GSMA

Breaking Barriers: Advancing Digital Knowledge And Skills For Greater Inclusion And Economic Growth

Contents

Background and Context

In 2024, the GSMA published the aforementioned policy brief, Advancing Digital Skills for Greater Digital Inclusion in Low- and Middle-Income Countries, which examined how mobile digital skills can help expand digital inclusion in low- and middle-income countries (LMICs). The brief presented a set of ten policy recommendations to address the digital skills gap, along with insights from industry-led initiatives and an overview of GSMA tools to support implementation and scale.

Building on that foundation, this complementary report - Advancing Digital Skills and Digital Literacy for Greater Inclusion and Economic Growth serves as a guide, translating the recommendations set out in the policy brief into practical insights and real-world examples from across regions. The 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.

To support policy planning, the report presents a structured roadmap, organising the ten recommendations from the original brief into thematic areas. For each recommendation, it provides illustrative examples from both developed countries and LMICs, highlighting shared challenges, successful approaches and lessons learned to inform effective digital skills initiatives.

Policy Recommendations to Advance Digital Skills: Framework for Action

Laying the foundation: strategic planning for digital skills development

1. Use a comprehensive approach to design digital skills strategies focused on people's aspirations and needs.
2. Identify target segments for digital skills programmes.
3. Understand people's needs, goals and aspirations.
4. Implement a digital skills framework that focuses on competency areas and levels of proficiency.

Ensuring effective digital skills adoption: understanding motivations and overcoming barriers

5. Understand people's motivations to and preferences when learning digital skills.
6. Address barriers to digital skills acquisition.

Advancing digital skills and literacy: implementing effective digital skills interventions

7. Run campaigns to increase awareness of mobile internet and digital skills training opportunities.
8. Consider and invest in different channels to effectively deliver digital skills training and capacity-building initiatives.

Ensuring long-term inclusion and impact

9. Incorporate digital skills development in education policies at all levels and promote lifelong learning.
10. Ensure digital skills programmes are inclusive and address the needs of the underserved

The Digital Skills Gap: A Key Barrier to Closing the Digital Divide

More people are using mobile internet than ever before. By the end of 2024, 57% of the world, 4.6 -billion people, were mobile internet subscribers.[1] However, the growth rate at which people are adopting mobile internet has plateaued. Nearly 90% of people who do not use mobile internet live in areas already covered by mobile broadband, resulting in a usage gap affecting 3.1 billion individuals.[2] This latter group is more likely to be poorer, less educated, rural and female – as well as those with disabilities – all of whom stand to gain the most from connectivity, but who are at risk of being left behind in an increasingly digital world.[3]

In LMICs mobile is the primary - and often the only - way to access the internet, transforming people's lives in the process. Billions of people are not using it, however, despite living in areas with mobile broadband coverage. A lack of literacy and digital skills is one of the top barriers to mobile internet adoption across LMICs.

In developed economies, mobile internet is widespread and deeply integrated into daily life and economic activity, with only a small segment of the population still unconnected. While 4 out of 5 people in Europe and North America are now mobile internet subscribers, this number has not increased for a number of years.[4] With near-universal mobile coverage, the challenge now lies in connecting the remaining groups, where literacy and digital skills remain a barrier. However, the emphasis on basic digital skills is less pronounced than in LMICs, where education and awareness gaps are more significant. In developed markets, policy efforts are increasingly focused on advancing higher-level digital skills, particularly professional and technical competencies that support participation in the digital economy and evolving job markets. While grouping countries into broad categories can be useful, it's important not to treat these groups as monolithic or overlook the complexities within individual countries. In recent

1 58%- or 4.7billion people - were mobile internet subscribers at the end of 2024- GSMA Mobile Economy 2025
2 By 2030 GSMA forecasts that 64% of the world will be mobile internet subscribers
3 GSMA, State of Mobile Internet Connectivity 2024
4 GSMA, GSMA Mobile Economy 2025

years, most growth in internet adoption has come from middle-income countries, particularly India and China, while uptake remains very low in least developed countries (LDCs), where just over one in four people are mobile internet subscribers.[5] Moreover, deep inequalities exist within LMICs themselves. For example, in India and Kenya, where vibrant, globally connected tech sectors in major cities contrast sharply with persistent digital skills and awareness gaps, especially among women and rural populations. This report presents some notable and innovative policy examples from around the world aimed at strengthening digital skills and literacy. It includes lessons from industry-led initiatives and an overview of GSMA tools and resources to support implementation and scaling. While examples are drawn from both developed countries and LMICs, the report is designed to be broadly applicable and adaptable across contexts.

Digital Skills

The GSMA defines 'mobile digital skills' as the knowledge and skills required to effectively and safely use a mobile device and mobile services, including mobile internet.[6] More broadly, digital skills refer to the ability to use other digital tools and technologies. Throughout this report, 'mobile digital skills' and 'digital skills' are used interchangeably.

'Advanced' Digital Skills

A broad distinction can be made between basic digital skills (that refer to a user's competency to make more everyday use of digital tools) and more 'advanced' skills that refer to a broad range of professional level competencies such as programming, advanced data analysis and working with AI.

