GSMA

Breaking Barriers: Bridging the Digital Divide with Relevant Content, Products and Services

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Background and Context

In 2021, the GSMA released the policy brief "Accelerating mobile internet adoption Policy considerations to bridge the digital divide in low- and middle-income countries", which examined the five barriers to mobile internet adoption and use, from a policy perspective:

- **Affordability:** Inability to afford internet-enabled handsets and other costs beyond ownership such as data plans and services fees.
- **Digital literacy and skills:** Lack of awareness and understanding of mobile internet, its benefits and uses, as well as lack of literacy, digital skills and confidence.
- **Safety and security:** Concerns about the negative aspects and risks of the internet, including issues such as harassment, identity theft, harmful content and information security.
- **Relevance (outlined in the policy brief as "relevant content and services"):** Lack of relevant content, products and services that meet users' preferences and needs, including those that are accessible, easy to use and in local languages.
- **Fundamental enablers (outlined in the policy brief as "access"):** Lack of access to networks and enablers, such as electricity, formal ID, devices, customer service touch points (e.g. agents), as well as restrictive social norms.

Building on that foundation, this complementary report – Bridging the Digital Divide with Relevant Content, Products and Services – focuses specifically on the relevance barriers. It serves as a guide, translating the recommendations set out in the policy brief into practical insights and real-world examples from across regions. This report is designed to help policymakers, governments and telecom regulators turn strategy into action, by illustrating how these recommendations are being implemented in diverse global contexts.

Policy Recommendations To Advance Relevant Content, Products and Services: Framework For Action

1. Create an environment for digital businesses to thrive.
2. Assess and benchmark the digital maturity of industries and enable the digital transformation of priority sectors and SMEs.
3. Facilitate the growth of startup ecosystems by improving access to funding, training and professional services, as well as improving the ease of doing business.
4. Accelerate the digitalisation of public services by developing mobile-first strategies to deliver online services that meet user needs and capabilities and create a vision for the involvement of local authorities and stakeholders.
5. Ensure that digital public services are developed to meet the needs of women.
6. Support the development of simplified designs and accessibility features for persons with low literacy and disability.

Bridging the relevance gap in mobile internet adoption

Although lack of relevance is not always the most frequently reported barrier to mobile internet adoption and use, it continues to be a decisive factor keeping many people offline[1]. Accessible, meaningful and locally relevant content is what makes the internet useful in people's everyday lives and, without it, adoption and regular use are less likely. Relevance also shapes other key drivers, such as willingness to pay: if people do not see clear value in being connected, they are unlikely to spend scarce resources on data or devices[2]. This challenge is particularly acute for women, who in many contexts are less likely than men to perceive how mobile internet and related services can add value to their lives[3]. Similarly, in many markets there is still limited awareness of how mobile technology can empower persons with disabilities. As a result, people with disabilities, along with their families and caregivers, often perceive mobile phones and the internet as having limited usefulness or value in their daily lives[4].

In high-income countries, internet use is generally underpinned by a mature ecosystem of digital services – spanning e-commerce, online banking, government portals and local media – all offered in widely spoken national languages. As a result, the lack of suitable content is rarely identified as the main obstacle to adoption. Instead, those who remain offline are more likely to cite a lack of personal need or interest. For instance, Eurostat data show that among EU households without internet-enabled devices, 41% reported "no need" as their reason, compared to only 9% who pointed to cost[5]. Similarly, an Ofcom survey in the United Kingdom found that 69% of people who were offline said lack of interest or perceived need was their main barrier to going online[6]. These findings suggest that in advanced economies, the challenge is less about availability of content and more about ensuring accessibility, usability and understanding

1 GSMA (2024), The State of Mobile Connectivity Report 2024
2 GSMA (2024), Improving handset affordability in low and middle-income countries
3 GSMA (2022), Policy considerations to accelerate digital inclusion for women in low- and middle-income countries
4 GSMA (2025), The Mobile Disability Gap Report 2025
5 Eurostat (2023), Growing importance of internet-connected devices
6 Ofcom (2025), A demographic deep dive into internet adoption

of benefits for groups such as seniors and those with low digital confidence. Evidence from Germany and Hungary shows that many e-government portals, for example, are not designed with older users in mind. By adapting interfaces to seniors' cognitive and physical needs, governments can ensure that online services are genuinely inclusive[7].

The relevance gap in LMICs is more structural. Many of these countries are linguistically diverse, yet the vast majority of online content is concentrated in a handful of global languages. As of mid-2025, nearly half (49.2%) of all web content was in English, while widely spoken languages such as Hindi, Swahili, or Filipino accounted for only a tiny fraction of web content[8]. When local languages are absent online, large groups of people are effectively excluded from accessing public information, online education, health resources and opportunities for digital participation – reinforcing pre-existing inequalities[9]. Offering services in local languages and ensuring that popular platforms, such as social media, digital payment tools, or educational apps, are tailored to local contexts can significantly improve perceptions of relevance and boost adoption[10]. Achieving this at scale, however, requires sustained investment in the local ecosystems that create, localise and distribute content aligned with the needs of different populations. GSMA's State of Mobile Internet Connectivity 2023 report from Bangladesh, Egypt and Kenya showed that lack of perceived relevance was the top barrier holding back smartphone owners from using mobile internet[11].

A further issue is the shortage of locally-produced digital content and services that reflect people's realities, cultural contexts and daily needs. This deepens the relevance gap in many communities. Locally-created content is far more likely to resonate with users and encourage sustained internet use. At the same time, supporting local digital creators and entrepreneurs brings added economic benefits: it fosters new businesses, creates jobs and strengthens the local innovation ecosystem[12].

7 Humboldt University of Berlin (2015), Improving Usability of e-Government for the Elderly
8 W3Techs (2025), content language surveys
9 GSMA (2023), The State of Mobile Connectivity Report 2023
10 GSMA (2016), Mobile Connectivity Index Launch Report
11 GSMA (2023), The State of Mobile Connectivity Report 2023
12 Internet Society (2016), Promoting Content In Africa

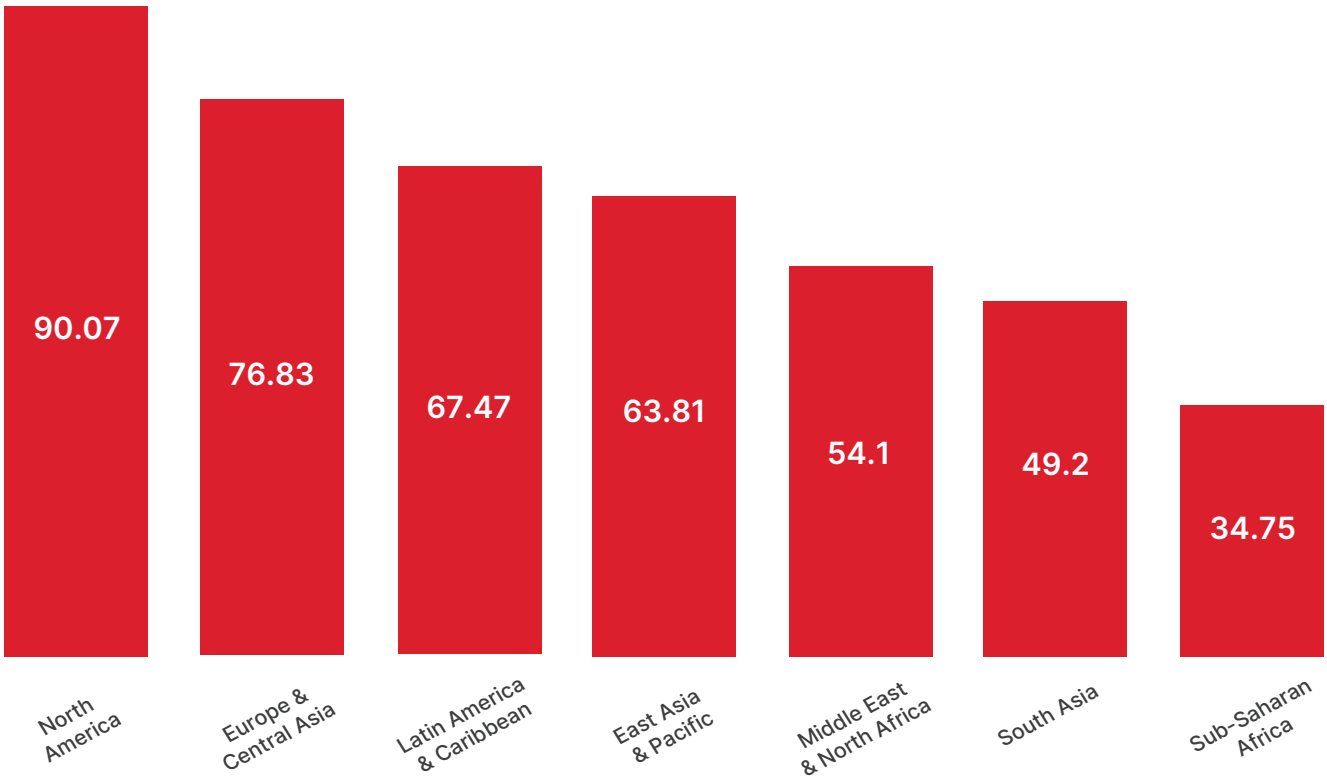
The GSMA Mobile Connectivity Index (MCI)[13] is a benchmarking tool that tracks progress in mobile internet adoption across more than 160 countries. It is structured around four key enablers – Infrastructure, Affordability, Consumer Readiness and Content and Services – to provide policymakers, industry and development partners with a clear picture of where barriers remain.

