracing digital inclusion fuels economic growth, fosters entrepreneurship, and propels nations toward greater macroeconomic competitiveness. In Indonesia, for instance,

6 See: https://mdls.org.uk/, accessed on 12 May 2024
digital inclusion has proven to be a driver for micro, small and medium enterprise development at both the national and provincial level. Digital inclusion has similarly been a cornerstone for the United Arab Emirates’ broader economic transformation strategy. In Estonia, inclusive digitalisation has proven economically useful both directly, in terms of SME and start-up development, as well as indirectly, by creating opportunities for exporting systems like the X-Road data architecture to countries in Central Asia and the Middle East – something India has also done with its technology stack.

Addressing Social Dimensions

Beyond economic imperatives, digital inclusion is pivotal to addressing societal inequities and promoting social cohesion. The UNDP’s Whole of Society Digital Transformation Framework emphasises many social dimensions of digitalisation, recognizing the profound impact of technology on people’s lives. But digital technologies can also exacerbate or entrench inequalities, and are in turn shaped by them. For instance, online harassment can lead to offline gender-based violence, and in certain countries digital inequities are compounded by cultural norms where women need to seek permission to have their own devices – both illustrative cases of how the digitally excluded are also those suffering marginalisation along other dimensions of their intersectional identities.

In today’s digital age, access to ICTs is acquiring increasingly fundamental importance, enabling individuals to exercise their rights, access essential services, and participate in democratic processes. Moreover, digital inclusion promotes social inclusion by breaking down barriers to education, employment, and healthcare, empowering marginalised communities to overcome systemic inequalities and improve their quality of life.

Fostering Inclusive, Effective and Accountable Governance Systems

While not the primary focus of this Playbook, it is worth noting that digital inclusion can contribute to more inclusive, effective and accountable governance systems that respond to people’s needs – including in times of crisis - thereby empowering them and fostering their participation in political life. Digital can enable increase the reach and effectiveness of public services, but it can also develop a more responsive ‘feedback loop’ where individual engagement and feedback can strengthen service design, development, and delivery. Digital technologies have also been applied to political mobilisation, advocacy, and civic engagement. From social media activism and online petitions to digital voting and e-government platforms, technology offers unprecedented opportunities for people to shape public policy outcomes. By promoting digital inclusion, governments can enhance transparency, accountability, and trust, strengthening democratic institutions, deepening social cohesion and fostering political stability.

The converse of these four imperatives is that a digital divide, and failure to prioritise digital inclusion, could entail significant costs and negative consequences. Whether in education, employment, healthcare or civic engagement, disparities in digital access and literacy perpetuate social and economic inequalities. Moreover, the absence of digital inclusion can have deeply practical consequences, including for fiscal sustainability. For instance, the digital gender gap has resulted in US$1 trillion less in tax revenue across 22 LMICs due to women’s exclusion from the digital economy.7

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7 A4AI, “Women are being left offline – costing governments billions”, 11 November 2021
The Multidimensional Nature of Digital Inclusion

Digital inclusion encompasses several interconnected dimensions, each making crucial contributions to shaping individuals’ access to, and proficiency in, digital resources.

The first two aspects are essential building blocks:

a. Access and Affordability of Hardware and Connectivity

Physical access to hardware and connectivity is essential, but mere availability does not guarantee sustained engagement. Sufficient and sustained access to meaningful connectivity and ownership of devices, along with the affordability of each, are prerequisites for individuals to fully participate in the digital ecosystem. This remains a particular challenge in many countries, with 2.6 billion people still online globally. Access to devices and meaningful internet connectivity is essential to bridge the digital divide and empower individuals to leverage digital resources effectively.

In many parts of the world, access to technology remains uneven, with rural and historically underserved communities facing significant barriers to connectivity. Moreover, the costs and complexities of rolling-out wired and wireless connectivity in many settings result in disparities in access to the physical infrastructure that underpins Internet access, further exacerbating the digital divide and limiting individuals’ ability to access educational resources, employment opportunities, and essential services. Addressing these challenges requires concerted efforts to expand broadband infrastructure, reduce connectivity costs, and promote digital literacy across all communities. A major foundation of such moves is to make broadband policy universal, and to get all members of communities online, as articulated in Advocacy Targets 1 and 3 of the UN Broadband Commission.

Countries worldwide have begun to take steps in this direction. Brazil’s Growth Acceleration Program (PAC) involved approximately BRL 28 billion in investments to improve digital connectivity from 2023 to 2026, while Malawi’s Digital Plan has a central place for the establishment of a robust Digital Fiber Backbone. In addition, the Guifi.net project in Spain is a community-owned broadband network, primarily based in Catalonia; people themselves build and manage the infrastructure, focused on bringing internet access to areas often underserved by commercial providers. Similarly, the Digital Empowerment Foundation (DEF) is an India-based NGO aimed at bridging the digital divide, particularly in rural regions. They establish community information centres, provide digital literacy training, and encourage e-governance participation. The Zenzeleni project in South Africa brings internet access to underserved rural communities, by involving communities in building and managing the network infrastructure.

Cost barriers pose formidable challenges to digital inclusion, particularly for low-income communities. Ensuring the affordability of hardware, software, and internet services is imperative in promoting equitable access and mitigating socioeconomic disparities.

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8 See https://www.itu.int/itu-d/sites/projectumc/home/aboutumc/, accessed on 12 May 2024
9 See https://girleffect.org/girls-and-mobile/, accessed on 12 May 2024
10 ITU, “Facts and Figures 2023”, November 2023
In many developing countries in particular, the high cost of technology and internet access impedes digital inclusion, limiting individuals’ ability to access educational resources, online job opportunities, and e-government services. Disparities in income and purchasing power further exacerbate affordability challenges, perpetuating social and economic inequalities. This is why in certain contexts, physical access to broadband is accompanied by persistent data poverty – whereby individuals struggle to afford sufficient data to participate online. If continued digitalisation focuses solely on the technical aspects of physical provision, without addressing cost considerations, broader socio-economic inequality could be exacerbated by making it ever more difficult for the most marginalised segments of a population to access the digital resources they most need.

One major attempt to address this affordability gap is the UN Broadband Commission’s data affordability target (Target 2). Originally set to “less than 5% of average monthly income,” the target was updated in 2018 to specify that prices for entry-level broadband services should be below 2% of monthly Gross National Income per capita in developing countries by 2025. This revision has proved particularly salient since the COVID-19 pandemic, with videoconferencing, e-learning and other broadband-intensive modes of work and education becoming more prevalent.

Countries are responding to this gap. In developing economies, subscription models are being purpose-designed for lower-income settings. Models like Hello Tractor make farming equipment available on a community subscription basis and turn tractors into smart tractors that can be monitored and tracked remotely, while ultra low-cost devices are increasingly available from telecommunications operators like Reliance Jio in India. In the United Kingdom, data banks are being established to allow people to donate unused or dedicated data to lower-income populations.12

b. Opportunities for Learning and Skill Acquisition

Access to quality learning opportunities is indispensable in nurturing digital literacy and proficiency. Whether in educational institutions, workplaces, or community settings, providing avenues for individuals to acquire, adapt and refine digital skills is paramount in bridging the digital divide, especially amid rapid and often disruptive technological change. Such learning and skilling opportunities are foundational for citizens to have positive attitudes toward technology, to understand the need to be safe and responsible users of the online space, as well as to be open and curious about new technological developments and their implications.

Equipping individuals with relevant digital skills and knowledge is essential to harnessing the full potential of technology to create substantive value for people. This includes both basic digital awareness of the range of online tools available for acts of daily living – identification, authentication, transaction, communication and learning – to more advanced technical proficiencies like programming and data analytics. Across these skills, fostering a culture of lifelong learning is paramount in ensuring that individuals can navigate and thrive in the digital landscape. It is particularly important that such skills and knowledge are tailored to local and regional realities, given the geographical, cultural and historical experiences of different countries’ and societies’ experiences. Otherwise, there is a risk of skills being developed for jobs that are non-existent or contribute little to local development. In this regard, the connection between private sector and academia is fundamental: businesses need to provide a sense of their workforce needs, which academia can then fill via research and teaching.

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11 See: https://www.broadbandcommission.org/advocacy-targets/2-affordability/, accessed on 12 May 2024

12 See: Good Things Foundation, National Databank, accessed on 12 May 2024
In response to these trends, the UN Broadband Commission’s Advocacy Target 4 explicitly focuses on “digital skills development” by 2025, 60% of youth and adults should have achieved at least a minimum level of proficiency in sustainable digital skills.

In addition to possessing the skills to harness the positive aspects of digitalisation, individuals will also need the knowledge and discernment to recognise and manage the inevitable downsides, e.g. knowing how to safeguard against cyber breaches, misinformation and disinformation, scams and other online harms. These are explored in the next section. As digital technology evolves, how governments identify and track skills gaps will also be salient. Digital inclusion surveys and other learning approaches will be critical to ensure sufficient understanding of where the most important skills gaps and priorities are, and how they are shifting over time.

Programmes in Uruguay, Jamaica and Ecuador showcase how the foundational aspects of access and education can be advanced for underserved communities (see Box 1.1).

The next three aspects build on (a) and (b), but are also key manifestations of healthy digital inclusion in their own right.

c. Meaningful Participation in the Digital Economy

Empowering individuals to actively participate in the digital economy unlocks opportunities for economic empowerment and innovation. From e-commerce to digital entrepreneurship, facilitating access to digital marketplaces fosters economic inclusion and drives socio-economic development. There is a virtuous cycle at work here: marginalised populations use digital products and services when these are relevant to their needs and preferences, and when members of their own communities are well trained and empowered to build digital products and share them. Each of these builds holistic trust in digital services, which then leads to even greater usage and confidence.

d. Engagement in Civic Life and Public Policy

Digital technologies have the potential to democratise public policy participation and enhance civic engagement. Facilitating access to digital platforms for civic discourse, policy deliberation, and government services could contribute towards strengthening democratic governance and fostering inclusive decision-making processes. An illustrative example is Ushahidi, a global not-for-profit technology initiative that develops open-source digital tools and services empowering people to generate social solutions and mobilise communities for good. In other examples, UNDP has supported countries like Liberia13 in developing its online Citizens’ Feedback Mechanism to ensure an effective feedback process on the delivery of public services in real time, generating insightful data for quality improvement. There is also significant potential in using chatbot tools to engage young people, as UNDP has done with more than 5,000 respondents from over 30 countries across the Small Island Developing States (SIDS).14

e. Confidence and Trust in Digital Environment

Instilling confidence and trust in digital technologies and their underlying systems, through regular and rigorous community engagement, is essential for fostering widespread adoption. Addressing concerns related to digital rights, online safety, privacy, cybersecurity threats, data breaches, and online scams is crucial in empowering individuals to engage with digital platforms effectively. Ensuring information integrity (see Box 1.2) is also pertinent with growing information pollution that undermines public confidence and trust in digital platforms, online communication


14 UNDP, “How digital is transforming the lives of young people in Small Island Developing States”, 18 April 2024
and collaboration, as well as public trust in the state institutions and policies that are intended to promote digital inclusion e.g. election commissions or adoption of voting machines.

Generative AI tools are increasingly exploited by malicious actors to create synthetic media “deepfakes” – audio, video, or image fabrications – for scams and frauds, as well as to sow discord, confusion and doubt in the digital space. These tendencies are exacerbated by the lack of meaningful consultation and engagement of communities most affected by digitalisation, resulting in the under-development of their familiarity and literacy with emerging technologies. Marginalised groups and their representatives are also particularly neglected in the governance of digitalisation – often manifested as a cultural and/or legal barrier, leading to these groups becoming passive bystanders of digital changes that profoundly, sometimes irreversibly, change their lives.

Responses to such trends can take multiple forms, including building awareness of information pollution, setting standards and practices, policies aiming to institutionalise media and information literacy in the formal education system and elsewhere, participatory and deliberative processes like Citizen Assemblies and Citizen Juries, as well as implementing legislation, both national (recent examples include online safety acts in both the United Kingdom and Singapore) and supranational (like the European Union’s Digital Services Act).

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Box 1.1 - Access and Skills Development

Project Ceibal, named after the Ceibal tree native to Uruguay, is a pioneering initiative in education technology aimed at bridging the digital divide and enhancing learning opportunities for all students in Uruguay. Launched in 2007, it was one of the world’s first large-scale deployments of one-to-one computing in schools, providing every child and teacher with a laptop or tablet connected to the Internet – and the skills to use these well.

The project’s primary goals were to democratise access to technology, promote digital literacy, and improve educational outcomes nationwide. By equipping students with digital devices and internet access, Ceibal aimed to empower them with 21st-century skills essential for success in the modern world.