Digital Literacy

A broader concept that includes the ability to understand and engage with the digital world, including the ethical and social implications of digital technology.

[5] 26% of people in LDCs were mobile internet subscribers at the end of 2023 - GSMA, GSMA Mobile Economy 2024
[6] GSMA. (2021). Developing digital skills in low- and middle-income countries

Mobile Digital Skills And Literacy: A Global Imperative For Inclusive And Meaningful Connectivity

The need to advance digital skills has gained traction globally, as seen by robust commitments made at international, regional and national levels, acknowledged across the economic spectrum, from LMICs to more developed economies. These capabilities represent a critical enabler for driving digital inclusion to increase digital inclusion and enhancing livelihoods while simultaneously increasing online safety and security, particularly against emerging threats and fraudulent activities. Proficiency in advanced digital competencies - notably programming and expertise in high-growth domains such as artificial intelligence (AI) and cybersecurity - is seen as an essential catalyst for job creation and economic expansion, particularly in developed economies.

International organisations have repeatedly stressed the importance of digital literacy and skills. Key examples include:

- The UN's Global Digital Compact calls for maximum levels of basic digital skills, especially for the underserved, and the need for national digital skills strategies, better data and increased financing.
- The World Bank's Digital Development Global Practice lists digital literacy and skills as a key pillar. Similarly, digital skills constitute one of the five foundational pillars of the World Bank's Digital Economy for Africa (DE4A) initiative.
- The ITU's Digital Skills Toolkit is a comprehensive guide, principally for policymakers, to creating effective national digital skills strategies and policies. First published in 2018 and updated in 2024, the toolkit develops a framework around a number of actionable insights and examples.

Similarly, at the regional level, the European Commission has been a leader in promoting the importance of digital skills and literacy within the union, including through their DigComp framework, a globally recognised standard for identifying and describing the key areas of digital competence. In their Digital Compass for 2030 strategy, they set a target that by 2030, at least 80% of adults in the EU have basic digital skills, with more than 20 million people working as ICT specialists.

Notable government efforts to improve digital skills

Singapore: Since 2015, Singapore's SkillsFuture initiative has provided grants and subsidised training for citizens to upskill in areas like data analytics, coding, cybersecurity and AI. As part of the initiative, every citizen is given a personal account, with the government contributing $500 to early-stage and $4,000 to mid-career professionals, to be spent on a range of approved training courses. More than 1 million Singaporeans (37% of the population) have utilised this credit since the launch of the programme.[7] Part of the initiative includes collaborating with companies such as IBM and Google to offer certifications and employment opportunities.

Finland: The Finnish government has implemented a comprehensive and inclusive strategy to enhance digital skills and literacy across all segments of its population. The Framework for Digital Competence embeds 'digital competence for studies, working life and social participation' at the heart of the curriculum, with media literacy and online safety mandatory at all levels of education. For those not in formal education, the government coordinates a Digital Support Network, a coalition of a range of municipalities, NGOs and libraries offering training in digital devices and services, particularly for marginalised groups (e.g. elderly people and immigrants). According to the EC, the country has the second-highest levels of basic digital skills across the region[8].digital competence for studies, working life and social participation" at the heart of the curriculum, with media literacy and online safety mandatory at all levels of education. For those not in formal education, the government coordinates a Digital Support Network, a coalition of arange of municipalities, NGOs and libraries offering training in digital devicesfor example and services, particularly for marginalised groups (elderly people and immigrants). According to the EC, the country has the second-highest levels of basic digital skills across the region[9].

Kenya: In collaboration with The United Nations Development Programme (UNDP) and Microsoft, the Government of Kenya launched the Africa Centre of Competence for Digital and AI Skilling in 2024. This pan-African centre aims to give civil servants the skills needed to harness the potential of AI to efficiently deliver public services. This complements the Kenya National Digital Master Plan 2022-2032, which targets increased digital literacy among 300,000 public servants[10].

South Korea: Launched in 2022, South Korea's Digital Talent Initiative aims to train 1 million citizens in advanced digital skills over a 4-year period.[11] This complements the 1.5 million citizens that were trained in more basic digital skills between 2020 and 2022 through a network of over 1,000 Digital Competency Centers.[12] In partnership with tech companies, the initiative provides certifications in growth areas including AI, blockchain and big data. At the same time, the government has pledged to double the number of information and computer classes and expand the number of graduate programmes in six key digital fields - AI, semiconductors, 5G/6G, quantum computing, the metaverse and cybersecurity - areas where the country has been seen as falling behind other developed economies. In 2024, the Government committed USD $1 billion to personalising learning in core subjects through AI.[13]

7 Skills Future Year In Review 2024, April 2025
8 xxxxxxxxxxxx
9 In 2023, 56% of EU citizens aged 16-74 had at least basic digital skills. Finland (82%) was second only to the Netherlands. Source: EC, Eurostat, Skills for the digital age, 2023
10 UNDP, Africa Center of Competence for Digital and Artificial Intelligence Skilling, 2024
11 Korea to nurture one million talent to lead the digital era, August 2022
12 OECD, Observatory of Public Sector Innovation: The Digital Competency Center
13 Inter-American Development Bank, Implementing Edtech at Scale: 3 Lessons from Korea for Digital Transformation, March 2025