The chart below shows the Local Relevance scores for 2024, highlighting major disparities across regions. North America (90.07) and Europe & Central Asia (76.83) perform strongly, reflecting mature ecosystems of digital services available in widely spoken languages. In contrast, Sub-Saharan Africa (34.75) and South Asia (49.2) lag far behind, indicating that many people in these regions still cannot find online content that feels useful, accessible, or tailored to their needs. Middle East & North Africa (54.1), East Asia & Pacific (63.81) and Latin America & Caribbean (67.47) fall in the mid-range, showing progress but also ongoing challenges in ensuring that digital content reflects local languages, cultures and contexts.

The Local Relevance score in the MCI is measured using several indicators, including:

- Top-Level Domains (TLDs) per person
- E-Government Score
- Mobile Social Media Penetration
- Locally developed apps per person
- Digital Language Support
- Language accessibility of top-ranked apps

Figure 1 Mobile Connectivity Index: Local Relevance scores across regions



Source: GSMA Mobile Connectivity Index (MCI) 2024

This report presents some notable and innovative policy examples from around the world aimed at strengthening relevant content, products and services. It includes lessons from industry-led initiatives and an overview of GSMA tools and resources to support implementation and scaling. While examples span both high-income and LMICs, the insights are designed to be broadly applicable and adaptable. Addressing the Relevance gap is critical, not only for digital inclusion but also for unlocking significant economic and social impact. Achieving this will require coordinated action across governments, industry and development partners.

[13] GSMA (2025), Mobile Connectivity Index

Advancing Relevance: Examples

This table summarises the six policy recommendations focused on relevant content, products and services outlined in the policy brief "Accelerating mobile internet adoption Policy considerations to bridge the digital divide in low- and middle-income countries". It also provides a selection of real-world examples contained in this report, illustrating how different countries and stakeholders are working to advance relevant content, products and services. While not presented as formal "best practices", these examples aim to offer practical insights and inspiration for those designing or scaling similar initiatives.

Policy Recommendation	Countries	Organisation(s)	Example(s)
1. Create an environment for digital businesses to thrive.	United Kingdom	UK Government	Regulation for the Fourth Industrial Revolution white paper
	Ghana	Government of Ghana	National Artificial Intelligence Strategy 2023-2033
	European Union	European Commission	A Digital Single Market Strategy for Europe paper
	West Africa	Central Bank of West African States (BCEAO)	Bureau de Connaissance et de Suivi des FinTech (BCSF)
	Singapore	Monetary Authority of Singapore (MAS)	FinTech Regulatory Sandbox
	Kenya	Kenya's Capital Markets Authority (CMA)	Capital Markets Authority Regulatory Sandbox
	India	TikTok / Government of India	Advertising-Based Models: TikTok
	Indonesia	Gojek / Government of Indonesia	Transaction-Based Models: Gojek
	European Union	Netflix/Audiovisual Media Services Directive (AVMSD)	Subscription-Based Models: Netflix

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Policy Recommendation	Countries	Organisation(s)	Example(s)
2. Assess and benchmark the digital maturity of industries and enable the digital transformation of priority sectors and SMEs.	Malawi, Trinidad and Tobago	UNDP and government of Malawi and Trinidad and Tobago	Digital Readiness Assessment
	Egypt	OECD and Government of Egypt	SME and Entrepreneurship Policy in Egypt report
	Kenya	Safaricom	Empowering local digital champions to drive innovation: M-pesa
	European Union	European Commission	EU's Digital Economy and Society Index
	LMICs	UNCDF	UNCDF's Inclusive Digital Economy Scorecard
	Africa	African Union	African Union's Digital Transformation Strategy
	Germany	Germany Trade & Invest	Germany's Industrie 4.0 programme
	United Kingdom	Digital Boost	Digital Boost initiative
	South Korea	Government of South Korea	Digital New Deal
	Malaysia	Economic Planning Unit, Prime Minister's Department	Malaysia Digital Economy Blueprint (MDEB)
3. Facilitate the growth of startup ecosystems by improving access to funding, training and professional services, as well as improving the ease of doing business.	Nigeria, Kenya	Farmcrowdy, Eneza Education, Ma3route	Farmcrowdy, Eneza Education, Ma3route
	Global	Orange	Orange Digital Center (ODC)
	Uganda	Government of Uganda / Mobile Industry	Startup ecosystem and the role of Government and MNOs
	Mauritania	Government of Mauritania	Startup Act Mauritania
	Tunisia	Government of Tunisia	Startup Act Tunisia
	Chile	Agency of the Government of Chile (CORFO)	Startup Chile accelerator programme
	UK	UK Government	UK's Research & Development (R&D) tax relief scheme
	France	Bpifrance	Bpifrance financing
	Canada	Government of Canada	Start-up Visa Program
	US	US Government	Presidential Innovation Fellows
	US	US Government (NSF TIP)	National Science Foundation's America's Seed Fund

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Policy Recommendation	Countries	Organisation(s)	Example(s)
4. Accelerate the digitalisation of public services by developing mobile-first strategies to deliver online services that meet user needs and capabilities and create a vision for the involvement of local authorities and stakeholders.	Rwanda	Government of Rwanda	Irembo – Digitising Public Services in Rwanda
	Bangladesh	Government of Bangladesh	MyGov app and "333" hotline
	France	Government of France	TousAntiCovid app
	Denmark	Government of Denmark	Denmark's mobile driving licence
	Austria	Government of Austria	Austria's Digitales Amt app
	Italy	Government of Italy	IO app
	India	Government of India	UMANG platform
	Global	The World Bank Group	Business Ready (B-READY) report
	Government of Estonia	Government of Estonia	e-government services in Estonia
5. Ensure that digital public services are developed to meet the needs of women.	Rwanda	Government of Rwanda	Rwanda: Local Digital Content Promotion Strategy
	Nigeria	Government of Nigeria	Nigeria: National Broadband Plan
	India	Government of India	National Policy for Women (2016)
6. Support the development of simplified designs and accessibility features for persons with low literacy and disability.	Various African countries	Orange	Orange Sanza
	India	Government of India	India's National Policy on Universal Electronic Accessibility
	Kenya	Government of Kenya	Kenya's National ICT Policy
	South Africa	Government of South Africa	White Paper on the Rights of Persons with Disabilities
	EU States	European Commission	European Accessibility Act
	Various African countries	Ethio Telecom, Orange, Vodacom	Inclusive MNOs products and services
	Various LMICs	GSMA Innovation Fund for Assistive Tech	DeafTawk, SignAble Communications, I-Stem, Signs Media

1. Create an environment for digital businesses to thrive

As digital innovation continues to reshape economies, governments face the challenge of designing regulatory frameworks that encourage growth while safeguarding competition and consumer rights. Regulation has been central to the rise of vibrant digital sectors in high-income economies, but even mature systems must constantly adapt to keep pace with new technologies and evolving business models[14]. The rapid spread of artificial intelligence, fintech services and new approaches to digital privacy has made flexible, dynamic and responsive regulation a shared priority for both advanced economies and LMICs.