Ceibal’s implementation involved collaboration between multiple stakeholders, including the Uruguayan government, private sector partners, educational institutions, and international organisations. Its funding primarily came from the government, supplemented by donations and support from organisations like the Inter-American Development Bank and the One Laptop per Child initiative.
One of the key components of Ceibal was the development of dynamic educational content and software tailored to the Uruguayan curriculum and culture. This content ranged from interactive educational games and simulations to multimedia resources and online courses. The project also emphasises teacher training programmes to ensure that educators can effectively integrate technology into their teaching practices.

In terms of impact, Ceibal has helped reduce the digital divide by providing equal access to technology for students regardless of their socioeconomic background, leading to improvements in student engagement, digital literacy, and academic performance. Beyond academic achievements, Ceibal has also fostered innovation and entrepreneurship in Uruguay’s technology sector. The project has spurred the development of educational software, applications, and digital content, creating new opportunities for local tech companies and startups as the digital economy’s share of global output increases.

Jamaica’s approach to digital inclusion involves a comprehensive strategy spearheaded by the HEART Trust National Training Agency, which plays a crucial role in technical and vocational education and training. This agency supports a range of ICT-related courses such as internet programming, web design, computer repairs, and maintenance. By focusing on these critical areas, the HEART Trust aims to build a skilled workforce capable of participating in and driving the digital economy.

In parallel, the Jamaican government has implemented several access policies to achieve its development goals. These include setting up community internet access points and providing free community Wi-Fi at designated hotspots, as well as ‘One Laptop per Child’ in schools. Such initiatives are crucial in rural and underserved areas, helping to alleviate the digital divide by offering direct access to the internet.

Further extending its digital inclusion efforts, the government has rolled out programmes that supply free laptop computers to schools. This is complemented by dedicated formal training programmes in ICT skills, aiming to equip students with the necessary knowledge and tools from an early age. About 18% of individuals enrolled in training programs at HEART Trust pursue ICT-related courses – which include internet programming, web design, and computer repairs and maintenance – indicating a significant focus on technology education.

These community-based programs and governmental measures to increase digital access are supported financially through Jamaica’s Universal Service Fund, established in 2005. This fund collects contributions from telecommunications operators to finance the expansion of digital services and infrastructure, ensuring that advancements in connectivity are distributed equitably across the country.
This holistic approach not only addresses immediate technological needs but also fosters a long-term strategy for sustainable digital integration, crucial for Jamaica’s ongoing development in the digital age.

The “Infocentros Comunitarios” initiative in Ecuador is a significant project managed by the Ministry of Telecommunications and the Society of Information. This project has been pivotal in enhancing digital access and education among underserved communities, focusing on bridging the digital divide and empowering people through improved access to information technology resources.

This network of over 850 community technology centres are strategically placed to provide free access to computers and the internet, facilitating not only general access but also educational programs, digital literacy, and e-government services. These centres are vital in communities where access to technology is limited. They are essential hubs for information dissemination and skills development, crucial for full participation in the digital age.

To effectively manage the challenges posed by Ecuador’s diverse geography, the project ensures that these centres are equipped with modern technology and staffed by trained professionals who assist users in navigating various digital platforms. This initiative is particularly important in rural and remote areas where digital access can significantly impact educational and economic opportunities.

Moreover, the Infocentros play a critical role in community development by hosting training sessions and workshops. These programs are designed to teach essential digital skills, from basic computer use to more advanced software applications, thus preparing community members for a more digitalized global economy. The centres also serve as points of access for e-government services, helping residents interact with government agencies online.

Furthermore, they foster collaborative learning environments with programmes focused on specific populations like youth and entrepreneurs.

The success of the Infocentros Comunitarios project is not just in providing technological access but also in creating a sustainable model for digital inclusion that can be replicated in other regions facing similar challenges. By integrating technology into everyday community life, the project fosters a digitally inclusive society where all can benefit from the opportunities presented by the digital world.
Box 1.2 – Understanding Information Integrity and Information Pollution

**Information Integrity:**
It refers to “the accuracy, consistency and reliability of information” content, processes and systems to maintain a healthy information ecosystem. It requires access to trustworthy, balanced and complete information on current affairs, government actions, political actors and other elements relevant to their political perceptions and decision-making.

**Information Pollution:**
It refers to verifiably false, misleading and manipulated content on- and offline, which is created, produced and disseminated intentionally or unintentionally, and which has the potential to cause harm. Information pollution can be categorised as:

1. **Disinformation:** Information that is false and deliberately created to harm a person, social group, organisation or country.

2. **Misinformation:** Information that is false, but not created with the intention of causing harm.

3. **Mal-information:** Information that is based on real facts, but manipulated to inflict harm on a person, organisation or country.

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15 Adapted from UNDP, “Strategic Guidance: Information Integrity”, 16 February 2022
16 UN, “Our Common Agenda – Policy Brief & Information Integrity on Digital Platforms”, June 2023
17 Club de Madrid, “Protecting Information Integrity: National and International Policy Options”, November 2018
Principles for Shaping Digital Inclusion

Delving deeper into dimensions (a) to (d), it is clear that the attainment of digital inclusion is contingent upon addressing a wide range of interrelated barriers that could impede individuals’ access to and utilisation of digital resources.

These interlinked access barriers explain why the digital coverage gap is only 5% globally, but the digital utilisation gap is up to eight times larger in some countries. This is known as the ‘Usage Gap’\(^{18}\). This Playbook adopts three fundamental principles in relation to the above aspects of digital inclusion.

Foundational Aspects

The aspects of Access and Affordability of Hardware and Connectivity, as well as Learning and Skill Acquisition are foundational. They lay the groundwork for subsequent steps in promoting digital inclusion. It is not only the specific cost of digital technology that matters here, but the broader enabling environment that makes a technology affordable and accessible, as well as usable when people are equipped with the right skills and literacy. These foundational aspects are especially important for specific groups of society that are historically digitally excluded. For example, ensuring wireless connectivity and providing telehealth support in a remote rural area does not suffice to ensure inclusion, if the technology does not accommodate the specific needs of persons with disabilities.

Mutual Iteration and Amplification

Beyond these foundational aspects, the pathways to other dimensions of digital inclusion – participation in the digital economy, engagement in civic and political life, as well as confidence and trust in the digital environment – are iterative and mutually reinforcing. These steps do not have to occur at the same time or in a particular order; instead, they can be mutually iterative and mutually amplifying. For instance, many micro and small or medium enterprises (MSMEs) are more likely to use digital technology if they have a customer base with a high degree of trust and confidence in the digital environment, while such a customer base can also encourage MSMEs to engage further in the digital realm.

Contextual Flexibility

Recognizing the diverse socio-cultural contexts in which digital inclusion unfolds, there is no one-size-fits-all approach to achieving it; no fixed or necessary prioritisation or sequence between the non-foundational aspects of digital inclusion. Different jurisdictions can have flexible starting points and evolutionary pathways depending on contextual factors like history and culture. Many countries have legitimately chosen to start their digitalisation and digital inclusion journeys with economic transformation, but it is equally plausible to start by strengthening trust and confidence or building stronger civic engagement in the digital space, before moving to leverage the economic gains of employment and innovation. Countries can choose the starting points of their digitalisation and inclusion journeys depending on their unique history and circumstances. Once firm foundations are in place, countries can pursue flexible and adaptive strategies to attain the other three aspects of digital inclusion, ensuring participation that is as universal as possible.

Overarching Framework

The different layers of digital inclusion are presented in Figure 1 below, which delineates how they connect, intersect and interact.

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\(^{18}\) See: https://www.gsma.com/breakingbarriers/, accessed on 12 May 2024
Apart from each individual layer being important in its own right, the overall metaphor of a pyramid or mountain is particularly apt for two reasons. First, the factors in the lower half of the diagram are enablers that facilitate and support the realisation of the aims situated higher in the diagram. Second, while the different enablers and starting points at the bottom of the diagram appear separate, they connect more as one moves higher up the diagram, converging ultimately in the core definition of full, meaningful and broad-based participation in digital activities.

Critically, the entire framework is situated within a larger framing representing the contextual environment: this includes both the larger national macro-systems in which policies and programmes are embedded, and the even broader environment of dynamic and ever-evolving global circumstances. The framework both shapes and is shaped by this contextual environment, represented by the two-directional arrows connecting digital inclusion and its broader context. This playbook includes the broader global context by design, and from the outset – aiming to provide a more accurate reflection of the fluid and changing circumstances within which digital inclusion is operationalised.
Conclusion

The chapter offers a comprehensive view of digital inclusion, emphasising its critical role in enabling full and flourishing lives, driving economic transformation, addressing societal inequities, and promoting social cohesion, along with fostering inclusive, effective, and accountable governance systems. It presents digital inclusion as a dynamic field that is deeply interconnected with evolving technologies and global trends, highlighting the need for strategies that are flexible and responsive to ongoing changes.

KEY TAKEAWAYS

• Ensure access and affordability of hardware and connectivity, as well as quality opportunities for learning and skill acquisition as critical foundations for digital inclusion.
• Empower individuals to actively participate in the digital economy, unlocking opportunities for economic empowerment and innovation.
• Harness digital technologies to democratise public policy participation and enhance civic engagement.
• Instil confidence and trust in digital technologies, particularly ensuring information integrity amidst a surge in information pollution.
• Tailor strategies for digital inclusion to the unique socio-cultural contexts of communities, leveraging potential for mutual iteration and amplification.
Governments play a key role in ensuring that basic ICT and other digital infrastructures (including public digital infrastructures, such as national digital identity and digital payment mechanisms) are in place. These infrastructures can be akin to commons like roads and public goods like street-lighting in the analogue space, which in turn enable secondary effects like transport, security and economic development.

Such public sector system enablers provide a critical foundation for digital inclusion programmes and policies. They are the base upon which successful digital inclusion policies and programmes are built, however varied and contextually dependent these policies and programmes may ultimately be, and however much they need to be flexible in the face of the emerging trends discussed earlier in this Playbook.

From the outset, it is worth noting that the relationship between good governance and digital inclusion is both dynamic and mutually reinforcing. Digital inclusion is part of good governance, and good governance of digital involves ensuring that this is inclusive, rights-based and promotes sustainable development. Effectively, not only can digital contribute to good governance, but good governance also contributes to processes that are inclusive and promote rights and development.

This chapter explores the multifaceted forms that public sector system enablers can take, and their pivotal role in driving forward different countries’ digital inclusion agendas.

A Clear National Vision, Strategy and Commitment

At the heart of many successful digital inclusion endeavours lies a clear national vision and strategy for digitalisation, indeed, such clarity of desired outcomes and approach is often an enabler in itself of successful digitalisation. These overarching frameworks set the direction for leveraging digital technologies in ways that address socio-economic challenges, promote inclusive growth and allow room for flexibility in response to evolving technology. While the specific focus of such strategies may vary—whether economically-driven, literacy-focused, or centred on other objectives—their fundamental aim is consistent: to harness the power of digital innovation for the benefit of all. In all successful digitalisation efforts, the focus has been on digital adoption as a means to this larger end of creating value for people,
businesses and other stakeholders, rather than on technology adoption for its own sake.

How this is done varies from country to country. For instance, Brazil, Singapore and the United Arab Emirates (see box 2.1) have each articulated distinct digitalisation strategies tailored to their unique contexts, illustrating the diverse approaches that are possible in achieving digitalisation on a national scale. Similarly, the Kyrgyz Republic has progressed in its e-government reforms through steps taken under the digital concept “Sanarip Kyrgyzstan” (Digital Kyrgyzstan), from 2019 to 2023. In the UN Global E-Government Development Index for 2022, the Republic ranked 81st out of 193 countries, second after Kazakhstan in Central Asia and an advance of ten positions from 2020.

Crafting a comprehensive digitalisation strategy entails careful consideration of various factors, including infrastructure development, skills enhancement, regulatory frameworks, people engagement, and maintenance of sufficient manoeuvring room to accommodate future developments. By delineating clear objectives and action plans, governments can align stakeholders towards a shared vision of digital inclusion, fostering collaboration and synergy across different sectors and stakeholders.

Box 2.1 - National Digitalisation Strategies

Digital strategies can provide important coherence and direction to ensure that digital technologies become key catalysts of national growth and development. The national digital strategies of Brazil, Singapore, and the United Arab Emirates provide important guidance.

A clear positioning of digital as a key development tool and catalyst is important. Brazil’s Digital Transformation Strategy underscores the country’s commitment to harnessing digital technologies to drive economic growth, social inclusion, and technological innovation. The document positions digital inclusion as one of six strategic objectives, and recognises the important of collaboration between government, industry, academia, civil society, and international partners.