Advancing Digital Literacy & Skills: Examples

This table summarises the ten policy recommendations outlined in the GSMA's policy brief for Advancing Digital Skills for Greater Digital Inclusion in Low- and Middle-Income Countries, and provides a selection of real-world examples that illustrate how different countries and stakeholders are working to advance digital skills and literacy. 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	Country/ Countries	Organisation(s)	Example(s)
Laying the foundation: strategic planning for digital skills development			
1. Use a comprehensive approach to design digital skills strategies focused on people's goals and needs.	South Africa	Government (various)	National Digital and Future Skills Strategy
	Sri Lanka		Digital Sri Lanka programme
	Ukraine		National Surveys on Digital Literacy
2. Identify target segments for digital skills programmes.	Spain	IBM Madrid Council	IBM Skills Build
	Japan	Osaka Municipal Government	
	Pakistan	Government of Pakistan	DigiSkills.pk
	West and Central African countries	MTN	MTN Data Smart
3. Understand people's needs, goals, and aspirations.	India	GSMA	Developing mobile digital skills in low- and middle-income countries
	Ghana		
4. Implement a digital skills framework that focuses on competency areas and levels of proficiency.	Kenya	UNESCO	Digital Literacy Global Framework (DLGF)
	Ghana		
	Egypt		
	Pakistan		
	Nigeria	Government of Nigeria	National Digital Literacy Framework
	Australia	Government of Australia	Digital Literacy Skills Framework
	Global	EQUALS	EQUALS Global Partnership for Gender Equality in the Digital Age

> continued

Policy Recommendation	Country/ Countries	Organisation(s)	Example(s)
Ensuring effective digital skills adoption: understanding motivations and overcoming barriers			
5. Understand people's motivations and preferences to learn digital skills.	Philippines	Government of the Philippines	Tech4ED
6. Address barriers to digital skills acquisition.	India	Government of India	Pradhan Mantri Gramin Digital Saksharta Abhiyaan
	USA	National Council on Aging	Digital Skills for Seniors
	Pakistan	Jazz Pakistan	Mera Goan Live
Advancing digital skills and literacy: awareness campaigns and diverse learning channels			
7. Run campaigns to increase awareness of mobile internet and digital skills training opportunities.	Kenya	Government of Kenya & mobile industry	Child Online Protection (COP)
	Brazil	Various	#FiqueEsperto Movement
	India and Ghana	GSMA Reliance Jio	A needs-based approach to mobile digital skills training: Learnings from India and Ghana
	UK	BBC BT	"Make it Digital" Campaign BT Tech Tips
8. Consider and invest in different channels to effectively deliver digital skills training and capacity-building initiatives.	Global	Various	Code.org
		Google	Digital Garage
		Microsoft	Skills for Jobs
		Orange	Orange Digital Center (ODC)
	Egypt	Vodafone	Instant Network Schools
	Uganda	MTN	Digital Literacy Program
	US	T-Mobile	HCPL Connected
Ensuring long-term inclusion and impact			
9. Incorporate digital skills development in education policies at all levels and promote lifelong learning.	South Korea	Government (various)	The Digital Strategy of Korea
	Rwanda		National Digital Talent Policy
	Singapore		SkillsFuture
10. Ensure digital skills programmes are inclusive and address the needs of the underserved.	Global	EQUALS Global Partnership	Her Digital Skills Initiative
	United Arab Emirates	UAE Government	Digital Schools
	Singapore	Government of Singapore	Seniors Go Digital
	Canada	Government of Canada	Digital Literacy Exchange Programme (DLEP)

Laying the Foundation: Strategic Planning for Digital Skills Development

1. Use a comprehensive approach to design digital skills strategies focused on people's aspirations and needs.

Successful digital skills strategies are anchored in understanding how technology can help people achieve their life goals and needs. While not all national digital strategies explicitly state that their training initiatives are informed by user needs, most implicitly acknowledge their importance.

However, a truly comprehensive approach goes further. It involves putting in place a framework that can assess existing proficiency levels, set clear and measurable targets, and monitor progress over time. This ensures that strategies are not only aspirational but also actionable and accountable. In addition, designing effective digital skills initiatives requires more than identifying goals - it also means understanding and addressing the barriers people face in acquiring these skills - whether linked to confidence, language, or disabilities. By combining user-centred goals with structured frameworks and a focus on overcoming barriers, policymakers can create strategies that enable people to participate in and benefit from the digital economy.