In the United Kingdom, the 2019 strategy Regulation for the Fourth Industrial Revolution[15] sought to make the UK's regulatory system more agile in response to disruptive technologies, encouraging regulators to engage early with innovators. In Ghana, the National Artificial Intelligence Strategy 2023-2033[16], frames AI as a tool for inclusive development while stressing ethical governance, transparency and safeguards against bias. It links AI regulation to national priorities such as jobs, public service delivery and digital inclusion. Together, these cases show how governments at different stages of development are embedding flexibility and accountability into their digital policies, ensuring regulation evolves alongside technology.

At the regional level, the European Union has pursued digital regulatory harmonisation to lower internal barriers and ease cross-border scaling for digital businesses. Its ongoing work to align digital rules across member states reflects a broader global shift towards oversight that enables innovation without stifling growth[17]. Similarly, in West Africa, the Central Bank of West African States (BCEAO) created the Bureau de Connaissance et de Suivi des FinTech (BCSF) in 2021 to strengthen engagement with fintech firms across the West African Economic and Monetary Union (WAEMU)[18]. The BCSF serves as a hub for monitoring innovations, assessing their impact on financial inclusion, reviewing fintech project proposals and guiding them into the appropriate legal framework. It has already supported more than 230 interactions (since its creation through 2024) and contributed to making the financial ecosystem in West Africa more inclusive, harmonised and innovation-friendly[19].

Meanwhile, countries in both developed and LMIC contexts are increasingly experimenting with regulatory sandboxes – controlled environments where firms can test new digital solutions under temporary, tailored rules. These sandboxes allow regulators to balance experimentation with consumer protection. Singapore was among the first movers: the Monetary Authority of Singapore (MAS) launched its FinTech Regulatory Sandbox in 2016, later introducing the Sandbox Express for faster approvals in areas like payments and blockchain and most recently Sandbox Plus, which offers financial grants and support for eligible firms[20]. Together, these options reflect MAS's commitment to balancing innovation with consumer protection. In Africa, Kenya has become a leading African example. Building on its reputation as a mobile money pioneer, Kenya introduced a sandbox overseen by the Capital Markets Authority (CMA), giving fintech startups space to test innovations like digital lending, blockchain and crowdfunding. This model recognises the country's

[14] OECD (2025), OECD Regulatory Policy Outlook 2025
[15] UK Secretary of State for Business, Energy and Industrial Strategy (2019), Regulation for the Fourth Industrial Revolution
[16] Republic of Ghana (2022), Republic of Ghana National Artificial Intelligence Strategy: 2023-2033
[17] European Commission (2015), A Digital Single Market Strategy for Europe
[18] BCEAO (2021), Ouverture du Bureau de Connaissance et de Suivi des FinTech (BCSF)
[19] BCEAO (2024), Présentation Du Bureau De Connaissance Et De Suivi Des Fintech Dans L'Umoa (BCSF-Umoa)
[20] Monetary Authority of Singapore, Overview of Regulatory Sandbox
[21] MMC Asafo (2024), Are Regulatory Sandboxes the Key to Catalysing FinTech Innovation in Kenya?
[22] Seychelles, Mauritius and South Africa are the other three. GSMA (2024), Digitalisation and the Africa We Want: Introducing the GSMA Digital Africa Index

dynamic but still maturing regulatory environment, providing pathways for new entrants while giving regulators insight into emerging risks[21]. According to GSMA's Digital Africa Index, Kenya is one of only four countries in Sub-Saharan Africa rated "high" for digital development and for having a more enabling policy and regulatory environment[22].

Ultimately, even the most digitally advanced economies recognise that static regulation risks holding back innovation. To keep digital markets inclusive, competitive and secure, governments must treat regulation as a living system – constantly evolving in response to technological and market shifts.

Enabling Digital Business Models – Opportunities and Policy Impacts

The GSMA's Accelerating Mobile Internet Adoption: Policy Considerations to Bridge the Digital Divide in Low- and Middle-Income Countries highlights the importance of supporting diverse digital business models, each of which requires careful regulation in areas like data governance, financial inclusion and content protection. These models can be grouped into three broad categories:

Advertising-Based Models offer users free access to services, funded by targeted advertising. Social media networks and video platforms are the most prominent examples. Their popularity rests on affordability and mass market, but their long-term viability depends on navigating rules around data privacy and cross-border information flows. For example, TikTok's removal from India in 2020 was tied to concerns over how user data was handled across borders and possible national security risks[23]. This demonstrates how compliance with national policies on data governance is critical for even the most popular ad-funded platforms.

Transaction-Based Models generate revenue from user transactions, such as e-commerce, ride-hailing, or in-app purchases. Indonesia's Gojek illustrates how adaptive regulation can legitimise innovation while supporting broader digital transformation. Initially facing bans in 2015 because transport laws did not recognise app-based ride-hailing, strong consumer demand and presidential support pushed the government to act[24]. Authorities created a new legal category for digital transport services, providing operational clarity[25], while the central bank licenced Gojek's GoPay wallet as an official e-money provider, aligning with Indonesia's push toward a cashless economy[26]. This coordinated response enabled Gojek to scale while expanding financial inclusion.

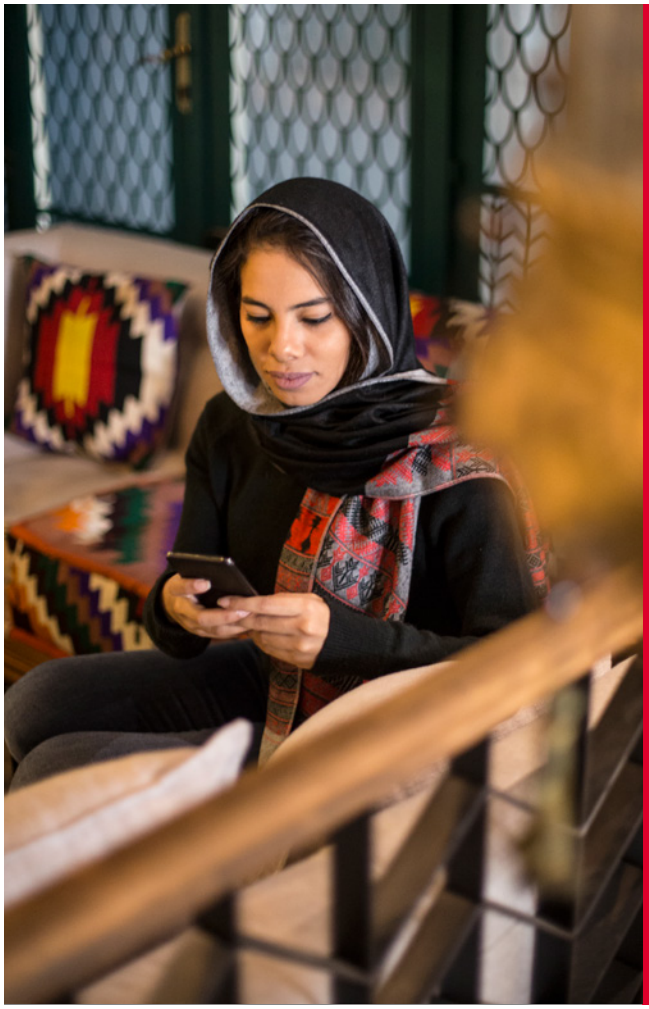
Subscription-Based Models provide ongoing access to paid content, such as video streaming or premium apps. The EU's Audiovisual Media Services Directive (AVMSD), adopted in 2018, requires streaming platforms to ensure that at least 30% of their catalogue comes from European creators. Netflix and other providers responded by commissioning original series and films across multiple EU states, strengthening local creative industries while meeting market demand[27]. Far from limiting the subscription model, this regulatory approach ensured that platforms supported regional cultural ecosystems and gave users access to more locally-relevant content.

Taken together, these examples show that governments play a decisive role in enabling digital business models. Whether by strengthening privacy rules for ad-funded apps, adapting laws for new platform models, or incentivising investment in local content. Agile regulation is essential to create environments where digital businesses can thrive.