Building on this collaborative focus, Singapore recognises the importance of digital in driving wide-ranging benefits. Singapore launched its Smart Nation strategy in 2014, driven by an ambition to harness digital technologies to improve people’s lives and unlock new opportunities. It is founded upon three key pillars: the development of a robust digital economy, a digitally ready society, and a digital government where public agencies leverage digital technologies to serve people better. Each pillar builds upon each other and involves a whole-of-society effort to create a thriving digital future for all people. Singapore also regularly updates its initiatives and policies under the Smart Nation strategy, to account for new opportunities and challenges that the evolving digital landscape presents.

Digital can lead to wide-ranging opportunities and benefits. Highlighting this, the National Digital Strategy of the United Arab Emirates encompasses various initiatives and investments, each aiming to leverage technology to drive growth and development, as well as ensure government literacy in keeping abreast of technological change. At the heart of the UAE’s digitalisation strategy is the wide-ranging Vision 2021 agenda launched in 2021, a seven-year plan for becoming a knowledge-based economy and society. Subsidiary strategies have since been developed in priority areas like government services, education and workforce development, AI and cybersecurity.
Commitment from political leadership to these national strategies is indispensable for driving meaningful change at the national level, particularly in a fluid and unpredictable geostrategic environment. The examples from Brazil, Singapore and the UAE were all supported at the highest levels. Similarly, in Malawi, the President’s explicit focus on digitalisation in official addresses, including the two most recent State of the Nation Addresses, demonstrates strong political will to harness technology for societal advancement. Such leadership serves not only to mobilise resources and institutional support but also to inspire collective action towards the vision of a digitally powered and digitally inclusive society.

When decision-makers offer such clear prioritisation to these issues, they signal the importance of inclusive digitalisation and galvanise support for relevant policies and initiatives. This provides a political base for breaking down bureaucratic silos (within and beyond the public sector), as well as lays a foundation for digitalisation to catalyse longer-term opportunities and manage the risks attendant with new technologies. Particularly notable opportunities include the focus on Digital Public Infrastructure accelerated by India19, and positioning digital as a driver of other transformation efforts (e.g. in the UAE, strategies for government services, AI and cybersecurity have all built on the foundation of the digital strategy).

A key manifestation of political commitment is the availability of resources for digital efforts, which can be impacted negatively in countries grappling with a debt dilemma. The financial outlay can be particularly large for digital infrastructure projects. Affected governments will need to work with international financial institutions and partners, both from other countries as well as private companies, to secure funding and investments for digitalisation in a manner that is sustainable and does not exacerbate fiscal pressures.

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**Cross-Government Architecture and Collaboration**

Effective collaboration across government agencies and sectors is essential for the success of digital inclusion initiatives. This necessitates breaking down silos and fostering integrated approaches to service delivery, underpinned by a holistic “government-as-a-platform” paradigm rather than fragmented, siloed thinking among individual government agencies. By dismantling barriers to collaboration and promoting information sharing, governments can leverage synergies between different policy domains, drive holistic solutions to complex challenges, and cross-pollinate insights from different agencies about how they are affected by intersecting trends like those outlined in the Introduction.

Such dismantling of siloes happens at various levels:

**a. Breaking Down Silos Between Digital and Policy Domain Agencies:** Collaboration between agencies responsible for driving digitalisation and those overseeing key policy areas—such as education, healthcare, or economic development—is crucial for ensuring that inclusion efforts align with broader societal goals. By integrating digital considerations into policy formulation and implementation, governments can maximise the impact of their initiatives, address systemic barriers to inclusion effectively, and ensure that a broad base of public agencies are attuned to how their work interacts with broader macro trends.

**b. Collaboration Between Different Policy Domains:** Breaking down silos between different policy domains, such as education and workforce development, is essential for
fostering seamless transitions and continuity in individuals’ digital learning journeys. By aligning skill development programmes with evolving economic imperatives and labour market demands, governments can equip people with the requisite competencies to thrive in the digital age – including in identifying how digital skills connect with other emerging priorities like sustainability and poverty reduction.

c. Collaboration Among Agencies With Regulatory, Developmental, and Partnership Roles: Clear, stable, and predictable regulatory standards play a critical role in fostering an enabling environment for digital inclusion. For instance, by establishing universal broadband requirements, accessibility standards for technology provision, and guidelines for government online services, policymakers ensure that private sector entities clearly understand their role in providing equitable access to digital infrastructure and services. As the ethical challenges relating to technology intensify, governments must also enact, monitor and enforce clear ethical guidelines and regulatory frameworks for the development and use of digital technologies, ensuring they respect privacy, data protection, and human rights. Complementing these regulatory roles, government agencies are also key in convening partnerships with the private sector, civil society, and international organisations, which can in turn facilitate resource mobilisation and knowledge exchange that amplify the impact of digital inclusion initiatives.

d. Collaboration Beyond Government: Public sector digital inclusion efforts work best when they look both inward and outward, drawing communities with deep user knowledge and ground experience into the process of identifying priorities, designing policies and programmes, and possibly even co-delivery and co-production of services. This is particularly important in order to ensure meaningful engagement of marginalised groups in the identification and design of digital strategies – given that their needs and preferences may often have been overlooked or elided. Such collaboration brings additional levels of complexity and messiness to the policy process, but the potential gains in richness, substance and applicability to life are also substantial. Chapter 3 takes up this idea from the perspective of multi-stakeholder approaches, but it is worth mentioning that the public sector plays an important catalytic and convening role, including through participatory platforms.

The above dimensions (a to d) are well captured in the Cook Islands’ Digital Strategy, released in February 2024. The strategy ascribes several roles to the public sector, including Convener (of entities within and beyond the public sector), Customer (to the local private sector) and Catalyst (to the private sector and civil society in terms of enabling digital public infrastructure, providing start-up funding, facilitating open data platforms, and ensuring that the digital ecosystem remains open to new opportunities that emerge from dynamic technology).

Like attempts by other governments, the Cook Islands strategy is a consolidated response to the emerging polycrisis referred to in the introduction, where integrated policy frameworks need to consider the interconnections between social, economic, environmental, and digital inclusion goals. Such approaches can often generate unanticipated innovation and opportunities – with the challenge of migration, for instance, there is potential for governments to use digital platforms to improve overall management and support displaced populations, e.g. through digital identity systems, e-governance services for migrants, and digital education and employment opportunities to facilitate integration.

Box 2.2 explores how such collaboration- and coordination-enabling government architecture has been implemented in Norway and Rwanda at the national levels, and Nigeria’s Edo state at the sub-national level.

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20 Cook Islands News, “Cook Islands aims to bridge digital divide with new national strategy”, 13 February 2024
Box 2.2 - Cross-Government Architecture and Collaboration

The Ministry of Digitalisation in Norway plays a crucial role in advancing the country’s digital infrastructure and services. At the helm of this ministry is the Directorate for Digitalisation (Digitaliseringsdirektoratet), which leads the ministry’s efforts to execute its mandates effectively.

The Directorate for Digitalisation is responsible for coordinating and facilitating digitalisation efforts across various sectors of the Norwegian government. Its organisational structure is designed to streamline operations and ensure efficient delivery of digital services to people and businesses.

The directorate’s work is divided into several key areas, each with its own focus and responsibilities. The team focused on digital governance and policy development crafts strategies and frameworks that guide digitalisation initiatives nationwide. By setting standards and best practices, the directorate ensures coherence and consistency in digital projects undertaken by different government agencies.

The directorate also works on digital service development and implementation. This involves collaborating with relevant stakeholders to design and deploy user-friendly digital services that meet the needs of the public. By leveraging technology effectively, the directorate aims to enhance the accessibility and quality of government services, making them more efficient and user-centric.

The directorate also prioritises cybersecurity and data privacy. Recognising the importance of safeguarding sensitive information in the digital age, it works to strengthen and future-proof Norway’s cybersecurity posture and promote responsible data management practices across the public sector, thereby sustaining public confidence in the promise and delivery of digital systems.

To carry out its multifaceted responsibilities, the directorate operates through a network of specialised units and teams. Each unit focuses on specific domains such as digital infrastructure, e-identity, and interoperability, ensuring that respective aspects of digitalisation receive the attention and expertise they require.
Collaboration is a cornerstone of the directorate’s approach, as evidenced by its partnerships with other government agencies, private sector entities, and research institutions. By fostering cross-agency dialogue and knowledge exchange, the directorate harnesses collective expertise to address complex challenges, drive innovation in digitalisation, and maintain a responsive and adaptive posture towards interlocking future trends.

The directorate is committed to cross-sector transparency and accountability in its operations. It engages with stakeholders through various channels, including public consultations and open data initiatives, to solicit feedback and enhance the effectiveness of its programmes.

The Ministry of Digitalisation’s organisational structure, centred on the Directorate for Digitalisation, reflects a strategic and collaborative approach to advancing Norway’s digital agenda. Through its focus on policy development, service delivery, cybersecurity, and collaboration, the directorate plays a pivotal role in shaping Norway’s digital future and ensuring that people benefit from the opportunities of the digital age.

Rwanda’s Ministry of ICT and Innovation (MINICT) advances the country’s digital agenda and ensures that ICTs are effectively utilised for national development. The Ministry’s organisational structure and workflow reflect its commitment to promoting digitalisation across various agencies and sectors.

The Minister of ICT and Innovation provides strategic direction and oversees the implementation of policies and initiatives aimed at harnessing the power of technology for socio-economic transformation. The Ministry aligns its efforts with national development priorities such as Vision 2050 and the National Strategy for Transformation.

MINICT’s organisational structure comprises several departments and agencies, each tasked with specific functions to drive the digitalisation agenda forward. These include the Rwanda Information Society Authority (RISA), the Rwanda Development Board (RDB), and the Rwanda Utilities Regulatory Authority (RURA). Collaboration and coordination among these entities is essential for ensuring synergy and maximising national impact.

One of the key functions of MINICT is policy formulation and regulation. The Ministry is responsible for developing policies and regulatory frameworks that facilitate the deployment of ICT infrastructure, promote innovation and entrepreneurship, and safeguard the interests of people and businesses in the digital space. Through consultations with stakeholders and rigorous analysis, MINICT strives to create an enabling environment for ICT investments and innovation, each geared towards maintaining Rwanda’s long-term competitiveness in an unstable external environment.
In addition to policy development, MINICT oversees the implementation of various initiatives aimed at bridging the digital divide and promoting digital literacy and inclusion. This includes the rollout of broadband infrastructure, the establishment of digital innovation hubs and incubation centres, and the provision of training programmes to equip people with the necessary skills for the digital economy.

MINICT also plays a crucial role in promoting e-government services and digitising government processes to enhance efficiency, transparency, and service delivery. Through initiatives such as the Rwanda Online Platform, people and businesses can access a wide range of government services online, reducing bureaucracy and streamlining administrative procedures.

MINICT collaborates with the private sector, academia, and international partners to leverage resources and expertise in advancing Rwanda’s digital agenda. Public-private partnerships are encouraged to drive innovation, investment, and dynamic knowledge transfer in key areas such as cybersecurity, e-commerce, and digital infrastructure development. Such partnerships also ensure access to diverse sources of funding, which has been particularly key given tightening fiscal constraints in the previous decade.

In terms of monitoring and evaluation, MINICT employs various mechanisms to assess the impact of its interventions and ensure accountability and transparency. Regular performance reviews, stakeholder consultations, and impact assessments help to identify gaps, challenges, and opportunities for improvement in the face of emerging trends, enabling the Ministry to adapt its strategies and priorities in an agile manner.

Edo State has been at the forefront of digitalisation in Nigeria, implementing initiatives to enhance efficiency, transparency, and service delivery. Recognising the pivotal role of technology in modernising governance, the state has embarked on several strategic steps to break down organisational barriers to harnessing digital tools effectively.

One of the key pillars of the State’s digitalisation efforts is the adoption of a comprehensive e-government framework. This framework aims to digitise various government processes and services, streamlining them across different agencies to make them accessible to people and businesses online. Through platforms like the Edo State government website, people can access information, apply for permits, and interact with government agencies without physical presence, streamlining bureaucratic procedures and reducing paperwork.
To facilitate digital inclusion and access to government services, Edo State has invested in infrastructure development, particularly in expanding broadband connectivity and establishing digital hubs. These hubs serve as centres for training, innovation, and collaboration, fostering a conducive environment for digital skills development and entrepreneurship. By investing in digital infrastructure, the state government aims to bridge the digital divide and ensure that all people can participate in the digital economy.