For example, South Africa's 2020 National Digital and Future Skills Strategy recognises that digital skills enable people to "drive economic growth, promote social development and provide cultural enrichment," demonstrating awareness of the diverse needs that digital skills can address. Similarly, Sri Lanka's Digital Sri Lanka programme, while not explicitly framed around user research, shows an understanding of learner needs through its Smart Social Circles initiative. This community-driven model recognises the importance of peer-to-peer learning and the social support networks that help individuals build digital confidence and skills more effectively. Finally, Ukraine stands out as an exemplary case, having conducted comprehensive needs assessments through National Surveys on Digital Literacy in 2019 and 2021, using methodology aligned with European Commission standards. These assessment results directly informed the content and structure of Ukraine's educational offerings, illustrating how a thorough understanding of the population's needs can shape more effective digital skills development programmes.

These examples highlight the value of grounding digital skills strategies in a clear understanding of people's real-life goals and needs. When countries take a user-focused approach - whether through formal assessments or embedded policy goals - they are better equipped to design a relevant, targeted strategy that drives meaningful digital inclusion.

2. Identify target segments for digital skills programmes

Identifying target segments for digital skills programmes is crucial to ensure training initiatives effectively address the specific needs of diverse populations. Segments should be defined early, based on priorities and development goals, and can reflect demographics (age, gender, income, education, location) or shared characteristics such as professions, interests, or activities. LMICs often focus on basic digital literacy to help citizens access online services, use mobile internet, and engage in digital financial transactions. By contrast, developed markets emphasise advanced professional skills such as coding, cybersecurity and AI to meet industry demands and upskill the workforce. Several successful initiatives demonstrate this targeted approach. IBM's SkillsBuild programme collaborates with organisations worldwide to deliver tailored digital skills training, including its partnership with the Osaka Municipal Government in Japan which equips job seekers with IT skills for tech-related employment, and its collaboration with the Madrid Council Employment Agency in Spain which provides unemployed people with essential technical and professional skills. Similarly, DigiSkills.pk, launched by the Government of Pakistan, targets specific segments including freelancers seeking to enter the global digital marketplace and students and professionals requiring enhanced employability skills in areas like graphic design, WordPress and AutoCAD.

MTN Data Smart: Increasing mobile internet access and use through digital skills training

Launched in 2019, MTN Data Smart is the already successful initiative that aimed to increase mobile internet adoption among 'entry' and 'emerging' consumers, predominantly in the West and Central Africa (WECA).[14] MTN took a holistic approach, combining face-to-face training, in-store videos, point of sale (POS) training, SMS links (including those to 'zero-rated' websites) and posters, with all material drawn from GSMA's Mobile Internet Skills Training Toolkit.

In Benin, 134 trade marketing agents were deployed to train POS staff and 400 trained field sales agents were sent out to train customers. An evaluation conducted by GSMA found that the initiative increased ARPU (average revenue per user) by 74% in Cameroon and 311% in Benin.[15] Leveraging insights from the pilot, MTN integrated key learnings to scale the initiative, launching an expanded campaign across more markets. In 2021, MTN trained 24 million people in the 12 Data Smart Markets.[16]

3. Understand people's needs, goals and aspirations

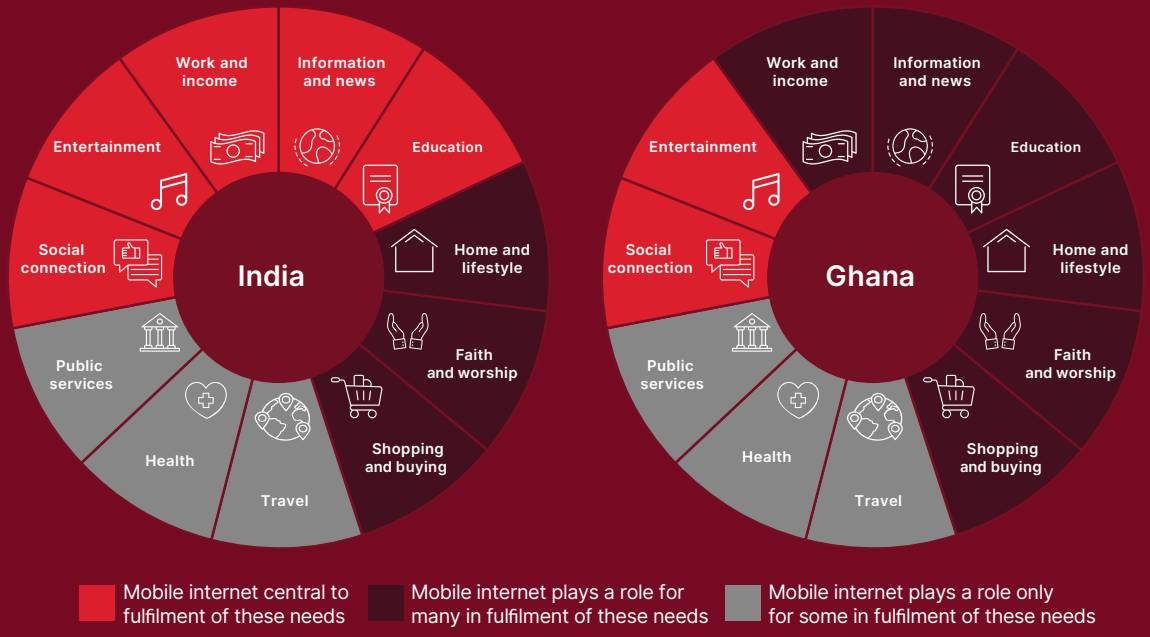
After identifying user segments, it is crucial to assess their needs, goals and aspirations to determine the most relevant digital skills training use cases. This should always form the first step of any attempt to develop any strategy or intervention.[17] For example, when targeting a female, rural segment in an LDC, the approach will be very different from targeting an urban, male segment in an LMIC. Generally, certain use cases may resonate more in different markets and for different segments: basic connectivity and financial inclusion in LMICsor workforce upskilling and digital services in developed markets. Training use cases can be specific (for example, using mobile money or WhatsApp) or goal-oriented (for example, improving education, finding jobs or running an online business), depending on user priorities. Programmes should align with the most compelling and relevant use cases for each target population as these will drive engagement and long-term skill development.