[23] The Hindu.com (2025), TikTok ban: Why did India ban TikTok five years ago?
[24] thejakartapost.com (2015), Jokowi defends ride hailing apps as Transportation Ministry withdraws ban
[25] Friedrich Naumann Foundation (2017), The implication of Public Regulation on Ride-Hailing Competition
[26] Gojek website (2017), Easier Payments with Go-Pay
[27] Ampere Analysis (2022), Netflix now at or above 30% European content in almost all major European markets

2. Enable the digital transformation of priority sectors and SMEs

Micro, small and medium enterprises (MSMEs) are central to economic growth and employment worldwide. According to World Bank estimates, formal MSMEs provide around 72% of all private sector jobs globally, a figure that climbs to 91% in lower-middle-income economies[28]. This underscores their key role in job creation and local development. Yet in many LMICs, large portions of the economy – particularly small retail, agriculture and local education – remain under-digitalised. Women-led enterprises are especially affected, as they are often excluded from digital markets due to structural barriers[29]. When local businesses and institutions are absent from the online space, digital services such as e-commerce, mobile advisory tools for farmers and remote learning platforms struggle to gain traction, limiting both economic and social benefits.



Governments can accelerate transformation by systematically assessing digital readiness across sectors and identifying where adoption gaps are most pronounced. Several countries have taken steps in this direction. For example, Malawi[30], Trinidad and Tobago[31] and Egypt[32] have collaborated with international organisations, such as UNDP and the OECD, to evaluate the state of SME digitalisation and to design targeted policies. Once these gaps are identified, tailored interventions – ranging from workforce reskilling and business training to improved financing and access to tailored tools – can help SMEs integrate technology into their operations. In Malawi, for instance, authorities have announced new investments in digital skills and partnerships to help SMEs transition into the digital economy[33]. As part of this push, the GSMA's Digital Inclusion team provided a "train the trainer" programme using its Mobile Internet Skills Training Toolkit (MISTT). Delivered through Malawi's regulator, MACRA, this initiative is equipping 300 SMEs with the digital skills needed to engage more effectively in online commerce and services. At global level, the UNCDF's Inclusive Digital Economy Scorecard offers a tool to assess progress in digital ecosystems across LMICs, helping governments benchmark performance and set priorities.

[28] World Bank Group (2019), Micro, Small and Medium Enterprises – Economic Indicators (MSME - EI) Analysis Note December 2019. The study includes 77 economies from across regions.
[29] GSMA (2023), Understanding women micro-entrepreneurs' use of mobile phones for business. Evidence from 10 low and middle-income countries
[30] UNDP (2025), Digital Readiness Assessment Malawi
[31] UNDP (2022), Digital Readiness Assessment Report Trinidad and Tobago
[32] OECD (2025), SME and Entrepreneurship Policy in Egypt
[33] Ministry of Information and Digitalization, Digital Readiness Assessment

Empowering local digital champions to drive innovation: Safaricom's M-Pesa

In many LMICs, MNOs have acted as local digital champions, driving services that directly respond to user needs. Kenya's M-Pesa is the most cited example. When Safaricom proposed launching a mobile money transfer service in 2007, the Central Bank of Kenya opted for a pragmatic approach. Instead of applying rigid banking laws that might have blocked the innovation, regulators issued a "letter of no objection," allowing the service to operate under close supervision. This dynamic, test-and-learn model gave M-Pesa space to grow while still maintaining oversight[34].

The impact was transformative. M-Pesa allowed millions of Kenyans to send, save and receive money via mobile phones – something far easier and cheaper than traditional banking. As the service expanded, regulators incrementally added both safeguards and enabling measures. In August 2023, for example, the Central Bank of Kenya raised mobile money transaction limits from KSh 150,000 to KSh 250,000 and expanded wallet sizes, creating more room for digital financial activity. At the same time, it reinforced safeguards by requiring enhanced monitoring, fraud prevention and cybersecurity measures – illustrating how regulators can enable greater usage while tightening protections for consumers[35].

Between 2013 and 2023, Kenya saw explosive growth in mobile money. The number of registered accounts expanded from about 25 million to roughly 77 million, meaning the service moved from covering just over half the population to exceeding the total population, as many people now hold multiple accounts[36].

Kenya's success contrasts with countries that adopted more rigid stances. For many years, Nigeria restricted mobile money licences only to banks, excluding telecom operators[37] – a policy widely seen as a reason for its slow adoption. Nigeria has since revised its framework, drawing lessons from Kenya and other markets.

Safaricom's M-Pesa demonstrates how regulatory flexibility and responsiveness can catalyse innovation. By adjusting rules as the market evolved, Kenyan regulators enabled the emergence of locally relevant services that transformed financial inclusion and helped build a broader digital economy.

In developed economies, sectoral digital transformation is also a policy priority, though starting from a higher level of maturity. The EU's Digital Economy and Society Index (DESI)[38] is one example, tracking how enterprises adopt digital tools and targeting that by 2030, at least 90% of SMEs will achieve a basic level of digital intensity[39]. At national level, Germany's Industrie 4.0 programme supports SMEs in manufacturing and related sectors to adopt automation[40], while the UK's Digital Boost initiative helps small firms access mentoring and training. In South Korea, the Digital New Deal provides SMEs with financial support to encourage technology adoption[41].

Despite differences between developed economies and LMICs, the core principle remains the same across all contexts: identify adoption gaps and design focused policies and initiatives to close them. Whether through reskilling programmes, financing mechanisms, or incentives for local champions, governments can help SMEs integrate digital tools that make services more relevant and accessible to their communities.

[34] Alliance for Financial Inclusion (2010), Enabling mobile money transfer - The Central Bank of Kenya's treatment of M-Pesa
[35] Central Bank of Kenya, Increase In Mobile Money Transaction And Wallet Limits To Support Digitization Of Payments
[36] GSMA (2024), Mobile Money's Economic Impact: Kenya Country brief 2024
[37] Central Bank of Nigeria (2021), Regulatory Framework For Mobile Money Services In Nigeria
[38] European Commission (2022), The Digital Economy and Society Index (DESI)
[39] European Commission (2022), Questions and Answers: Digital Economy and Society Index (DESI) 2022
[40] Germany Trade & Invest, Germany – The World's Leading Industrie 4.0 Nation
[41] Yale School of Management (2020), Governments Encourage SMEs to Adopt New Technology

Malaysia Digital Economy Blueprint (MDEB)

In 2021, Malaysia launched the MyDIGITAL Blueprint, a national strategy designed to accelerate digital transformation across government, industry and society. The plan was formulated after broad consultations with stakeholders – nearly 500 companies and more than 50 industry associations contributed input during its development[42].

The blueprint sets out a vision to transform Malaysia into a digitally-driven, high-income nation and regional digital economy leader by 2030. To achieve this, the blueprint is structured around six strategic thrusts[43]:

1. Driving digital transformation in the public sector
2. Boosting economic competitiveness through digitalisation
3. Building enabling digital infrastructure
4. Developing agile and competent digital talent
5. Creating an inclusive digital society
6. Strengthening trust, security and ethics in the digital ecosystem

These thrusts are supported by 22 strategies, 48 national initiatives and 28 sectoral initiatives, which range from expanding broadband access and encouraging SME digitalisation, to strengthening Malaysia's position in cybersecurity and digital content[44].