Edo State has prioritised capacity building and training programmes to equip civil servants with the necessary skills to leverage digital tools effectively. Through partnerships with educational institutions and technology firms, the state government offers training workshops, seminars, and certification programmes on digital literacy, data analytics, cybersecurity, and other relevant areas. By upskilling its workforce, Edo State seeks to enhance productivity, innovation, service delivery and future-readiness within the civil service.

Edo State has embraced data-driven decision-making to improve governance and policy formulation. By collecting, analysing, and leveraging data from various sources, including user feedback and administrative records, the state government can identify trends, monitor performance, and make evidence-based decisions. This data-driven approach enables Edo State to enhance transparency, accountability, and responsiveness in its governance processes.

In addition to these initiatives, Edo State has implemented specific digital solutions to address key challenges within the civil service. For example, the state has introduced electronic payroll systems to streamline salary payments and prevent ghost workers, thereby enhancing fiscal transparency and accountability. The State has also deployed digital platforms for procurement, project monitoring, and revenue collection, automating processes and reducing the likelihood of corruption and inefficiency.

Edo State’s digitalisation efforts are characterised by a holistic approach that encompasses infrastructure development, capacity building, data-driven governance, and the deployment of targeted digital solutions. By leveraging technology, the state government aims to enhance public service delivery, promote economic development, and improve the overall quality of life for its people.
Central to achieving digital inclusion is the lifelong development of digital skills and capabilities within the workforce and society at large. This entails not only setting broad policy directions but also shaping formal curricula, funding implementation efforts, and promoting dynamic, continuous learning opportunities for all people. Investing in digital skills development allows governments to democratise national conversations on technology – thereby unlocking the full potential of their populations, fostering innovation, entrepreneurship, and social inclusion while empowering people to navigate an increasingly complex and unstable digitalised world with confidence and resilience.

Finland, for instance, has responded to the advent of generative Artificial Intelligence (AI) with a massive open online course (MOOC) that caters to everyone who is keen to learn AI terminology; 25% of participants so far have been over 45.

The same principle applies to other aspects of digital technology like the use of computers, social media, messaging platforms and other tools. In particular, governments have a role to craft targeted interventions to close the digital gender gap, including programmes that provide digital skills training and education for women and girls, and initiatives that support women’s entrepreneurship in the digital economy.

In Norway, the “Digital throughout Life” programme emphasises the importance of lifelong learning and skills development, providing individuals with the tools and resources to adapt to constantly evolving landscapes – both in technology domains and other domains that intersect with technology. Similarly, Singapore’s “Digital Skills for Life” framework focuses on building the fundamental skills relevant to Singaporeans of all ages, while initiatives like the “Skill India” Digital programme aim to bridge the digital divide by equipping marginalised communities with the digital literacy skills needed to participate meaningfully in the digital economy (Refer to Box 2.3).

To promote information integrity in the digital space, and build public resilience to information pollution, digital skills and capabilities development efforts should also equip individuals with knowledge to analyse authenticity, identify bias, and verify sources in clear and non-technical language, accessible to people of all ages and backgrounds. To this end, UNDP has developed a definition of media and information literacy (MIL) that can guide government policy and support individuals to access, create, analyse and act on diverse types and formats of information, including from traditional media and online sources. The definition and its related research empower individuals to confidently navigate today’s information ecosystems and critically assess the quality of information and its sources. Individuals are supported in detecting deceptive tactics and untrustworthy information, and in transforming quality information into knowledge and decisions. MIL initiatives in election settings contribute to the integrity and credibility of electoral processes, ensuring that voters are well-informed, capable of making informed choices and engaged in the democratic process.21

The importance of such skills extends well beyond individuals, and has critical macroeconomic ramifications. As less affluent countries strive to diversify and innovate, understanding how digital technologies can...

Box 2.3 - Lifelong Skills Development Programmes

Norway’s “Digital Throughout Life” programme is a comprehensive initiative designed to address the evolving needs of its people in an increasingly digital world. At the core of this programme is a commitment to equipping individuals of all ages with the digital skills and literacy necessary to navigate the digital landscape effectively. The programme’s top-level goal is to increase digital inclusion; as noted on the programme website, “The purpose of this strategy is to prevent digital exclusion in Norway.”

The programme’s multifaceted approach encompasses several key areas.

» Digital Competence in Education

A primary focus of the programme is to integrate digital competence into all levels of education. The Norwegian government allocates funds for teacher training programmes aimed at enhancing educators’ digital proficiency. Additionally, grants are provided to schools for the development of digital curriculum materials and the acquisition of necessary technology resources. By investing in education, Norway is adopting the educational equivalent of patient capital, ensuring that students eventually graduate with the digital skills needed in the modern workforce.
» Digital Inclusion and Participation

Recognising the importance of digital inclusion, the Norwegian government invests in initiatives aimed at bridging the digital divide. Public funding is directed towards improving digital infrastructure in rural and underserved areas, thereby expanding access to high-speed internet and digital services. The Norwegian government offers public grants and financial support to empower people in developing digital skills. These grants encompass subsidies for individuals seeking to enrol in digital literacy courses, funding for community-based initiatives that promote digital education, and grants for entrepreneurs and startups focused on developing innovative digital solutions. Grants are also provided to organisations that promote digital literacy among marginalised communities, empowering individuals to fully participate in the digital economy and society as they constantly evolve.

» Digital Security and Trust

In an era of increasing cyber threats, Norway prioritises enhancing digital security measures. Public funding supports cybersecurity education and awareness campaigns, equipping people with the knowledge to protect themselves online. Additionally, grants are allocated to cybersecurity research and development initiatives, fostering innovation in this critical field even as digitalisation increases the overall threat surface, and threats grow increasingly sophisticated. By investing in digital security, Norway aims to build trust in digital technologies and safeguard individuals’ privacy and security.

» Digitalisation of Public Services

The Norwegian government is committed to digitising public services to improve accessibility, efficiency, and user experience. Significant public funding is allocated to the development of digital platforms and tools for delivering government services online. Grants are also provided to municipalities and government agencies to support their digitalisation efforts. By streamlining administrative processes and enhancing digital service delivery, while also ensuring that people have the skills to avail themselves of the benefits of such delivery, Norway aims to improve satisfaction and reduce bureaucracy.
Singapore’s Digital Skills for Life (DSL) Framework was launched to equip Singaporeans with the necessary knowledge, skills and attitudes to navigate the digital space, carry out daily tasks and stay safe online. The skills outlined in the framework are relevant to Singaporeans of all ages, and focus on building the fundamentals for everyone to go online safely and use digital services and tools confidently in their daily lives. This way, all Singaporeans may be part of a digital society and enjoy the benefits of digitalisation.

The DSL framework covers five competencies:

- **a.** Setting up and using smart devices, how to operate the basic functions on devices.
- **b.** Exploring information online. Through the Internet, Singaporeans can access limitless information and new opportunities, but need to know how to search, view and retrieve this information safely for constructive use.
- **c.** Communicating online with others.
- **d.** Transacting online for greater convenience – e.g. accessing banking and Government services, booking healthcare appointments.
- **e.** Critically, being safe, smart and kind online – understanding how to keep safe from scams and false information and how to build a positive presence online.

The five baseline digital competencies under the DSL framework, launched by IMDA in January 2024.
These are all practical skills that make a real difference to Singaporeans’ day-to-day lives. Singaporeans can learn the digital skills under the DSL programme through the following channels:

1. In-person learning through SG Digital Office: Learners may visit the SG Digital Community Hubs where Digital Ambassadors support less-digitally savvy Singaporeans on their digital journeys (elaborated further below)

2. Online learning through Digital for Life portal: Learners may learn at their own pace and at the comfort of their homes with videos and guidebooks on the Digital for Life Portal.

3. Peer and Intergenerational Learning: People keen to help their family and friends pick up skills can use these resources to teach them.

4. Other training providers and content partners: IMDA works with training providers from the private and people sectors and content partners to play a part in developing content or delivering programmes aligned with the DSL framework to Singaporeans.

The SG Digital Office (SDO), under Singapore’s Infocomm Media Development Authority (IMDA), was set up in June 2020 during the COVID-19 pandemic when many activities transitioned online. The aim of the SDO is to equip individuals and small businesses with digital skills so that they can participate in an increasingly digital environment.
To date, the SDO has mobilised Digital Ambassadors (DAs) to help over 280,000 senior citizens acquire digital skills. To reach the seniors, DAs are deployed all over Singapore at 37 permanent high-human-traffic hubs (e.g. community clubs and public libraries) and 200 roving counters at workplaces and community spaces (e.g. senior activity centres) where seniors frequent. The DAs teach the seniors in different ways to help them learn more effectively – such as through one-to-one or small group settings, or by using a vernacular dialect when necessary.

SDOs’ DAs teach skills that are relevant to daily living so that seniors are motivated and confident in acquiring digital skills. This includes setting up smartphones, finding information and communicating online, and transacting digitally.

To develop programs for specific digital skills, SDO collaborates with different partners, including local banks to design a hands-on e-payment learning journey for the seniors, and the Cyber Security Agency of Singapore and Singapore Police Force to raise awareness of cybersecurity. Understanding users’ experiences also equips the SDO to provide feedback to government agencies to facilitate design of more user-friendly digital government services.

Recognising the power of peer learning, about 400 Silver Infocomm Wellness Ambassadors (SIWAs) have also been trained under a joint initiative by IMDA and another government agency, People’s Association, which focused on fostering strong community-level social capital. SIWAs are digitally savvy seniors who volunteer to teach and encourage their peers. They help to lead the over 50 (and counting) Digital for Life: Digital Clubs at Community Clubs and community spaces in collaboration with the People Association’s Active Ageing Council.
Skill India Digital is a comprehensive initiative launched by the Indian government aimed at enhancing digital literacy and vocational skills among the country’s populace. The programme equips individuals with relevant skills to thrive in the digital age and contribute effectively to India’s growing economy.

At its core, Skill India Digital seeks to bridge the digital divide by providing accessible and affordable digital education and training opportunities to people across various demographics, including rural and urban areas. The programme emphasises the importance of digital literacy as a foundational skill in today’s technology-driven world, with the goal of empowering individuals to leverage digital tools for personal and professional development. One of the key components of Skill India Digital is its focus on skill development through online platforms and digital learning resources. Through partnerships with leading educational institutions, online learning platforms, and industry experts, the programme offers a wide range of courses covering topics such as computer basics, Internet usage, digital marketing, and coding. These courses are designed to cater to different skill levels and learning needs, enabling individuals to acquire new skills at their own pace and convenience, and are regularly reviewed to ensure that they are broadly keeping pace with how technology evolves.

Skill India Digital leverages technology to expand access to vocational training and certification programmes. By harnessing the power of digital platforms, the programme enables individuals to enrol in skill development courses remotely, eliminating barriers such as geographical distance and limited infrastructure. This not only increases the reach of vocational training initiatives but also enhances the scalability and efficiency of skill development efforts nationwide.

In addition to online learning, Skill India Digital also emphasises the importance of practical training and hands-on experience. The programme facilitates partnerships between educational institutions, government agencies, and industry stakeholders to create apprenticeship and internship opportunities for aspiring professionals. These practical training programmes enable participants to gain practical and relevant real-world experience in their chosen fields, thereby enhancing their employability and job readiness.