[14] Markets were: Benin, Cameroon, Congo Brazzaville, Côte d'Ivoire, Guinea-Conakry, Nigeria, Rwanda and Uganda
[15] GSMA, MTN Data Smart Increasing mobile internet access and use through digital skills training, 2021
[16] MTN, MTN's multi-pronged approach to accelerate digital inclusion, 2022
[17] GSMA, Developing mobile digital skills in low- and middle-income countries, 2021

The role of mobile internet in supporting the life needs of users in India and Ghana

In 2021, GSMA conducted research in India and Ghana, investigating what the digital skills needs were and how those skills were acquired.[18] It identified 11 life needs based on people's goals, daily activities and frustrations (see below). While mobile internet can address needs across all areas of life, people prioritise differently based on demographic factors: for example, gender and location were primary indicators in India, while age was the main factor in Ghana. Across both countries, saving time and money emerged as universal priorities, with mobile internet perceived as valuable for supporting these needs, though many users failed to recognise its potential applications in certain areas of their lives.

Figure 1 Competency areas and proficiency levels by use case



Source: GSMA, Understanding people's mobile digital skills needs, 2021

[18] GSMA, Understanding people's mobile digital skills needs Insights from India and Ghana, 2021

4. Implement a digital skills framework that focuses on competency areas and levels of proficiency

After identifying target groups and relevant use cases, policymakers must gain a detailed understanding of digital skills proficiency levels within each user segment and identify existing skills gaps. While developed markets have made significant progress in this area, with most OECD countries and some Asian and Latin American nations developing their own frameworks to guide digital skills measurement and support educational material development, African countries typically lag behind in this process.[19] UNESCO's Digital Literacy Global Framework (DLGF) offers a comprehensive structure for addressing this challenge by identifying key competency areas, including information literacy, communication, content creation, safety, and problem-solving. This framework provides common reference points that enable consistent assessment and training worldwide, with particular emphasis on inclusive approaches to address digital disparities across diverse socioeconomic contexts. Several countries, including Kenya, Ghana, Egypt, and Pakistan, have already adapted this framework to develop their national digital literacy strategies.

Adapting global frameworks like the DLGF to local contexts is essential for developing relevant education curricula, training programmes, and assessment methodologies. Nigeria's Digital Literacy Framework aligns with UNESCO's Digital Literacy Global Framework (DLGF), while offering a structured, locally adapted approach to equip Nigerian citizens with the skills needed to actively participate in the digital economy. Australia has also introduced its Digital Literacy Skills Framework, which defines key digital competencies across contexts such as education and the workplace. The framework draws on international standards to ensure a comprehensive and adaptable approach. Beyond geographical adaptation, effective frameworks must also address demographic considerations, particularly gender disparities in digital technology uptake and usage. The EQUALS Global Partnership for Gender Equality in the Digital Age has pioneered this approach by creating the first framework introducing gender-transformative approaches to digital skills education, recognising that closing the digital gender gap requires targeted interventions and specialised methodologies.[20]

[19] World Bank, Digital Skills: Frameworks and Programs, April 2020
[20] EQUALS, Towards A Gender Transformative Approach, 2024

Figure 2 Competency areas and proficiency levels by use case

Competency areas	
Set-up and configuration	The ability to set up devices, products and services, configure settings and set → preferences to personal needs. Examples include acquiring, understanding and managing a data plan, setting up internet access, downloading and installing or deleting applications, creating accounts and managing device or app settings.
Information Management	The ability to articulate information needs, to search or discover new and useful information, content and services, and to evaluate, compare and judge the relevance and trustworthiness of information and its sources.
Digital communication	The ability to interact, communicate, collaborate and participate in society hrough a variety of digital services. It also includes being able to build a positive digital identity and reputation while being aware and sensitive to others' needs, concerns and cultural diversity.
Digital content creation	The ability to create, edit and share digital content with a particular audience or contribute information to an existing body of knowledge.
Safety and security	This is a cross-cutting competency and includes the ability to protect devices, content and personal information (e.g. the ability to change privacy settings, protect passwords), as well as physical and psychological well-being from potential online harm (including scams, malware, harassment and harmful content).
Problem solving	The ability to identify technical problems with devices or services, and addressing them or recognising the lack of capabilities to do so. It also includes being able to help others develop their digital competence and stay up to date with new developments.