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[42] Economic Planning Unit, Prime Minister's Department Of Malaysia (2021), Malaysia Digital Economy Blueprint
[43] Malaysian Investment Development Authority (2021), Malaysia's Journey in the Digital Age
[44] The KPI Institute (2023), MyDigital: Malaysia's digital transformation goals by 2030

Implementation is staged across three phases[45]:

- **Phase 1 (2021–2022):** strengthening the foundations of digital adoption
- **Phase 2 (2023–2025):** driving inclusive and widespread digital transformation
- **Phase 3 (2026–2030):** positioning Malaysia as a regional leader in advanced digital fields

By early 2025, tangible progress was recorded[46]:

Area	Impact (up to early 2025)
Connectivity	Achieved 98.7% internet coverage in populated areas, median broadband speeds of 169 Mbps and 82.4% 5G coverage
Digital identity	MyDigital ID registered 2.2 million users, integrated with 34 government systems
Digital talent	152,349 professionals trained in digital/4IR skills
Gig economy	105,000 Malaysians supported via GLOW freelancing programme, generating RM282 million income (2016-2023)
Startups	4,413 active startups and 5,794 coders listed in MYStartup as of March 2025
Agriculture	243 farm locations adopted 4IR technologies; 77 training programmes held nationwide
MSMEs	Launched the Unified Business Digitalisation Initiative (UBDI) programme to support businesses in digitalising their operations across the entire value chain
Digital payments	Malaysians averaged 409 e-payment transactions per capita in 2024, showing strong cashless adoption

Malaysia's MDEB demonstrates how a national digital blueprint, phased implementation and multi-stakeholder engagement can close gaps in infrastructure, strengthen MSME capabilities and advance inclusive digitalisation. Other countries may adapt this approach by combining readiness assessments with sector-specific initiatives that promote both competitiveness and inclusivity.

[45] Yusof Ishak Institute, Singapore (2022), Strategic Policies for Digital Economic Transformation: The Case of Malaysia
[46] MyDIGITAL Corporation, Malaysia Ministry of Digital (2025), Progress Report for MDEB AND N4IRP Phase 2

3. Facilitate the growth of startup ecosystem

Across many LMICs, startup ecosystems are still young but expanding rapidly. Despite this momentum, entrepreneurs face deep-rooted barriers that limit their ability to scale and sustain operations. In Africa, for instance, systemic challenges include limited access to seed or venture capital, with local investor networks still underdeveloped. Early-stage businesses often lack access to essential professional services such as legal and accounting support or incubation tailored to their needs. Brain drain compounds these issues, as highly skilled tech workers often migrate in search of better opportunities abroad. At the same time, outdated regulations and cumbersome administrative processes – such as slow business registration or restrictive licensing laws – make it harder for startups to take root[47].

Even with these hurdles, local innovators are finding ways to build solutions tailored to their communities. In Nigeria, platforms like Farmcrowdy have created agri-tech models that link smallholder farmers with investors, addressing funding and productivity gaps in the agricultural sector. In Kenya, Eneza Education delivers mobile-based learning resources, showing how startups can bridge content and service gaps in education[48], while Ma3route, a crowdsourced traffic app, helps commuters navigate Nairobi's congestion.

Because mobile remains the primary means of internet access in LMICs, MNOs are uniquely positioned to act as catalysts for entrepreneurship[49]. In addition to individual success stories like M-Pesa, some mobile operators are building platforms to nurture broader innovation ecosystems. A good example is the Orange Digital Center (ODC) programme. Designed as a network of physical hubs, ODCs provide training, mentoring and incubation support to entrepreneurs, with a particular focus on young developers and startups in LMICs. By the end of 2023, 22 centres had been established across Africa, the Middle East and Europe, collectively supporting more than 200 startups that year[50]. By combining digital skills training with access to professional services and funding opportunities, ODCs show how MNOs can extend their role beyond connectivity to become active catalysts for local innovation.

[47] Smart Africa (2020), Africa's Blueprint for the development of an ICT Start-Ups and Innovation Ecosystem
[48] GSMA, Ecosystem Accelerator Compass: insights on startups and mobile in emerging market
[49] GSMA (2017), Building Synergies: How Mobile Operators and Start-ups Can Partner for Impact in Emerging Markets
[50] Orange (2024), Integrated Annual Report 2023-2024

Uganda startup ecosystem and the role of Government and MNOs

Uganda's startup ecosystem has gained momentum in recent years, supported by a combination of government-led programmes and investments from mobile operators. Recognising the potential of digital entrepreneurship to drive inclusive growth, the government launched the National ICT Initiatives Support Programme (NIISP) in 2017. NIISP provides both financial and non-financial support – such as grants, mentorship and access to innovation hubs – for innovators developing solutions in health, education, agriculture and financial services. By targeting local challenges, NIISP aims to nurture home-grown digital content and services that address development priorities.

MNOs have played an equally important role by providing infrastructure, platforms, technical assistance and even financial support – resources that would otherwise be difficult for startups to obtain on their own. Around four in five Ugandan tech startups use mobile platforms in their solutions[51]. MTN Uganda's Open API initiative, for example, allows entrepreneurs to integrate mobile money services into their applications. Developers can plug into a large and trusted user base of MTN Mobile Money customers, giving their solutions both scale and credibility. In July 2019, MTN also launched its Start-up Program, committing up to UGX 1 billion ($260,000) over three years to support early-stage startups[52]. Other examples of the role of MNOs include Ensibuuko (a GSMA Ecosystem Accelerator Fund grantee) that works with Airtel and MTN to digitise the Savings and Credit Cooperative Organizations (SACCOs) – member-owned cooperatives that pool savings and provide loans[53]. By early 2025, Ensibuuko enabled 149,000 SACCO members to access services via mobile money and a new Android banking app.

Although the ecosystem continues to face structural challenges, including limited early-stage capital, fragmented regulation and persistent infrastructure gaps, Uganda demonstrates the value of combined government and MNO initiatives to build inclusive digital ecosystems.

[51] GSMA (2020) Supporting the Growth of the Tech Start-up Ecosystem in Uganda: A Policy Outlook
[52] Ibid.
[53] GSMA (2019), Uganda: Driving inclusive socio-economic progress through mobile-enabled digital transformation

As local innovation grows, governments in LMICs are stepping in to dismantle systemic barriers and provide more favourable conditions for startup success. Policy measures are diverse but often include regulatory frameworks that simplify registration and reduce bureaucratic burdens, as seen in Mauritania and Tunisia's Startup Acts, among other benefits. Governments are also broadening financing options: Start-Up Chile (see sidebar) offers equity-free seed funding, while India's reforms – such as removing the "angel tax" – demonstrate how tax incentives and fee waivers can lower entry barriers[54].

Start-Up Chile – Turning public investment into global entrepreneurship

In 2010, Chile set out to transform itself into a hub for innovation and entrepreneurship in Latin America. Through its development agency CORFO, the government launched Start-Up Chile, a state-backed accelerator targeting both local and foreign founders.

The programme offers support to startups including equity-free seed grants, office space, mentoring and a one-year visa for selected entrepreneurs[55]. In exchange, participants commit to spend time building their ventures in Chile and sharing expertise through workshops and events. This model has attracted global founders and since its start in 2010, alumni have come from more than 85 countries, helping position Chile on the international startup map[56].

Over the years, Start-Up Chile expanded into tiered tracks (pre-seed, seed and growth) and introduced initiatives to tackle gaps such as female participation in tech. The impact has been significant: within its first decade, the portfolio generated more than US$1 billion in global sales and over US$1.2 billion in investment raised. High-profile graduates include Cabify (ride-hailing) and NotCo (plant-based food tech), both of which scaled internationally[57].

The broader ecosystem has also benefited. Start-Up Chile fostered a new culture of entrepreneurship, spurred the creation of local venture capital funds and inspired similar government programmes across Latin America. Importantly, the initiative helped accelerate the supply of locally-relevant digital services, from e-commerce and fintech, to education technology, while raising the overall sophistication of Chile's digital economy[58].

Chile shows how public investment, combined with structured support and global outreach, can catalyse an innovation culture. Building such ecosystems is beneficial and policy must evolve to encourage long-term retention of talent and sustained local impact.

[54] Reuters (2024), India scraps 'angel tax'; startup investors rejoice
[55] InvestChile (2018), 10 Facts about Chile's growing technology hub
[56] Economic Affairs Officer - Economic Commission for Latin America and the Caribbean (ECLAC) (2022), Strengthening the domestic ecosystem by attracting foreign entrepreneurs and supporting the local ones: The case of Start-Up Chile
[57] Forbes (2018), Start-Up Chile's Impact 2010-2018: Inside The Revolutionary Startup Accelerator
[58] BBVA Spark (2022), From seeds to cryptocurrencies: the 'startups' of Santiago de Chile that succeed beyond its borders

In developed economies, startup ecosystems are already mature, anchored in global hubs such as Silicon Valley in the United States, or London and Paris in Europe and Singapore in Asia[59]. These hubs benefit from abundant venture capital, dense talent pools and strong infrastructure. Nonetheless, governments in these markets continue to play an active role in sustaining competitiveness. Policy tools include Research & Development (R&D) tax credits, such as the UK's Research & Development (R&D) tax relief scheme that allows even loss-making firms to claim rebates and public venture funding, such as France's Bpifrance, which fills financing gaps in high-risk areas. Startup visas, such as Canada's program, link foreign entrepreneurs with local incubators and investors, enriching ecosystems by attracting global talent.