Skill India Digital has helped to promote entrepreneurship and self-employment by providing support and resources to aspiring entrepreneurs. Through initiatives such as business incubators, mentorship programmes, and access to finance, the programme empowers individuals to start and grow their own businesses in sectors such as e-commerce, digital services, and technology.
Skill India Digital represents a proactive approach to addressing the challenges and opportunities of the digital age. By fostering digital literacy, vocational skills, and entrepreneurship, the programme aims to equip Indians with the tools they need to succeed in the economy, ultimately contributing to India's socio-economic development and global competitiveness.
Development of Digital Skills Within Government Agencies

In addition to fostering digital skills among the general population, governments must also prioritise the development of digital competencies within the public sector. This includes technical skills for experts in areas such as engineering, programming, and coding, as well as functional digital skills for all employees. These skill groups have driven positive dividends for countries that have invested in them. Box 2.4 illustrates how these skills have been developed in internal digital academies or their equivalents. Alternatives like calibrated outsourced knowledge for specific functions are also possible, especially for less well-funded IT teams, but such outsourcing still requires some level of internal skills in order to be supervised, monitored and evaluated effectively.

a. Technical Skills for Experts: In an era of rapid and intensifying technological advancement, governments must ensure that their technical experts possess the requisite engineering, programming and coding, and procurement skills and knowledge to design, implement, and maintain digital infrastructure and services effectively. Given how rapidly digital technology evolves, there is a real risk that governments will under-provide opportunities for progression and learning for those with digital skills. By investing in continuous training and professional development, agencies can stay abreast of emerging technologies and best practices, driving innovation and efficiency in the public sector.

b. Functional Digital Skills for All: Beyond technical expertise, governments must also equip all employees with functional digital skills, such as proficiency in data analysis tools, social media, communication platforms, and digital collaboration tools. The United Kingdom’s Digital and Data Profession Capability Framework22, for instance, addresses this by delineating the skills required at different levels. Awareness, Working, Practitioner and Expert. By enhancing digital literacy among all levels of staff, governments can improve communication of policy objectives, service delivery, streamline processes, enhance people engagement and, most critically, ensure that government staff have the discernment to interpret emerging trends, and update their skills where necessary.

c. Design Skills: Emphasising design thinking and human-centrivity is essential for creating user-friendly and inclusive digital experiences. Governments must cultivate a culture of innovation and agility, empowering employees to adopt iterative design approaches and prioritise user feedback in the development of digital services. This means not only designing digital services and platforms “for” different communities, but also where appropriate designing “with”, or having processes designed “by”, them. This can be particularly critical to ensure the inclusion of vulnerable and marginalised communities most affected by the digital divide. These skills are critical to ensure that digital systems are “inclusive by design”, with inclusion hard-coded into the very DNA of each programme and policy. It begins with governments designing digital public services with a view to accessibility by everyone, regardless of how digitally savvy they might be with little or no instruction. Such design-infused approaches include the deployment of intuitive user interfaces; design guidelines for visual clarity for the elderly; linguistic clarity for translations into

vernacular languages; and feedback channels. These approaches can also leverage the strength of micro-targeted interventions, where Governments leverage anonymised and aggregated data to identify specific areas where inclusion gaps are most severe and design policies accordingly. Such design in turn builds trust and confidence in digital systems.

Accessible design is a key aspect of digital inclusion. This allows for future-proofing of designs in an ageing population that will be subject to growing visual disabilities and reduced mobility, given the demographic trends outlined in Chapter 1. Accessible government website design also drives higher usage, and there are often unintended benefits of accessibility innovations. Countries can also leverage proven methodologies and solutions to deepen accessibility, including tools such as Purple A11y - a simple and free-to-use solution to conduct accessibility audits on government websites.

Box 2.5 examines efforts to infuse such human-centred design principles in a diverse range of countries.

In addition to human-centeredness, another important design skill critical is rapid prototyping – along with its close cousins, beta testing, small-scale pilot initiatives and sandboxing – all of which embody an experimental approach to policy and programme design. These approaches allow for the testing of theories of change regarding digital inclusive solutions, particularly in regions with limited resources, like many developing countries. Such initiatives serve as invaluable testing grounds for innovative approaches, allowing for the refinement and validation of strategies before scaling up to broader implementation. Investing in large-scale digital inclusion programs without prior testing can be risky and inefficient in contexts where resources are scarce. In addition, such experimental approaches provide valuable data and insights, and demonstrate tangible progress to stakeholders and potential funders, thus garnering support for larger-scale initiatives in the future. Critically, they also foster a culture of collaboration, innovation and adaptation, essential for navigating the complex and ever-evolving landscape of digital inclusion.

d. Digital Leadership: Effective digitalisation requires visionary leadership that can articulate a compelling vision, mobilise resources, connect technology use to core agency priorities, drive change across organisational boundaries, and ensure that organisations are resilient in the face of dynamic operating environments. Senior managers must possess the digital acumen and strategic foresight to harness technology’s potential fully and align digital initiatives with broader mission objectives. With the rapid advancement in digital technologies, including generative AI, the public sector’s digital leadership also involves defining, articulating, and clarifying the standards, guidelines, practices, governance, and/or legislation to safeguard human-rights centred design, development, and distribution of digital products, services, and content. Equally important is dis-incentivising the abuse of existing systems, e.g. demonetising some of the more lucrative forms of disinformation, and penalising repeat offenders of manipulated, falsely amplified, demonstrably fake or misleading content. Lack of such measures could risk undermining information integrity, widening digital divide, reinforcing inequalities and biases, as well as weakening digital trust and inclusion altogether.

Given the transboundary nature of digital space, the public sector’s leadership entails fostering international and intergovernmental cooperation, as well as multistakeholder engagement to ensure collective understanding of the problems and coordination of responses. A notable example and achievement was the landmark resolution adopted by the UN General Assembly on the promotion of safe, secure and trustworthy AI systems that would benefit sustainable development for all. It included novel approaches like encouraging the development of "reliable content"

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24 UN General Assembly, “Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development”, 11 March 2024
authentication and provenance mechanisms [...] that enable users to identify manipulation, distinguish or determine the origins of authentic digital content and artificial intelligence-generated or manipulated digital content”, among others.

e. Digitally-Literate Procurement: Given the dynamic nature of technology markets, and their interaction with equally dynamic macro trends, governments must adopt digitally-literate procurement practices that account for rapid technological advancements and changing user needs. By prioritising flexibility, scalability, and interoperability in procurement processes, governments can future-proof their digital investments and ensure the long-term sustainability of digital infrastructure and services. In particular, digitally-literate procurement, from an inclusion lens, also means being literate about the exclusion risks involved in digital procurement. For instance, procuring digital tools for social protection benefits may entail making sure that any algorithms used by the tool do not perpetuate biases and inadvertently lead to exclusion.
Box 2.4 - Public Sector Digital Academies

Denmark, Singapore, and the UAE have been active in developing digital academies to train their public officers in digital skills. This box provides an overview of how each country has been utilising and deploying its digital academy.

**Denmark** has been focusing on enhancing the digital capabilities of its public sector workforce through initiatives like the Digital Academy. The Digital Academy offers a range of training programmes and courses aimed at upskilling public servants, particularly those in senior leadership, in areas such as data analytics, cybersecurity, digital project management, and digital service design. These programmes are designed to equip civil servants with the necessary skills to effectively utilise digital technologies in delivering public services and driving digitalisation across government agencies.

Denmark’s approach uniquely emphasises a holistic and inclusive learning environment. The Digital Academy adopts a learner-centric approach, providing public officers with flexible learning pathways that cater to their individual learning preferences and career aspirations – particularly important for senior civil servants. Whether through online modules, workshops, or collaborative projects, public servants have the opportunity to acquire new digital skills and knowledge in ways that are both engaging and practical.

Denmark’s Digital Academy fosters a culture of continuous learning and innovation within the public sector. Recognising that digitalisation is an ongoing journey, the academy encourages public officers to embrace a growth mindset and stay abreast of the latest technological advancements and best practices. Through initiatives such as peer learning networks, innovation labs, and cross-agency collaborations, the Digital Academy empowers public servants to acquire confidence in an unstable global environment, drive digital innovation and contribute meaningfully to the country’s overall digital agenda.

Denmark’s Digital Academy serves as a catalyst for building a future-ready public sector workforce capable of navigating the complexities of the digital age, as well as the broader macro trends interacting with digitalisation. By investing in digital skills development and fostering a culture of lifelong learning, Denmark is not only equipping its public officers with the tools they need to succeed in a rapidly evolving digital landscape but also positioning itself as a global leader in digital governance and service delivery.

In **Singapore**, the Government Technology Agency of Singapore (GovTech) leads digital government initiatives by spearheading digital transformation efforts within the public sector, aiming to enhance the lives of citizens and businesses in Singapore. Recognising the crucial role of public service officers and leaders in this evolving tech landscape, the government is committed to equipping them with essential digital and technological capabilities. The GovTech Digital Academy, a unit under GovTech, serves as a central hub for digital learning and development initiatives within the public sector. It offers a diverse range of digital training programmes and resources tailored to the specific roles and responsibilities of public officers, covering various aspects of digitalisation.

The academy provides both online and in-person courses, workshops, and seminars, allowing public officers to choose the learning format that best suits their preferences and schedules. It follows a ‘Practitioner for Practitioner’ philosophy, curating programmes by GovTech subject matter experts and industry leaders for tech public service officers. Emphasising hands-on,
practical learning experiences, its programmes enable participants to apply newly acquired knowledge directly at the workplace, maximising their impact.

Public officers have the opportunity to participate in immersive learning sessions, hackathons, and innovation challenges, fostering a culture of innovation and collaboration within the public sector. Additionally, GovTech Digital Academy serves as a platform for knowledge sharing and collaboration among public officers across different government agencies, facilitating peer-to-peer learning and cross-agency collaboration.

While the Digital Academy targets officials who work primarily on digitalisation, the Singapore Civil Service College (CSC) offers more broad-based digital skills training covering a wide range of topics, including data analytics, artificial intelligence, cybersecurity, and digital governance. The training is conducted via workshops, seminars, and online courses. Through these programmes, CSC provides public officers at large with opportunities to acquire new digital skills and stay updated on how the latest technological advancements are connected to broader economic and social developments.

The UAE has been investing heavily in building a future-ready workforce equipped with digital skills to drive the country’s digitalisation agenda. Initiatives such as the Mohammed bin Rashid School of Government (MBRSIG) and the UAE Government Leaders programme (UAE GLP) offer training programmes for public sector employees, each with a strong digitalisation component and focus on how digital technology is embedded in broader geostrategic trends. These programmes focus on areas such as digital leadership, emerging technologies, data-driven decision-making, and digital service delivery. The MBRSG and UAE GLP aim to empower government officials with the knowledge and skills needed to harness the potential of digital technologies in delivering innovative and human-centric public services.

The UAE’s commitment to digital skills development extends beyond traditional training programmes. The government has also established innovation hubs, incubators, and collaborative platforms where public officers can experiment with cutting-edge technologies, collaborate on innovative projects, engage in on-the-job training and share best practices. This ecosystem of innovation and learning not only accelerates the adoption of digital technologies but also aims to foster a broader culture of creativity, entrepreneurship, and collaboration within the public sector.

The UAE’s investment in digital skills development stems from a desire to build a knowledge-based economy and a future-ready workforce capable of driving sustainable growth and prosperity.
Box 2.5 - Human-Centred Design (HCD)

The **Kenya** School of Government is a statutory board with the mandate to “enhance knowledge, skills, and competencies of public officials and thereby transform the Public Service into an efficient, innovative, and expert agency in national leadership and management, policy making and implementation, service delivery, and public engagement”.[25] Their training programmes include human-centred design for government officials, which cover topics such as empathetic user research, prototyping, and iterative design processes. Additionally, initiatives like the Kenya Open Data Initiative (KODI) promote the use of open data in designing human-centric services, fostering a culture of user-centred innovation within government agencies.

**Japan** has been integrating human-centred design methodologies into its governmental agencies to improve engagement and satisfaction. The Japan Innovation Network (JIN) conducts workshops and seminars on design thinking and user research techniques for public servants. The Digital Agency of Japan collaborates with private design firms to train government staff in user experience and user interface (UX/UI) design, accessibility, and user testing methodologies.

Various federal agencies have embraced human-centred design as part of their efforts to improve people engagement and service delivery. The **USA** Digital Service and 18F, housed within the General Services Administration, offer training programmes, toolkits, and resources to government employees on HCD methodologies. Additionally, initiatives like the Presidential Innovation Fellows programme draw in private sector expertise to drive innovation and user-centric approaches within government agencies, including those dealing with technology, like the Department of Commerce and its component agencies.

The **UK** government established the Government Digital Service (GDS) to lead digitalisation efforts across departments. GDS provides training and support to civil servants through programmes like the Digital Academy, which offers courses on user research, service design, and agile methodologies. Moreover, the UK’s Service Standard mandates that government services must be developed using a human-centred approach, ensuring that such principles are integrated into the delivery of public services.

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Conclusion

Strong public sector system enablers are indispensable for advancing the agenda of digital inclusion. Through concerted efforts to strengthen these system enablers, governments can unlock the full potential of digital technologies to drive economic growth, empower people, foster greater social inclusion and ensure proactive responses to the challenges of global volatility.

Such integrated approaches are especially critical given the cross-cutting nature of emerging challenges like debt burdens, ageing populations, evolving manifestations of poverty and climate, and other macro-strategic trends that place greater demands on governments and require them to deliver more with fewer resources. Equally important is the need for governments to focus on marginalised groups with complex intersectional identities that will need tailored support beyond broad-brush categories, as noted several times in this chapter.

In most instances, government intervention alone is necessary but insufficient; empowered people, businesses and civil society play equally important roles as developers and providers of solutions. The importance of such multi-stakeholder approaches is taken up in Chapter 3.