Proficiency levels

Complexity of tasks involved in the use case

ENTRY LEVEL	EXPERIENCED	EXPERT
Few actions and information cues involved in performing tasks **Example:** *Basic use of entry-point platforms, such as sending a message over WhatsApp*	Multiple actions and information cues involved in performing tasks **Example:** *Regular use of common use cases for a wider range of services*	Many actions and information cues involved in performing tasks that can change over time **Example:** *Specialist use cases across a broad range of platforms, such as operating an m-health platform while visiting patients*

Source: GSMA, Accelerating mobile internet: policy considerations to bridge the digital divide in low- and middle-income countries, 2021

Ensuring Effective Digital Skills Adoption: Understanding Motivations and Overcoming Barriers

5. Understand people's motivations and preferences to learn digital skills

Digital skills interventions are most effective when they align with the motivations and learning preferences of their target audience, preferences that evolve at different stages of the learning journey. While many individuals start using mobile internet by exploring socially driven use cases like messaging, entertainment or social media, their needs become more diverse and goal-orientated as their confidence grows. To sustain engagement, training must start by building on these use cases to gradually introduce new applications that serve broader life goals, such as improving livelihoods, accessing services or navigating job markets.[21]

In the early stages, in-person, hands-on support is critical, especially in LMICs where digital exposure may be limited and barriers like affordability or device access reduce practice opportunities. In developed markets, learners may face different challenges, such as low motivation or discomfort with technology, particularly among older populations. Over time, as users become more confident, self-guided and digital learning formats can play a stronger role, allowing for more flexible, independent skill development.The Philippine government's Tech4ED programme, led by the Department of Information and Communications Technology (DICT), illustrates this well. Designed to bridge the urban-rural digital divide, it provides community-based centres that offer access to connectivity alongside training content tailored to local priorities, from education and entrepreneurship to government services. This flexible model meets learners where they are and reflects a user-centred design that acknowledges the varying motivations, needs and preferences at different stages of digital adoption. As of December 2024, more than 2,500 Tech4ED Centers have been established across the country, particularly focusing on underserved and rural areas.[22]

Effective programmes recognise this diversity in learner journeys and may offer flexibility in their delivery to adjust to learners' different needs. By combining in-person guidance with scalable self-learning tools and adapting delivery to local context and user goals, they help individuals progress from basic use to more meaningful and empowering digital engagement.

[21] GSMA, Understanding people's mobile digital skills needs, 2021
[22] Philippine News Agency, Digital PH will be competitive worldwide, 2025

6. Address barriers to digital skills acquisition

Individuals encounter a range of barriers to digital skills acquisition, varying by country, demographic group and individual. For those in LMICs, despite living within the footprint of a mobile broadband network[23], the affordability of handsets remains the top barrier to mobile internet adoption.[24] In developed markets, individuals struggle more with digital confidence, motivation, and resistance to change.[25] Social and cultural factors create additional hurdles in LMICs, particularly limited awareness of use cases beyond basic communication, which disproportionately affects women.[26] A lack of conventional literacy can also be a key barrier to digital adoption.[27] These contextual differences demand targeted intervention strategies that address region-specific challenges while promoting inclusive digital participation.

Localised, relevant content represents a critical success factor for digital skills programmes regardless of economic context. In LMICs, programmes like India's Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDisha) demonstrate effectiveness by offering training materials in 22 scheduled languages plus English, with both online and offline availability to overcome accessibility barriers (see below sidebar). Similarly, an agent-based approach can help address female-specific obstacles through tailored in-person training. Indeed, the return on investment (ROI) of skills training can often be higher with women, as they start with lower levels of experience, have fewer opportunities and, consequently, less confidence than men.[28] Initiatives that address cultural barriers and leverage local community networks, such as Jazz Pakistan's rural digital literacy programme Mera Goan Live, demonstrate the most effective approach to sustainable impact.[29] Developed markets show comparable adaptation needs, as exemplified by the National Council on Aging's partnership with AT&T in the US, which combines in-person workshops at senior centres with online education specifically designed for older adults, ensuring digital inclusion across all demographic segments.

These examples underscore the importance of designing flexible, context-sensitive delivery models that account for local barriers, whether linguistic, cultural or demographic. By tailoring approaches to specific user groups, digital skills initiatives can more effectively close inclusion gaps and support meaningful, sustained digital engagement across diverse populations. Moreover, policymakers should consider the development of comprehensive, multifaceted interventions that simultaneously tackle other barriers, for example handset affordability or relevant content, alongside a focus on digital skills acquisition gaps.