Beyond their economic value, startups in advanced economies are also leveraged to advance public-interest goals. In the United States, civic technology and social-impact ventures receive government backing through initiatives such as the Presidential Innovation Fellows[60] and the National Science Foundation's America's Seed Fund. These programmes demonstrate how startups can generate social as well as economic impact, particularly in underserved or niche areas where large corporations may not invest.

Governments have a decisive role to play in accelerating the growth of startup ecosystems in both LMICs and developed markets. Simplifying business formation, improving access to funding and expertise and celebrating local success stories not only nurtures innovation but also increases the supply of locally-relevant content and services. By doing so, policymakers help ensure that digital ecosystems deliver value to broader populations and encourage more people to adopt and engage with the mobile internet.

[59] Startup Genome (2025), State of the Global Startup Economy
[60] Presidential Innovation Fellows (2020), Impact Report

4. Accelerate the digitalisation of public services

Accelerating the digitalisation of government services and making public information accessible in user-friendly formats is a powerful way to strengthen the relevance of mobile internet. Shifting essential services online tackles the relevance barrier in two important ways: it provides citizens with a compelling reason to connect – saving them time and travel otherwise required for paperwork – and it enriches the local internet ecosystem with high-value content such as health guidance, official documents and educational resources. Well-designed e-government initiatives can therefore be transformational, particularly in LMICs where dealing with public services has traditionally been slow and bureaucratic. Recent UN E-Government Surveys confirm this progress, showing that several developing countries have rapidly increased the number of services available online[61]. Rwanda is a standout example: in the 2024 survey, it ranked highest among least developed countries on the Online Service Index, reflecting a strong national commitment to digital public service delivery (see sidebar).

Irembo – Digitising public services in Rwanda

Launched in 2015, Irembo is Rwanda's national e-government platform designed to bring public services closer to citizens and businesses. Through a web and USSD interface, the platform allows users to apply and pay for over 100 services, ranging from birth certificates and visas to traffic fines and local government documents – without the need to visit an office in person.

The platform operates on a public-private partnership model, where IremboGov provides the technology and user interface while government agencies handle service delivery. Its integrated payment system, IremboPay, allows citizens to complete transactions electronically, generating revenue through commissions on successful payments. This design aligns incentives: if the service is not simple and convenient enough for citizens to complete, Irembo does not earn a commission[62].

Impact has been significant. Processes that once took several days can now be completed within 24 hours, saving citizens millions of hours otherwise spent traveling or queuing for services. Adoption of digital payments has also accelerated, with nearly half of transactions completed online. To address the digital divide, Irembo established a network of more than 7,000 agents who assist those without digital skills, ensuring that inclusion is not left behind[63].

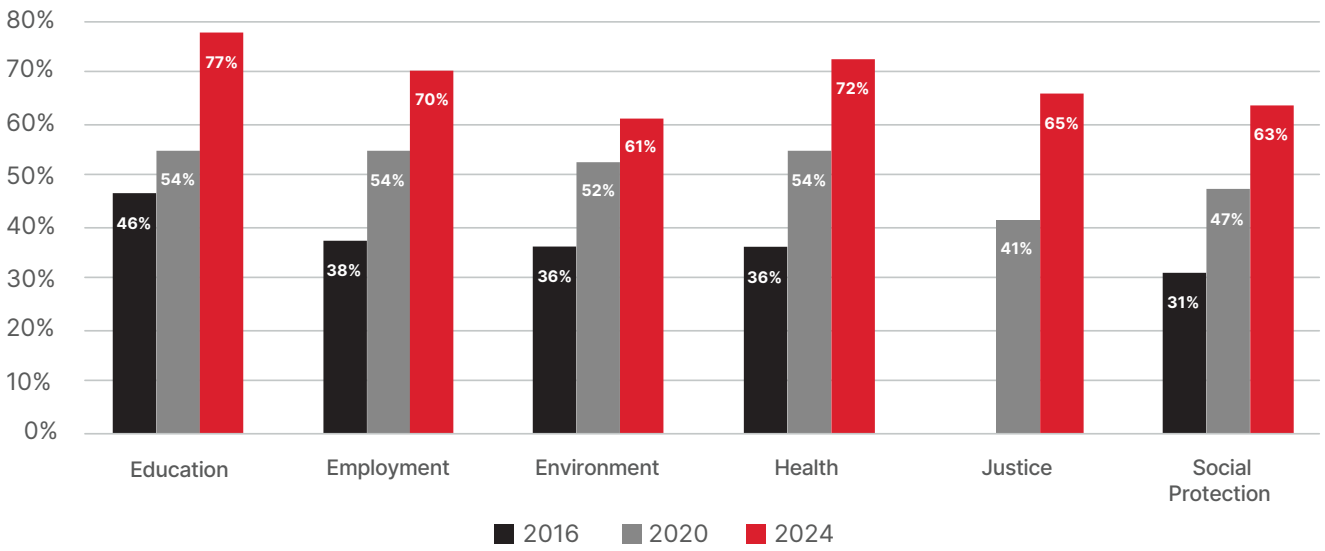
Irembo illustrates how a government, working with a private technology partner, can digitise public service delivery at scale while maintaining inclusivity. Its experience highlights the importance of combining user-friendly design with sustainable business models and local capacity-building – lessons that are relevant well beyond Rwanda.

[61] United Nations (2024), UN E-Government Survey 2024
[62] Public Digital, interview with Faith Keza, the CEO of Irembo, The Irembo model in Rwanda
[63] DIAL (2024), RWANDA case study

To make these services more accessible, governments in both LMICs and high-income economies are increasingly adopting mobile-first approaches (see Figure 2). This is particularly critical in LMICs, where mobile phones are often the primary or only way people access the internet. Platforms must be designed with this reality in mind, including options for those with limited literacy, digital skills or disabilities. In Bangladesh, for instance, the MyGov app and the "333" hotline combine mobile application and voice services to ensure inclusivity. In advanced economies, most public services are already online, but the shift to mobile responsiveness is more recent.

Governments are now investing in dedicated apps and mobile-compatible services, as seen with France's TousAntiCovid app, Denmark's mobile driving licence launched in 2020 and Estonia's e-gov mobile app launched in 2024[64]. In Singapore, the government has taken concrete steps to institutionalise digital accessibility: SG Enable (Singapore's agency for disability inclusion) has begun working with agencies and private sector partners to audit accessibility of websites and apps and the country's Enabling Masterplan 2030 sets a target that by 2030 all high-traffic government digital services will be fully accessible[65].

Figure 2 Percentage of countries using mobile channels for key services



Justice: Not measured prior to 2020

Source: UN eGovernment Index 2016, 2020 and 2024

For both contexts, the priority should be to place user needs at the centre of digitalisation strategies, focusing on high-impact services where access is weakest, satisfaction is lowest and lack of perceived value is greatest. One-stop shop models are especially effective, providing integrated access to services across multiple agencies and levels of government. Austria's Digitales Amt app provides citizens with a streamlined entry point for tasks such as document delivery and passport renewal reminders. Italy's IO app connects users to more than 350,000 services offered by over 15,000 entities, including schools, transport providers and registry offices – with 12 million active users in June 2025. India's UMANG platform aggregates more than 2,000 services across 23 languages, reaching 83 million registered users by mid-2025.

64 E-Estonia (2024), Estonia launches e-gov mobile app
65 Deloitte (2023), Enhancing digital government services for persons with disabilities

Policy pathways for strengthening business through digital public services

The business environment also benefits directly from digital public services. The World Bank's Business Ready (B-READY) report benchmarks progress across 50 economies, with a dedicated Public Services pillar measuring how effectively governments provide business-related services. This includes the extent of digitalisation, the ease of regulatory compliance and the transparency of government-to-business interactions.