KEY TAKEAWAYS

• Establish a clear national vision and strategy for inclusive digitalisation, which helps align different stakeholders toward a common direction.
• Dismantle silos to harness effective collaboration across government agencies and sectors to achieve successful digital inclusion initiatives.
• Ensure lifelong development of digital skills and capabilities within the workforce and society at large.
• Develop digital skills within government agencies, including technical skills for experts and functional digital skills for all.
• Ensure “inclusive by design” digital public services that are accessible to everyone, regardless of how digitally savvy they might be, with little or no instruction.
• Make use of rapid prototyping, beta testing, pilot projects, and sandboxing to test innovative digital inclusion solutions before scaling up implementation.
• Foster digital leadership by articulating clear visions, mobilising resources, aligning initiatives with goals, and promoting international cooperation to set ethical standards in digital development.
• Revamp government procurement to emphasise flexibility, scalability, and risk assessment in digital tools, adapting to rapid technological changes and diverse user needs.
Governments play a pivotal role in facilitating digital inclusion efforts, as shown in Chapter Two, but broader and whole-of-society digital transformation needs to tap into the power and potential of different sectors: the public and private sectors, and civil society. The loops of rich mutual collaboration and feedback among the stakeholders in these sectors are key ingredients for digital inclusion efforts to be comprehensive, sustainable and dynamically evolving alongside ever-present technological developments and broader macro trends.

This chapter examines the potential roles for people, businesses and civil society organisations in organising, streamlining and where necessary redefining these acts of daily living.

The Power of People

People play an important and complementary role to government efforts, each forming a distinct part of a complex whole. Through platforms for individual engagement and participation, discussions on technology are democratised and individuals have both the literacy and the platforms to voice their needs and concerns, as well as engage in broader debates and discussions about how technology and other trends impact aspects of their lives. Approaches like people-centred design, participatory budgeting, deliberative polling as well as public education through MOOCs and other modalities, give individuals the voice and vocabulary to ensure that businesses create products and services that serve genuine consumer and community needs, and governments continually refine their technology offerings and service delivery to serve people’s needs.

Moreover, individuals can actively contribute to digital inclusion by leveraging their personal experiences, skills and knowledge to bridge the digital divide within their communities. Harnessing the power of individuals is at the heart of Japan’s Society 5.0 to build a “human-centred society” where advancements in the digital space are compatible with societal values and well-being. Likewise, the government of Denmark has made it a priority to consistently communicate with people on the importance of digital inclusion, using a range of creative tools, while the Singaporean government has introduced structured
Box 3.1 – People Engagement and Centricity

Japan’s Society 5.0 vision outlines a human-centred approach to technological advancement, aiming to create a digitally inclusive community and economy. It prioritises the safety, well-being, and personal fulfilment of individuals, fostering a community that values technological innovation, intergenerational respect, and the potential of each individual. It also prioritises the empowerment of individuals, recognizing their crucial role in shaping a technology-driven future.

To ensure inclusivity, Society 5.0 heavily emphasises people consultation throughout the development and implementation of digital solutions. This participatory approach ensures that human-centred values are incorporated, fostering a sense of ownership amongst individuals, encouraging them to actively contribute to the digital economy and society. By collaborating with its people, Japan aims to ensure that technology serves the needs of all, leaving no one behind in the digital transformation.

Initiatives like user-friendly interfaces, subsidised digital devices for low-income families, and digital literacy programs to bridge digital divide for segments like the elderly, help to ensure everyone can participate in the digital economy. By equipping individuals with the skills and tools they need, Society 5.0 empowers them to contribute and thrive.

programmes and platforms to engage individuals on their views and perspectives, including on digital issues (Box 3.1). Such clear communication, regular consultation and engagement, all important measures to increase transparency and accountability, are particularly critical to deal with emerging trust deficits faced by multiple governments. They can be complemented by other modalities, including open data initiatives and participatory data collection where individuals generate data about their own needs and experiences on digital platforms. These measures are critical to building or rebuilding trust, ensuring that digital inclusion efforts are responsive to people’s needs, fostering a sense of co-ownership, and tailoring solutions to individuals’ lived experiences.
The Danish government, particularly through the Ministry for Digitalisation and Gender Equality, employs a multifaceted approach using various communication tools to promote digital inclusion among individuals.

» Posters and Ads

The government designs posters and advertisements that are displayed in public spaces, such as libraries, community centres, and government offices, as well as online platforms and social media channels. These materials often highlight the importance of digital skills and access to technology, encouraging individuals to participate in digital literacy programmes and utilise online services. They feature diverse and inclusive imagery to resonate with different segments of the population.

» Animated Films

Three animated films guide people challenged by digitisation through the digital solutions MitID, Digital Post and NemSMS. The animations focus on situations from everyday life and use common situations to highlight the advantages of using MitID, Digital Post and NemSMS. The videos can be found at the Danish Ministry of Digitalisation and Gender Equality website26.

» Websites

The Ministry for Digitalisation and Gender Equality maintains dedicated web resources and information on digital inclusion initiatives. These serve as central hubs where people can find information about digital skills training programmes, online resources, and support services available to them. They also feature interactive tools, such as self-assessment quizzes or tutorials, to help individuals assess their digital proficiency and access relevant training materials - a subtle reminder of the need for constant re- and up-skilling in a challenging global macro environment.

By leveraging a combination of creative communications platforms, the Danish government aims to reach a broad audience and foster greater digital inclusion among the Danish, thereby empowering individuals to fully participate in the digital society and economy.

Recognising the value of diverse citizen perspectives, the Singapore government has been actively engaging citizens in policy making and policy delivery through various initiatives. National-level initiatives such as Our Singapore Conversations (2012), Singapore Together (2019) and the Emerging Stronger Conversations (2020) were organised to gather citizens’ views on the country’s needs and aspirations. As these dialogues evolved, the Singapore Government also shifted its approach from consulting citizens to also galvanising them to co-deliver and co-create solutions with the Government.

Beyond large-scale engagement exercises, various modalities and platforms have also been utilised to engage citizens:

» Newspapers and Other Print Media

The government publishes articles, op-eds, and advertorials in newspapers and other print media outlets to raise awareness about digital inclusion issues and initiatives. These publications cover a range of topics, including how to overcome the digital divide, the benefits of digital literacy, and success stories of individuals who have improved their lives through technology. They also provide practical tips and advice on staying safe online and navigating digital platforms effectively.

» REACH (Reaching Everyone for Active Citizenry@Home)

REACH is the Singapore government’s feedback and engagement unit. It utilises both digital and non-digital channels, including its website, social media platforms, messaging platforms like WhatsApp and Telegram, and regular dialogues to gather public feedback on policies, programmes, and national issues. REACH facilitates two-way communication between the government and citizens, ensuring that policies reflect the needs and aspirations of the people. Digital innovations included the development of engagement through WhatsApp and Telegram channels during the COVID-19 pandemic, to ensure that physical contact was minimised in line with safe distancing measures while also reaching a broad cross-section of Singapore society. REACH has actively facilitated conversations on digital inclusion programmes, such as the ‘Emerging Stronger Conversation on Digital Readiness’ in 2020, which brought together diverse community members to generate suggestions and feedback on making Singapore more digitally ready and inclusive as it emerged from COVID-19.
» Citizens’ Panels and Consultations

The government often convenes citizens’ panels and consultations on specific policy issues to gather in-depth feedback from diverse segments of society. These panels may comprise randomly selected citizens or individuals representing different demographics, providing valuable insights into public sentiment and preferences. Topics have included several on digital themes, including the skills needed for the digital economy and how to support children in rapidly digitalising learning environments, even as parents themselves navigate workplaces with increasingly digital facets.

» Digital Platforms and Apps

The government has increasingly leveraged digital platforms and mobile apps to engage citizens in policy discussions and decision-making processes. These platforms provide convenient avenues for citizens to participate in surveys, polls, and discussions on various policy matters from their smartphones or computers. For instance, REACH partners with various popular mobile apps like Singpass, DBS Paylah! (a digital payment platform managed by the Development Bank of Singapore) and Shopback to conduct “e-Listening Points” (online surveys) on national policies and issues, including online scams, digitalisation and cybersecurity that relate to digital inclusion.

» Community Outreach

Several efforts involve taking digital education and awareness-building initiatives to local communities, or “heartlands” as they are often known in Singapore. One of the most popular examples with citizens was the Smart Nation Builder, a 12m-long truck fitted with interactive game stations for members of the public to learn more about Singapore’s tech initiatives and digital government services. It was also a platform for citizens to provide inputs and feedback on how to improve the government’s products and services, and to be among first users of prototypes for new products and services.

Photo: GovTech Singapore
Businesses - Private Sector, Public Value

Businesses are vital in advancing national digital inclusion objectives. With their expertise, as well as ownership of critical hardware and software, and developing digital products and services to drive further digital adoption and uptake, businesses bring innovative solutions to the table. By investing in inclusive products and services, as well as conducting training on how different products can be used, they expand access to digital technologies and bridge existing gaps. Businesses are also often the most familiar of all the sectors with cutting-edge innovation. They often also enjoy unique reach into local communities, drawing on customer and product user bases that are unavailable to either governments or civil society groups.

In addition, the private sector can provide funds and infrastructure through shared value and taxation. Universal Service Funds are one model where private sector telecommunications firms are required to contribute a percentage of their revenues (through taxes) into funds specifically dedicated to supporting digital capacity-building needs and expanding connectivity in underserved areas. Similarly, governments can use broader tax revenues or other fiscal sources to provide incentives and subsidies to private companies to mobilise investment in areas that are less commercially-feasible. Brazil’s Computers for All programme, Peru’s National Telecommunications Program and Chile’s Telecommunication Development Fund are examples of how such policy initiatives can be impactful to harness the private sector in providing essential digital services and lead to significant cross-economy multipliers (see Box 3.2).

Some of the best examples of private-sector-led digital inclusion have hardwired closing the digital divide into the firms’ DNA and core business, and not simply treated it as an afterthought. Singapore’s ride-sharing and food delivery company Grab has worked with persons with disabilities to support them in using digital tools for their livelihoods, while the China Mobile telecommunication company has been deploying expertise to launch impactful initiatives that foster digitally inclusive societies. See Box 3.3 for these examples.

These unique advantages allow businesses to be crucial parts of the global response to emerging trends and challenges, even as they pursue profit incentives. For instance, in the realm of renewable energy, integrating digital technologies can aid the transition to renewable energy through smart grids and energy management systems, as well as data analytics for optimising renewable energy production and consumption. In healthcare, firms can combine digital technologies with health and environmental monitoring, offering better access to health services through telemedicine and using digital tools for environmental conservation and sustainable resource management. When dealing with migration and attendant demographic disruptions, language translation tools can facilitate real-time translation powered by AI, to break down language barriers and facilitate communication for non-native speakers. Adaptive learning platforms can also deploy AI-driven educational tools that personalise learning paths based on individual needs and abilities, ensuring that everyone – including displaced populations – enjoy equal access to quality education.

Technology companies are also crucial in promoting information integrity in the digital space. Content curation and moderation continue to be important measures to protect the public from extreme, violent, or clearly harmful content. There could also be value in structural changes, such as improving enforcement of policies, greater risk monitoring (considering diverse contexts and languages), transparency with users, equitable access to data for researchers, journalists and others, partnerships with fact-checking organisations, a human rights and public interest based approach to algorithm and product
design, internal oversight frameworks and mechanisms, deep fake detection and labelling tools and capabilities, as well as industry collaborations.

At the same time, the range of online harms and risks that can emerge from digital products is making it increasingly clear that businesses must operate within a framework of clear, stable and predictable rules established by governments to prevent the risk of private sector capture. When they adhere to ethical guidelines and promote responsible business practices, businesses can contribute positively to digital inclusion efforts while ensuring accountability and transparency. This is particularly true when corporate incentives are complemented along ESG lines to encompass societal responsibility.

Singapore’s Online Safety Code of Practice and “Digital for Life” movement showcase how partners from the private, people and public sectors can collaborate for digital inclusion programmes. Refer to Box 3.4.
Box 3.2 - Policies to Harness Private Sector

The “Computers for All” programme was launched by the Brazilian government to enhance digital inclusion across the country. The programme aims to provide affordable computers to low-income families, thereby increasing their access to information, communication, and educational resources. Evaluations of the programme since the early 2000s point to its greater potential, but also note that it is an important starting point and foundation that can be built upon.

» Subsidised Computer Distribution

The government collaborates with manufacturers to offer subsidised or low-cost computers to families with limited financial means. These computers typically come equipped with essential software and hardware to facilitate basic computing tasks that are increasingly fundamental to aspects of daily living (identification, authentication, transactions, communications and learning). Provisions are regularly reviewed to keep pace with dynamically evolving technology.