[23] Usage gap is now nine times the size of the coverage gap
[24] GSMA, State of Mobile Connectivity, 2024
[25] OECD, Skills Outlook 2021: Learning for Life, 2021
[26] GSMA, Female Micro-Entrepreneurs: Driving the digital and financial inclusion of women micro-entrepreneurs in low- and middle-income countries, September 2023
[27] UNESCO, Digital inclusion for low-skilled and low-literate people: a landscape review, 2018
[28] GSMA, Delivering digital skills training for impact: Learning and insights from Sierra Leone, 2024
[29] GSMA, Jazz Pakistan educates rural women and men about the transformational benefits and uses of mobile, 2025

The Pradhan Mantri Gramin Digital Saksharta Abhiyaan (Prime Minister's Rural Digital Literacy Mission)

Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) was launched in 2017 under the Government of India's large-scale Digital India Programme, in an attempt to bridge the urban-rural digital divide. India has a thriving IT sector, with cities full of highly qualified graduates. However, the country also has a larger urban-rural digital skills gap than the global average: the Indian Council for Research on International Economic Relations (ICRIER) 19 percentage point difference between those in urban areas who could carry out an intermediate level digital task (attaching something to an email) and those in rural areas.[30]

The initiative provides one member from each eligible rural household with 20 hours of training in essential digital skills through village-level Common Service Centres (CSCs), enabling participants to use digital devices, access internet resources and utilise e-governance platforms and digital payment systems.

Content was translated into all 22 of India's official languages and English. In the 7 years the initiative was operational, 64 million people were trained, 48 million were certified, and women represented nearly half of the total. While the scale of the programme is unprecedented, a robust evaluation was not conducted. Limited assessments suggest that the major issues faced by the CSCs were intermittent internet connectivity (51%), local administrative support (29%) and irregular power supply (24%). However, it is clear that the initiative did help accelerate the adoption of digital technologies in rural communities, with some suggestions that it helped increase the use of digital financial services in rural areas, enhancing employment opportunities and improved access to digital government services. While most beneficiaries were happy with the course (80%), there is no data on how much their digital skills and understanding were augmented by PMGDISHA.[31]

[30] ICRIER, State of India's Digital Economy 2024. They also found an 8 percentage point gap between men and women
[31] Indian Institute of Public Administration, PMGDISHA: Impact Assessment Report, 2023

Advancing Digital Skills and Literacy: Implementing Effective Digital Skills Interventions

7. Run campaigns to increase awareness of mobile internet and digital skills training opportunities

Lack of awareness of mobile internet remains a significant step towards mobile internet adoption, as many potential users are unaware of how mobile internet can meaningfully improve their lives. To increase awareness, it is critical to highlight the barriers to internet adoption as well as the benefits and relevant use cases of mobile internet in digital skills campaigns.[32] In the GSMA's Mobile Gender Gap Report 2025, safety and security are one of the top five barriers to mobile internet adoption for women. To address this barrier, educational campaigns can highlight how internet users can take steps to protect themselves and avoid scams to stay safe online. Countries have implemented various approaches to address these challenges, such as Kenya's Child Online Protection (COP) initiative supported by mobile network operators like Safaricom and Brazil's #FiqueEsperto Movement, which leverages multiple communication channels including social media, SMS and email notifications to educate users about fraud prevention and digital security practices. For certain demographics, particularly women, awareness campaigns must go beyond highlighting use cases to include social and behavioural change communication that helps build the perception that the internet is accessible and beneficial for people like them.[33]

Ensuring learners know about available digital training opportunities and can access training activities and resources is key to driving effective training initiatives. The BBC's 'Make it Digital' Campaign in the UK exemplifies this approach by

Orange Digital Center (ODC)

Orange Digital Centre (ODC) aims to bridge the digital divide by providing free and accessible digital skills training, entrepreneurship support and job-readiness programmes for youth, women and underserved communities across Africa, the Middle East and Europe. While each market differs, centres typically comprise:

- A coding school offering free training programmes for young people
- A FabLab (fabrication Laboratory) that provides tools and resources for prototyping and creating technology solutions
- An accelerator for startups, providing mentorship, funding opportunities, and business development support
- A dedicated space for Orange partners and external stakeholders to collaborate on digital innovation projects.

By the end of 2023, there were 22 ODCs across the world, with 200 startups supported that year.[34]

[32] GSMA, A needs-based approach to mobile digital skills training: Learnings From India and Ghana, 2024
[33] GSMA, Pick up the phone! Accelerating digital adoption through women's Self-Help Groups in India, 2023
[34] Orange, Integrated Annual Report 2023-2024, 2024

utilising television, radio and online resources to encourage digital skills learning among both children and adults. Similarly, Britsih Telecomm's newspaper advertisement campaign during the COVID-19 lockdowns (a step-by-step guide on making video calls) demonstrates how traditional media can effectively deliver digital skills instruction to populations that might otherwise be difficult to reach through digital channels. These multi-channel awareness strategies provide essential pathways for connecting target populations with available digital skills resources and training opportunities.

8. Consider and invest in different channels to effectively deliver digital skills training and capacity-building initiatives

Implementing digital skills training through multiple channels is essential to ensure accessibility for diverse user segments across both LMICs and developed markets. Early-stage learners typically rely on close social circles or trusted community focal points for initial engagement, with family members, friends and community centres serving as critical confidence-building resources before users develop the confidence to explore digital tools independently. This progression from supported to self-directed learning necessitates training delivery systems that accommodate various learning preferences and comfort levels.