The results show both expected leaders and surprising standouts. Estonia tops the ranking with a score of 73.31, reflecting its two decades of investment in e-government and availability of digital services. Singapore follows closely, underscoring how strong digital infrastructure and efficient governance go hand in hand. Yet perhaps more striking are the high performers from outside the high-income group: Rwanda (67.37) and Colombia (66.28) both appear in the top quintile, showing that ambitious reforms and targeted investments can deliver world-class digital services even in more resource-constrained settings.

What unites these countries is their focus on streamlined, user-friendly platforms that reduce bureaucratic burdens for firms. Instead of fragmented processes spread across multiple agencies, leading countries provide integrated portals where businesses can register, pay fees, apply for permits, or access support services online. This reduces transaction costs for enterprises, improves regulatory compliance and fosters trust between the state and the private sector.

While high-income countries generally score higher on average, the presence of diverse economies among the top performers demonstrates that strong digital governance is not determined by income level alone. With the right policy vision, institutional coordination and investment in digital tools, lower-income economies can rapidly scale up effective, digital-first public services that benefit both businesses and citizens.

e-government services in Estonia

Estonia is widely recognised as one of the world's pioneers in digital government. Since the launch of its e-Estonia programme in 2000, the country has systematically moved all core public services online, with 100% now fully digitalised. Using a secure digital ID system, citizens can file taxes, register businesses, access healthcare records, sign legal contracts and even cast votes entirely online in national elections.

One of Estonia's most distinctive innovations is its e-Residency programme, which allows foreign entrepreneurs to establish and manage EU-based businesses remotely. This not only supports local economic growth but also reinforces Estonia's global reputation as a digital hub. In addition, services are supported by the X-Road data exchange system, which enables secure interoperability between government databases, ensuring efficiency and reducing administrative duplication.

The results are striking: processes that once took days can now be completed in minutes and the cost savings to government and citizens are substantial. For example, 98.3% of taxes are filed electronically, with the average declaration taking just a few minutes[66]. These efficiencies have built trust in the digital system, with citizens expecting the government to deliver services online by default.

According to the UN E-Government Development Index (2022), Estonia ranks among the very top performers globally and second-best in Europe[67]. Its model shows how a small state with limited resources can achieve world-class governance by embracing digital-first principles early and then continuously investing in innovation and cybersecurity to keep systems resilient.

Estonia demonstrates that a comprehensive, integrated approach to e-government – built on digital identity, secure data exchange, and citizen trust – can transform state–citizen interactions. This experience offers valuable lessons for countries at all income levels seeking to make public services more relevant, efficient, and user-friendly.

[66] ERR (2021), Most income tax declarations have been submitted electronically
[67] United Nations (2024), E-Government Survey 2024

5. Ensure that digital public services are developed to meet the needs of women

A significant gender gap persists in the use of digital public services, particularly between LMICs and more developed regions. In LMICs, 63% of women use mobile internet compared to 74% of men – a gap that translates into 235 million fewer women using mobile internet. While in regions such as Europe and Central Asia, the divide is minimal (a 3% gender gap in mobile internet adoption), disparities remain stark in South Asia (32%) and Sub-Saharan Africa (29%)[68]. These gaps reflect not only disparities in affordability and device ownership but also persistent differences in digital skills and socio-economic barriers.

A major barrier to mobile internet adoption and use is the lack of content that people find relevant, especially for women. Many women without internet access say it does not seem useful to their lives, and some point to the absence of material in their local language. Awareness of mobile internet and its benefits is also lower among women than men[69]. Barriers to accessing relevant digital content are also widespread. One clear illustration is the issue of identification. In LMICs, 44% of women lack a national ID compared to 28% of men. Since such IDs are often required to access e-government platforms, the absence of official identification directly limits women's ability to use digital services[70]. This compounds other barriers and means women in developing contexts risk being left further behind in e-government, e-learning, digital health and other online public services, reinforcing existing inequalities.

It is therefore crucial that digital public services must be designed with women's realities in mind, especially those who are low-income, rural, those with disabilities, or less digitally literate and lack confidence. Building digital public services around women's needs is not just about gender equity – it also broadens the reach and impact of those services for entire communities.

The following section provides examples of where a gender-responsive approach has been outlined in government policies and plans towards content creation, applications and services in Rwanda, Nigeria and India.

[68] GSMA (2025), The Mobile Gender Gap Report 2025
[69] GSMA (2022), Policy considerations to accelerate digital inclusion for women in low- and middle-income countries
[70] World Bank Group (2024), Unpacking Tax Compliance from a Gender Perspective. Gender and Tax Dialogue Knowledge Note

Gender-responsive approach outlined in government policies: the case of Rwanda, Nigeria and India

Rwanda: Local Digital Content Promotion Strategy (2018)

In 2018, Rwanda adopted the Local Digital Content Promotion Strategy and Implementation Plan (2018–2022) as part of its broader ICT agenda. The strategy aimed to increase the creation, visibility and use of digital content that reflects Rwandan languages, culture and socio-economic priorities. While designed as a national policy for all citizens, it was explicitly gender-responsive, recognising women and girls – alongside youth, rural communities and people with disabilities – as priority groups often excluded from the digital transformation.

Implementation centred on incentivising developers, businesses and content creators to produce inclusive applications and services across sectors such as education, agriculture, health and finance. The strategy highlighted the importance of delivering content in Kinyarwanda (spoken in Rwanda) and in accessible formats and set ambitious targets: the development of over 300 new local applications, training of 5,000 women and youth as digital content creators and increased digitisation of education materials. It also emphasised collaboration with the Ministry of Gender and Family Promotion (MIGEPROF) and alignment with the national Women in Technology Strategy (2017–2021), ensuring that women's needs were integrated into content development.

Although comprehensive impact data is still being collected, the strategy has been recognised as a leading example in digital inclusion. The strategy anticipated building a stronger ecosystem of local publishers and applications, with women among the groups expected to benefit from more content in local languages across education, agriculture and health. Rwanda's experience shows how a national digital content policy can serve the entire population, while deliberately narrowing the gender gap in access to relevant digital services.

Nigeria: National Broadband Plan (2013–2018)

Nigeria's National Broadband Plan (2013–2018) set a roadmap for expanding internet access and was one of the first African policies to explicitly address the gender digital divide. Policymakers recognised that a standard broadband roll-out risked excluding women, particularly in rural areas where social norms discouraged women's ICT use. The Plan therefore identified women's inclusion as a national priority, linking female connectivity to wider benefits such as GDP growth.

Implementation called for a conscious effort to target "women who would not normally see the need for ICT". The Federal Ministry of Communication Technology introduced measures such as tracking gender-disaggregated data, providing incentives to train women in digital skills through civil society and private providers, and establishing dedicated centres at local government headquarters to provide women with safe and supportive spaces for accessing technology.

Nigeria's gender-responsive approach drew international recognition, earning the ITU GEM-TECH Award in 2014 for empowering women in technology. The National Broadband Plan case underscores the importance of proactive policies and community-level interventions to engage women who have been traditionally hard to reach.

> continued

India: National Policy for Women (2016)

India's National Policy for Women (2016) updated the 2001 framework to reflect new challenges in the digital age. Drafted in 2016, at a time when India was rapidly expanding digital infrastructure and services, the policy recognised technology and digital inclusion as a core pillar of women's empowerment, while also acknowledging risks such as online abuse and cyber violence.

A distinctive feature of the policy was its emphasis on public-private partnerships (PPPs) to build ICT infrastructure, design applications and promote locally relevant content in gender-sensitive language. It called for collaboration between government, businesses and civil society to ensure that digital tools and services reflected women's realities. The policy also stressed the importance of developing women's ICT capacity and envisaged the use of technology for women's safety.

The National Policy for Women case demonstrates the importance of high-level policy commitments: it sets a vision that guides both government and private stakeholders to prioritise women's needs in the digital realm.

Ensuring digital public services meet women's needs is both equitable and smart policy. The experiences of Rwanda, Nigeria and India show how governments can design policies with women in mind – by raising awareness of the benefits of mobile internet, promoting local content, targeting those offline and fostering partnerships to integrate a gender-sensitive approach to the design of content and services. Placing women at the centre of digital service strategies can not only expand access for millions but also amplifies broader development gains, ensuring digital transformation benefits all.