» Public-Private Partnerships

The programme involves partnerships with private sector companies involved in computer manufacturing, distribution, and technology services. These partnerships helped leverage resources, local business knowledge and networks, as well as expertise to reach a larger number of beneficiaries than would have been possible by the public sector alone.

» Education and Training

In addition to providing computers, the programme includes initiatives to promote digital literacy and provide training on how to effectively use computers and the internet. This aspect aims to empower users with the necessary skills to fully benefit from the technology, and programmes are reviewed regularly to ensure relevance even as technology evolves.

Accessibility Considerations

A key priority has been to ensure that the computers provided through the programme are accessible to individuals with disabilities, thereby promoting inclusion for all segments of the population.

Rural and Remote Areas

Special attention has been given to reaching underserved rural and remote areas, where access to digital technology and internet connectivity may be limited. By targeting these areas, the programme aims to bridge the digital divide between urban and rural populations.

Monitoring and Evaluation

The government included mechanisms to monitor the impact of the programme and evaluate its effectiveness in promoting digital inclusion. This would involve tracking metrics such as the number of computers distributed, the demographic profile of beneficiaries, and improvements in access to digital resources and opportunities.

Universal Service Fund

Commercial telecom operators contribute a percentage of their revenues to a fund specifically designed to finance connectivity projects in areas deemed commercially unviable.

Subsidies

PRONATEL uses these funds to subsidise the cost of infrastructure development and service provision in rural communities. This makes it more attractive for private operators to invest in these areas.

Peru has made significant strides in advancing digital inclusion through a collaborative model involving the government, the private sector, and civil society. One key initiative is the National Telecommunications Program (PRONATEL), which uses a combination of strategies to expand connectivity to underserved rural areas.
A prime example of this collaboration is the work of the Rural Telecommunications Group (GTR). This project, carried out by the Pontifical Catholic University of Peru, in coordination with the EHAS Foundation, and Hispanic American Linkage on Health, has overcome complex geographical challenges to bring internet access to remote communities.

The connectivity established by GTR has been instrumental in providing essential e-health services:

» Remote Diagnosis

Medical staff in rural clinics can now transmit vital data (stethoscope readings, microscope images, sonograms) to specialists in urban centres, facilitating accurate diagnoses and timely treatment plans.

» Collaborative Treatment

The infrastructure enables rural healthcare workers to carry out complex medical procedures under the virtual guidance of specialists, significantly improving the quality of care available in these communities.

» Accessibility and Efficiency

User-friendly telemedicine interfaces and low-maintenance equipment ensure that local staff can operate the systems effectively, minimising technical barriers.

Managed by the Undersecretary of Telecommunication, the Telecommunication Development Fund policy initiative addressed the urban-rural digital divide:

» Overcoming Geographic Barriers

Recognizing Chile’s diverse and challenging terrain, the FDT specifically targets infrastructure expansion in remote rural areas with limited commercial appeal for telecom companies.
» **Targeted Subsidies**

The fund offers subsidies to offset the higher deployment costs in these areas. This incentivizes providers to extend coverage without passing excessive costs on to rural consumers. The goal is to ensure connectivity costs in rural areas remain on par with urban centres.

» **Technological Flexibility**

While promoting various connectivity solutions (fixed, fibre-optic, mobile broadband), much of the expansion has been achieved through mobile broadband infrastructure, well-suited to Chile’s geography.

» **The “All Chile Connected” Program**

This flagship initiative under the FDT has brought 3G/4G mobile connectivity to over 2000 underserved communities since 2010.

**Impact**

» **Increased Coverage**

Mobile internet access and geographic reach have significantly expanded nationwide as a direct result of the FDT.

» **Shrinking Digital Divide**

The gap in connectivity between urban and rural areas has steadily decreased in recent years, demonstrating the program’s effectiveness.
Grab, Southeast Asia’s leading ‘superapp,’ goes beyond traditional ride-hailing and food-delivery to address the unique digital inclusion needs of persons with disabilities. They recognize that access to digital platforms can be transformative for these persons, creating flexible income-generating opportunities, and enhancing overall independence.

**» GrabForGood**

This umbrella initiative encompasses Grab’s various programs to empower disadvantaged communities, including people with disabilities. Partnerships with local organisations are crucial to ensure their offerings are tailored to the needs of this diverse group.

**» Driver Training & Inclusion**

Grab actively recruits persons with disability as drivers, providing specialised training to overcome potential barriers. One of the notable programs is ‘Break the Silence,’ which targets the deaf and hard-of-hearing community. This initiative began by improving communication features within the Grab app, ensuring that drivers and passengers who are deaf or hard of hearing can interact more effectively. For instance, Grab introduced in-app notifications to alert passengers when their driver is deaf, enhancing communication clarity. This initiative has expanded to support a broader range of disabilities, including physical impairments, by providing customised training to drivers on how to assist passengers with special needs. Their app offers features like in-app text chat, allowing communication options for drivers with hearing impairments. This promotes equal access to earning potential for persons with disabilities within the Grab ecosystem.

**» Beyond Just Driving**

While driver recruitment is important, Grab recognizes the varied skills that persons with disabilities possess. They offer opportunities to sell products through GrabMart, providing an alternative income stream. Furthermore, they partner with organisations supporting businesses run by persons with disabilities, helping them list their products and services on the Grab platform, thereby significantly expanding their market reach. They have also featured other merchants on their GrabFood and GrabPay platforms, helping to increase the visibility and reach of these businesses. This not only supports the economic empowerment of people with disabilities but also fosters a more inclusive community within the digital economy.
These initiatives extend beyond corporate social responsibility. By closing the digital divide, they unlock the potential of underserved populations, contributing to more inclusive and resilient economies.

China Mobile has implemented impactful initiatives designed to enhance digital inclusion, focusing on ensuring that all segments of society have the opportunity to participate in the digital economy and society. Their strategies primarily target rural and impoverished areas, deploying technology to bridge the digital divide and foster equitable access to digital resources.

A cornerstone of China Mobile’s digital inclusion efforts is the “Network+” poverty alleviation program. Since its inception in 2002, the program has focused on integrating telecommunications infrastructure with essential social services, promoting digital literacy and access in over 1,800 rural communities. This initiative has been pivotal in providing digital access to underserved populations, which is fundamental in enabling their participation in the digital economy.

One of the key achievements of China Mobile has been its substantial investment in telecommunications infrastructure to improve the optical fibre access rate and expand 4G coverage in administrative villages. By 2020, more than 98% of these villages had access to 4G networks, significantly enhancing residents’ ability to connect to the internet and access digital services. This infrastructure development has been crucial in reducing the application gap, allowing residents in rural areas to participate in the digital world on more equal footing with urban populations.

Furthermore, China Mobile has innovated in customised digital solutions aimed at poverty alleviation. For example, in Jiangxi Province, the company generated individualised communication service codes for 2.85 million registered poor households. These codes facilitated access to preferential policies and digital services, directly supporting economic participation by enabling easier access to information and government services.

In education, China Mobile has been active in combating the intergenerational transmission of poverty through digital platforms. The company has supported online education by developing comprehensive digital content services, which have channelled high-quality educational resources to the countryside. Initiatives like the “2020 New Era Reading Season in Rural Areas” have promoted digital literacy by providing access to digital libraries and reading materials, thus fostering a digitally inclusive educational environment.
China Mobile’s efforts in promoting digital inclusion are encapsulated in their comprehensive approach to integrating ICT solutions with community development needs. By providing infrastructure, customised digital tools, and educational resources, China Mobile ensures that disadvantaged groups are not left behind in the rapidly evolving digital society. Their initiatives are a testament to the role of telecommunication companies in advancing digital inclusivity, demonstrating a commitment to ensuring that everyone has the opportunity to participate in and benefit from the digital economy.

**Box 3.4 Private, People and Public Collaboration**

Singapore adopts a consultative, outcomes-based approach to industry regulation to ensure a safe and inclusive digital society. For example, the Code of Practice for Online Safety (“Online Safety Code”), launched in 2023, requires designated Social Media Services (“DSMSs”) to enhance online safety in Singapore by putting measures in place to reduce risks from harmful social media content to Singapore users. IMDA has taken a multi-pronged approach to developing and refining the Online Safety Code, which includes extensive consultation with various stakeholders, such as the public, academics, and industry, to understand public concerns and operational considerations. In particular, the DSMSs were engaged extensively and were invited to submit formal responses to the Online Safety Code. IMDA will continue to work closely with DSMSs to enhance Singapore’s Online Safety.

Similarly, building an inclusive digital society is seen by the government as a shared responsibility. With this in mind, Singapore launched the Digital for Life movement in 2021 to mobilise partners from the private, people and public (“3P”) sectors to (i) help all Singaporeans embrace digital as a lifelong pursuit and (ii) enrich their lives through digital technologies. Since its inception, over 140 partners have kickstarted ground-up initiatives. These include equipping vulnerable groups like the lower-income, seniors and hawkers (food centre stallholders) with digital skills, and promoting digital wellness among youth and the community. More than 270,000 beneficiaries have benefited from these initiatives.

Through the national movement, partners can provide expertise, content, volunteers or make donations. IMDA also supports ground-up projects by providing resources and funding to
support 3P partners in their programme development and execution. Potential 3P entities requiring funding for community projects and activities aligned to the DfL objectives can tap on the DfL Fund. Together, that seeks to ensure continued and sustainable impact to society.

Under the banner of the DfL movement, IMDA also collaborates with businesses to develop resources in line with the DSL framework (previously introduced in Box 2.3 above). The DSL framework also serves as a guide for industry and community partners to develop learner-centric resources for Singaporeans.

Project by Microsoft, Society for Physically Disabled and SG Enable to train Persons with Disabilities in digital skills.

A project supported by the Digital for Life fund under the “I Wish U Enough” movement to support families with digital access Image: South Central Committee Family Service Centre
IMDA also worked together with over 130 partners spanning private organisations, the public sector and community to bring the DfL movement into the community via the DfL Festival. Through interactive experiences and workshops at the festival, Singaporeans were able to gain new digital knowledge, pick up digital skills, and learn about emerging technology. The festival is typically held in residential rather than commercial locations, closer to the community. In 2023, the festival attracted more than 46,000 people.
Civil Society Organisations - Balancing Passion and Pragmatism

Civil society organisations (CSOs) represent another critical component of the multi-stakeholder ecosystem for digital inclusion. These organisations often possess invaluable insights into, and both the incentives and capacity to advocate for and defend, local conditions and community-specific needs. This makes them particularly well-positioned to drive targeted interventions. The "Liga Inan" (Connecting Mothers) project in Timor-Leste was launched by Catalpa International and the Health Alliance International to provide mobile health (mHealth) services to expectant and new mothers, while Paradigm Initiative is driving important works to achieve greater digital inclusion for youths in Nigeria as well as across Africa (see Box 3.5).

Moreover, CSOs often possess specialised skills and competencies to address the unique challenges faced by marginalised groups in particular communities – a particularly critical capability for communities with intersectional identities and complex, overlapping needs. By leveraging their grassroots networks and deep social capital within communities, CSOs can facilitate both the conceptualisation and effective, lasting implementation of digital inclusion programmes and initiatives. The examples highlighted in the following boxes show how different CSOs and their capabilities can be leveraged for community-wide benefit, across different geographies.

In the same spirit, mechanisms for regular, meaningful consultation of civil society should be established, sustained and nourished across all levels of government. Meaningful commitments to digital inclusion will also involve ensuring that CSOs have the necessary resources, expertise and opportunities to engage and advocate, rather than only consulted when needed by the government. Such capacity-building for CSOs could also include ensuring that they are ready and able to participate in local, national, and international fora where digital issues are discussed, to facilitate cross-fertilisation of learning and policy transfer. For instance, CGIAR and the Australian Digital Inclusion Alliance (ADIA) have established long standing collaborations with government entities as well as non-governmental organisations, private sector entities, and other stakeholders leading to impactful digital programmes tailored to local communities. Refer to box 3.6.

CSOs can also play a role in maintaining the information integrity of the digital space through ground-up initiatives to identify and counter information pollution, protect and empower historically marginalised groups in online spaces, and advocate for evidence-based, human-rights focused policies. For instance, Full Fact, a UK-based charity, comprises a team of independent fact checkers that review and challenge misleading claims, including viral content online, as well as developing tools and resources to tackle the issue at scale.

Photo: UNDP Chief Digital Office
Box 3.5 - Targeted Interventions driven by CSOs

The Liga Inan project in Timor Leste has played a crucial role in leveraging technology in improving maternal and child healthcare services, drawing on a range of novel technological approaches:

» Mobile Technology

Liga Inan utilises mobile technology, including smartphones, to connect pregnant mothers with midwives and other healthcare providers. Through mobile applications or text messaging services, pregnant women can receive important information about prenatal care, childbirth, and postnatal care directly on their phones. This accessibility ensures that even women in remote areas without access to traditional healthcare facilities can receive essential guidance and support.

» Telemedicine and Remote Consultations

The project facilitates telemedicine and remote consultations between pregnant women and healthcare providers. Through video calls or chat platforms, women can consult with midwives or doctors, ask questions, and receive medical advice without needing to travel long distances to healthcare facilities. This not only improves access to healthcare services but also reduces the multidimensional barriers faced by women living in rural or isolated areas, which is a key consideration given Timor Leste’s geography.

» Data Collection and Monitoring

Liga Inan utilises technology for data collection and monitoring of maternal and child health indicators. By collecting data through mobile applications or digital platforms, the project can track the progress of pregnancies, monitor health outcomes, and identify areas that require additional support or intervention. This data-driven approach enables more evidence-based and effective decision-making and resource allocation to improve maternal and child health outcomes.
The Liga Inan project in Timor Leste has played a crucial role in leveraging technology in improving maternal and child healthcare services, drawing on a range of novel technological approaches:

**Health Education and Awareness**

Technology is used to disseminate health education and awareness materials to pregnant women and their families. Through mobile applications, particularly SMS, educational content on topics such as nutrition, prenatal care, breastfeeding, and newborn care is made accessible to women, empowering them to make informed decisions about their health and the health of their babies - using the most updated information as well as sufficiently updated technological platforms that have been customised to the needs of the local community.

The Paradigm Initiative in Nigeria is achieving greater digital inclusion for youths through several key initiatives and programmes:

**Digital Inclusion programmes**

The Paradigm Initiative runs programmes aimed at equipping young people with digital skills and knowledge, including aspects such as coding, digital literacy, and entrepreneurship in the digital space. The programmes target underserved communities for whom access to digital resources may be limited, and whose constraints often intersect with broader dimensions of social and economic marginalisation.

**Tech Hubs and Innovation Spaces**

The organisation supports the establishment and operation of tech hubs and innovation spaces across Nigeria. These hubs serve as centres for learning, collaboration, and innovation, providing youths with access to technology, mentorship, networking opportunities and opportunities to learn how technology and other adjacent trends are evolving. By fostering a conducive environment for creativity and learning, these hubs contribute to digital inclusion by enabling youths to develop skills and pursue entrepreneurial ventures in the digital space.
» Advocacy and Policy Engagement

Paradigm Initiative engages in advocacy efforts to promote policies that facilitate digital inclusion and access to technology for youths. Staff and volunteers for the initiative work with government agencies, policymakers, and other stakeholders to advocate for policies that support affordable internet access, digital literacy initiatives, and the development of a conducive regulatory environment for technology innovation. By influencing policy decisions, they aim to address systemic barriers to digital inclusion and create an enabling environment for youths to thrive in both the digital and broader economy.

» Digital Rights Advocacy

In addition to promoting access to technology, Paradigm Initiative advocates for digital rights and online freedom. They raise awareness about internet freedom, privacy rights, and cybersecurity issues, particularly among young people. By empowering youths to understand their digital rights and advocate for a free and open internet, they contribute to creating an inclusive digital ecosystem where all individuals can safely and securely participate in the digital world.

Box 3.6 CSOs in Broader Partnerships

CGIAR, originally the Consultative Group for International Agricultural Research, has taken steps to promote digital inclusion while advancing its core mission of advancing agricultural science and innovation for development, particularly among lower income communities and women in less developed countries.

1. Research and Development: CGIAR supports research and development projects that leverage digital technologies to address challenges faced by smallholder farmers and marginalised communities. This includes projects focused on developing digital tools for weather forecasting, crop monitoring, pest management, and soil health assessment, among others. This initiative has been particularly critical since there has often been a shortage of rigorous research and development that is directly applicable to developing country contexts, as noted in the trends outlined in Chapter 1.
2. Capacity Building: CGIAR invests in capacity building programmes to equip farmers, extension workers, and other stakeholders with the necessary skills to effectively use digital tools and technologies. Training programmes cover topics such as smartphone usage, data collection and analysis, and the interpretation of digital agricultural information. “Champion farmers”, who have already bought into and experimented with digital technologies, are highlighted as role models and share learning with peers, leveraging on their credibility and familiarity with local contexts.

3. Partnerships: CGIAR collaborates with governments, non-governmental organisations, private sector entities, and other stakeholders to promote digital inclusion in agriculture. By leveraging partnerships in multi-stakeholder ecosystems, CGIAR reaches a broader audience and scales up digital initiatives more effectively, as well as taps into multiple perspectives on the many trends it faces, both technological and otherwise.

4. Women’s Participation: CGIAR places a strong emphasis on broad-based participation across genders in its digital inclusion efforts. This includes ensuring that women have equal access to digital technologies, participation in training programmes, and opportunities to benefit from digital agricultural innovations. Success cases are held up as trusted role models to inspire successive innovation, a key counterpoint to the gender inequalities outlined in Chapter 1.

5. Open Data and Knowledge Sharing: CGIAR promotes open data and knowledge sharing to foster innovation and collaboration in the agricultural sector. By making agricultural data and digital tools accessible to a wide range of stakeholders, including smallholder farmers and women, CGIAR helps to democratise access to information and ensure broad-based participation in discussions about technology and its interaction with broader macro trends, including those mentioned in Chapter 1.

6. User-centred Design: CGIAR adopts a user-centred design approach to develop digital tools and technologies that are tailored to the needs and preferences of smallholder farmers and marginalised communities. This involves engaging with end-users throughout the design and development process to ensure that digital solutions are relevant, usable, and accessible – similar to the governments adopting such approaches (see Box 2.11).

Overall, CGIAR is committed to leveraging digital technologies to promote inclusive and sustainable agricultural development. CGIAR aims to empower smallholder farmers and marginalised communities to harness the potential of digital innovation for improved livelihoods and food security.
The Australian Digital Inclusion Alliance (ADIA) spearheads a collaborative effort, uniting over 500 diverse organisations, to ensure everyone in Australia can fully participate in the digital landscape. Their vision centres on an inclusive digital society where all individuals, regardless of background, have the resources, skills, and confidence to thrive in an increasingly online world.

The ADIA recognizes that digital inclusion encompasses more than just owning a device. It necessitates:

- **Affordable connections and devices**
  Addressing inequalities in technology access.

- **Inclusively designed content**
  Promoting accessibility for users with disabilities or diverse cultural and linguistic backgrounds.

- **Digital literacy and confidence**
  Empowering people to use online tools safely and effectively.

Supported by key players like Infoxchange, Google, and Telstra, the ADIA’s impact stems from its nationwide network of partners across various sectors. Recognizing the link between digital and social exclusion, the Alliance targets its efforts towards those most at risk: low-income individuals, seniors, people with disabilities, those in remote areas, and communities facing socioeconomic disadvantage.

The Australian Digital Inclusion Index (ADII), a cornerstone of ADIA’s work, meticulously tracks digital inclusion across the country. By analysing access, affordability, and digital ability, the Index reveals critical barriers and disparities, providing a roadmap for targeted solutions. This data-driven approach ensures that advocacy and initiatives are grounded in evidence, enabling the ADIA to effectively address the root causes of digital exclusion.

As the examples in this chapter show, collaboration among governments, people, businesses, and civil society organisations is essential to maximise the impact of digital inclusion efforts. By fostering partnerships, sharing resources and pooling expertise, stakeholders in the private and people sectors can leverage their considerable strengths and harness holistic, collaborative approaches to promote inclusivity, diversity and future readiness.
Conclusion

Chapter 3 emphasises the pivotal roles played by individuals, businesses, and civil society organisations in advancing digital inclusion. These stakeholders, in collaboration with the public sector, are instrumental in shaping a digital landscape that is inclusive and responsive to the needs of diverse communities. By fostering a synergistic environment where each sector contributes its unique strengths, we pave the way for sustainable digital inclusion strategies that are adaptable to the rapid pace of technological change and the evolving global trends.

KEY TAKEAWAYS:

- Establish frameworks, platforms and processes for public, private and people collaboration to advance digital inclusion, including safeguarding information integrity.
- Promote the expansion of open platforms where people can access, use, and contribute data, fostering transparency and innovation.
- Encourage individuals in contributing their personal experiences, skills and knowledge, while recognising community champions who lead initiatives.
- Support businesses in developing inclusive products and services, investing funds and infrastructure to support the underserved, incorporating inclusion into their core business model, and promoting responsible business practices.
- Support CSOs in driving effective and targeted interventions by leveraging their insights into local conditions and community-specific needs, as well as grassroots networks and deep social capital.
Chapter 4: Conclusions... and Beginnings

In an increasingly digitalised world, achieving digital inclusion is growing ever more imperative to ensure equitable access to life opportunities, resources, and services for all members of society. This Playbook has delved into the evolving landscape of digital inclusion, emphasising its interconnection with key global trends at the macro level, and underscoring the collaborative efforts needed from governments, businesses, people, and civil society organisations.

Chapter 1 traced the evolution of digital inclusion amidst technological advances. It explored how the concept of digital inclusion has expanded beyond mere physical and financial access to technology to encompass broader themes of digital literacy, trust and confidence. The dynamic nature of technology and its impact underscore the importance of countries continuously adapting strategies to address emerging challenges and seizing opportunities in the digital realm.

Chapter 2 focused on the critical role of the public sector as an enabler of digital inclusion. It examined initiatives, policies and organisational approaches that governments can implement to bridge the digital divide, such as the articulation of clear strategies and commitments; the creation of strong architectures for collaboration as governments play a range of regulatory, developmental and enabling roles; digital skills training programmes for both public officials and people at large. Such effective governance and strategic investments help public sector agencies to create an enabling environment conducive to fostering digital inclusion across diverse communities.

Chapter 3 underscored the importance of multi-stakeholder approaches to digital inclusion, emphasising the critical roles of people, businesses, and civil society groups and highlighting the unique contributions each makes towards inclusive digital ecosystems. By engaging in partnerships, knowledge-sharing, and resource mobilisation, stakeholders can leverage their collective expertise and resources to address systemic barriers and empower marginalised communities.

The case studies highlighted in each chapter indicate the range and depth possible in digital inclusion initiatives, if the right strategies, attention to operational detail and commitment to value-creating outcomes are in place.
Many other issues need to be studied in further depth. While this Playbook has defined digital inclusion and articulated its key multi-stakeholder enablers, one key next step involves converting these definitions into even more concrete measurements and indicators at local and national levels.

Equally critical is the need for continued vigilance in monitoring how digital inclusion continues to interact with emerging macro-strategic trends, including those outlined in Chapter 1. For instance, as digitalisation grows more pervasive in daily life, it will also influence and be influenced by the equally pervasive dimensions of the polycrisis: climate change, economic competitiveness and social inequality. The tone and tenor of the trust deficit in institutions will evolve due to changes in digital literacy, and digital trends will both shape and be shaped by new forms of exclusion, deprivation, poverty and other intersectional identities in both the digital and analogue spheres. At the same time, in different jurisdictions, disparities in developmental and debt levels will evolve due to differential scales and impacts of digitalisation, and digital trends will form feedback loops with varying levels of national R&D. Each trend could play out in varying ways, and with varying degrees of interdependence with other emerging issues.

The authors of this playbook hope that it will function as a reference point for further strategic conversations, whether in workshops for countries that are just starting on the digital inclusion journey, or discussions among those further on the path who might be seeking new inspiration and ideas (see Box 4.1). We look forward to working with national governments and other partners interested in using and adapting the material in this guidance, to continually break new ground in the critical domain of digital inclusion.
100-day Global Consultation

Following the launch of this Playbook, the UNDP Global Centre for Technology, Innovation, and Sustainable Development in Singapore will be initiating a 100-day Global Consultation that will run from June to September 2024 with the aim to generate collective insights on advancing digital inclusion in a dynamic world. The consultation process involves engaging UNDP’s network of 170 Country Offices, as well as national counterparts and practitioners across all regions from the public, private and people sectors. The collective insights will expand the breadth of strategies, considerations and case-studies on how countries can advance digital inclusion effectively across diverse contexts, as well as deepen the analyses on the implications of and interactions with the dynamic macro environment. The 100-day Global Consultation will lead to a substantively expanded and enriched Playbook that sits at the leading edge of policy and practice.

Contact us at registry.sg@undp.org to join the consultation!