6. Support the development of simplified designs and accessibility features for persons with low literacy and disability

Simplified product design and accessibility features are essential for making mobile technology inclusive and equitable for all, particularly for persons with disabilities and individuals with low literacy. For many first-time internet users, complex interfaces, language barriers and the absence of assistive features can make digital access overwhelming. Globally, an estimated 739 million adults lack basic literacy skills[71], underscoring the need for intuitive, easy-to-navigate mobile services that lower the entry barriers to digital participation.

Similarly, persons with disabilities (PWDs) represent about 16% of the world's population[72] and they face specific usability hurdles with standard mobile devices and content. Evidence from GSMA studies shows that individuals with disabilities are much less likely to use mobile internet compared to those without disabilities.

The largest disparities in mobile internet usage were observed in Sub-Saharan African countries, where only 6% to 49% of persons with disabilities reported using mobile internet, in contrast to 23% to 74% among non-disabled individuals[73].

Subsequent GSMA research reinforces that user-centred design and locally relevant solutions – such as voice commands, simplified icons and content in local languages – are critical to closing the digital divide[74].

These findings emphasise that accessibility should be built into the design process from the start, ensuring that mobile technology supports autonomy, confidence and equal participation.

[71] UNESCO (2025), What you need to know about literacy
[72] World Health Organization (2023), Disability: Key facts
[73] GSMA (2025), The Mobile Disability Gap Report 2025
[74] GSMA (2022), Driving the Digital Inclusion of Persons with Disabilities: Policy considerations for low- and middle-income countries

Bridging the usability gap – the voice-assisted Orange "Sanza" phone in West Africa

The Sanza phone, developed by Orange Africa in partnership with KaiOS Technologies in 2019, is a low-cost, voice-assisted smart feature phone designed to make mobile internet accessible to people with low literacy and limited digital skills. Retailing at around US $20, Sanza combines affordability with intuitive design, offering essential connectivity features such as 3G access, Wi-Fi and long battery life suitable for areas with limited electricity[75].

A key innovation is its voice-activated interface, powered by Google Assistant, which is designed to recognise and respond to multiple French and English accents common across West Africa[76]. This allows users to perform basic phone and internet tasks using voice commands, reducing dependence on text input and enabling first-time users to navigate the digital world more easily. The device's multilingual menus – available in English, French, Arabic and Swahili – further help bridge literacy and language barriers. Later models like Sanza XL and Sanza Touch introduced 4G capability and touch-screen functionality, while maintaining low prices through partnerships and pay-as-you-go financing options[77].

While not designed specifically as an assistive device, the Sanza's voice-enabled interface and multilingual menus help overcome common barriers faced by people with low literacy and certain disabilities, such as visual or motor impairments. Its simplified design demonstrates how mainstream technology can integrate inclusive features that benefit a wider range of users.

The Sanza experience shows how inclusive design and private-sector innovation can advance accessibility goals when affordability, localisation and usability are addressed together. Governments can amplify such impact by incentivising voice-based and multilingual mobile solutions, supporting partnerships between operators, device makers and accessibility experts.

National policies provide a strong foundation for this shift. India's National Policy on Universal Electronic Accessibility mandates the adoption of universal design principles across electronic and ICT products, integrating accessibility standards such as Web Content Accessibility Guidelines (WCAG) and Authoring Tool Accessibility Guidelines (ATAG) to ensure that persons with disabilities can independently access digital platforms. Kenya's National ICT Policy promotes accessibility and inclusive public service delivery, encouraging the creation of affordable, locally-relevant digital content in multiple languages and formats. Meanwhile, South Africa's White Paper on the Rights of Persons with Disabilities places accessibility and universal design as core state obligations, directing all government departments to mainstream disability rights into service delivery and to remove systemic barriers that restrict participation. Together, these frameworks demonstrate how policy can foster innovation and scale inclusive mobile technologies.

These considerations are equally relevant in high-income countries. Certain groups – such as older adults who may be less familiar with digital tools and persons with disabilities who rely on continuous advancements in accessibility features and assistive technologies – still benefit greatly from inclusive design. Moreover, high-income markets often lead in setting accessibility standards. For example, the European Accessibility Act aims to create a more consistent internal market for accessible goods and services (including smartphones) by aligning requirements and reducing disparities between Member States.

[75] Orange (2019), Orange launches « Sanza », the phone which democratises access to Internet in Africa
[76] KaiOS (2019), Orange Sanza
[77] Connecting Africa (2020), Orange, Google launch $30 smartphone for Africa

In practice, mobile operators are playing a key role in translating inclusive design principles into real-world accessibility solutions. In Ethiopia, Ethio Telecom's Telebirr service enables visually impaired users to send and receive money through voice commands, allowing independent use of mobile financial services. Orange Group applies a "design for all" approach, offering features like voicemail-to-SMS transcription and auto-reply text messages for deaf users. In South Africa, Vodacom provides similar SMS voicemail options, giving customers with hearing impairments accessible alternatives to audio messages[78]. These examples show how inclusive design can be integrated into mainstream commercial offerings, not as a separate add-on but as a core principle of innovation. By applying accessibility from the start, mobile operators can create products that are easier to use for everyone – helping close both the disability and literacy gaps.

The GSMA Innovation Fund for Assistive Tech

The GSMA Innovation Fund for Assistive Tech, launched in 2020, was created to help startups and small enterprises in Africa and Asia design and scale digital solutions that address barriers faced by persons with disabilities. With support from the UK Foreign, Commonwealth & Development Office (FCDO) and the Swedish International Development Cooperation Agency (SIDA), the Fund provided between £100,000 and £250,000 in grants, along with mentoring, technical guidance and partnerships with mobile network operators[79].

Four startups were selected for the programme: DeafTawk (Pakistan), SignAble Communications (India), I-Stem (India) and Signs Media (Kenya). Each developed digital assistive technologies (AT) tailored to local needs – including real-time sign language interpretation, AI-driven document accessibility and voice-based mobile interfaces. Collectively, these innovators reached more than 60,000 users, with most reporting significant improvements in communication, education and employment access. For example, 91% of DeafTawk's users and 86% of I-Stem's users reported improved quality of life due to greater independence and access to digital services.

The Fund demonstrated that inclusive innovation and participatory design – involving persons with disabilities throughout product development – greatly enhances usability and adoption. Partnerships between startups, governments and mobile operators (such as Safaricom, Jazz and Dialog Axiata) were crucial in expanding access and reducing service costs, including initiatives like zero-rated data and integration into national education portals[80].

Ultimately, the Fund illustrates how targeted investment, capacity building and collaboration across sectors can stimulate sustainable, scalable assistive technologies. By aligning innovation funding with accessibility and universal design principles, such initiatives help transform mobile technology into a driver of digital inclusion, economic opportunity and social equity for persons with disabilities.

[78] GSMA (2025), The Mobile Disability Gap Report 2025
[79] GSMA (2025), GSMA Innovation Fund for Assistive Tech Launch
[80] GSMA (2023), Empowering persons with disabilities through digital innovation Insights from the GSMA Innovation Fund for Assistive Tech

The GSMA is supporting governments, the industry and other partners to improve relevant content and services

Recognising the importance of relevant content and services as well as increased demand for support from a variety of stakeholders, the GSMA has expanded its efforts to help governments, mobile operators and ecosystem partners make digital services more meaningful and accessible.

The GSMA's Connected Society and Connected Women programmes support governments, mobile operators, the wider mobile ecosystem as well as other partners to address relevant content and services. The GSMA does this through collecting data and disseminating insights, providing guidance, technical assistance and resources for project implementation, as well as through facilitating collaboration and knowledge exchange.

The GSMA has also developed tools to make capacity-building resources more inclusive – such as translating its Mobile Internet Skills Training Toolkit (MISTT) into more than 30 languages, enabling trainers to reach diverse linguistic communities. Furthermore, the GSMA Principles for Driving the Digital Inclusion of Persons with Disabilities, endorsed by a range of organisations and mobile operators, commit stakeholders to design and deliver inclusive products and services that meet the needs of persons with disabilities and advance accessibility across the digital ecosystem.

GSMA Head Office
1 Angel Lane
London
EC4R 3AB
United Kingdom