Strategic partnerships with mobile operators and other private sector entities create mutually beneficial collaborations that extend digital skills programmes beyond pilot stages. Sustainable initiatives effectively balance commercial benefits with development goals, leveraging mobile operators' extensive distribution networks as training delivery channels. Such approaches include incentivising sales agents to provide training to potential and existing customers, simultaneously enhancing digital literacy while driving data adoption and service usage. This alignment of commercial and social objectives creates the sustainability necessary for long-term impact on digital inclusion efforts.

Government support can further strengthen these efforts by funding agent training, improving device accessibility and identifying priority communities that would benefit most from training on strategic and high-impact use cases. These targeted interventions enhance the reach and effectiveness of digital skills programmes, ensuring that limited resources generate maximum social and economic returns by addressing the most significant barriers to digital inclusion for underserved populations.

Public-private partnerships offer particularly powerful implementation models, as demonstrated by successful collaborations between governments and mobile network operators, such as in the cases of Vodafone Egypt, MTN Uganda and T-Mobile US. In the United States, the private sector has spearheaded numerous effective initiatives, often in productive partnership with the government. Programmes like Code.org, Google's Digital Garage and Microsoft's Skills for Jobs initiative offer free or affordable training to build coding, digital marketing and other tech-related skills.

Code.org

Code.org is a US nonprofit founded in 2013. It has a range of large donors including Microsoft, Amazon and Google and aims to expand access to computer science education, with a particular emphasis on promoting coding, AI and digital literacy for students of all ages, backgrounds and skill levels. In the US, they are partnered with more than 180 of the largest school districts and train 72,000 educators. The main focus is on introductory training, such as its noted Hour of Code campaign, which introduces students to basic programming concepts through engaging tutorials. The platform offers a comprehensive, free curriculum available in more than 45 languages and has reached more than 80 million students globally. The Code.org Advocacy Coalition now numbers more than 100 organisations, with notable policy successes including getting 50 US States to make computer science part of the core curriculum.

Ensuring Long-Term Inclusion and Impact

9. Incorporate digital skills development in education policies at all levels and promote lifelong learning

Governments should make digital skills a central component of education policy. This involves embedding digital competencies across all levels of the curriculum, training teachers to deliver effective digital education and ensuring students have access to the necessary devices and infrastructure to learn and practice these skills. Countries like South Korea offer strong examples of this approach, with the government pledging to double the number of computer and information technology classes, expand software and AI education in elementary and middle schools, and establish new graduate schools in critical digital sectors such as AI, semiconductors, quantum computing and cybersecurity. Similarly, Rwanda has implemented significant initiatives to integrate digital literacy into its education system. The 2017 National Digital Talent Policy[35] emphasises increasing digital literacy across all levels of society, with particular focus on the education sector, including primary and secondary school students.

However, since the majority of those lacking basic digital skills are adults who are no longer in formal education, efforts must extend beyond the classroom. Governments should invest in lifelong learning initiatives, with particular attention to upskilling older populations and underserved groups. Improving digital competencies in the workplace can also yield substantial benefits for individuals and national economies. In high-income countries, this has become an area of active policy innovation. Singapore's SkillsFuture initiative, for example, offers subsidised training in high-demand areas such as AI and cybersecurity, in partnership with leading tech firms like Google and IBM. While such extensive support structures may be beyond the immediate reach of many low- and middle-income countries (LMICs), all governments can take meaningful action by designing incentives for employers to engage in workforce training and by ensuring that public sector employees have access to structured digital upskilling opportunities.

10. Ensure digital skills programmes are inclusive and address the needs of the underserved

Those who remain excluded from the benefits of mobile internet are disproportionately:

- Poorer
- Less educated
- Rural
- Persons with disabilities
- Women.[36]

A number of notable initiatives are targeting these populations, for example, the UAE's Digital Schools programme which targets young people in refugee camps and marginalised communities, irrespective of their social, economic and educational backgrounds. In developed markets, older people are now one of the principal groups that require support. To this end, Seniors Go Digital', an initiative of the Government of Singapore, in partnership with a coalition of corporates, community organisations, donors and volunteers, aims to improve the digital skills of older residents through in-person and digital training.

[35] Ministry of Youth and ICT, National Digital Talent Policy, 2017
[36] GSMA, State of Mobile Connectivity 2023 and State of Mobile Connectivity 2024, 2023 & 2024

Towards a gender transformative approach to digital skills education

As part of the EQUALS Her Digital Skills Initiative, the GSMA co-published a gender transformative digital skills education framework. This framework and practitioners' guide recommend gender-transformative approaches to the design of digital skills education programmes: both inside and outside the classroom. It outlines an inclusive, contextualised, competency-based approach to learning strategies, curricula and content, and underscores the importance of integrating gender norm change theory and practice. The report also recommends how different stakeholders can intervene in the wider ecosystem to bridge the gender digital divide.

Those who remain excluded from the benefits of mobile internet are disproportionately poorer, less educated, rural, persons with disabilities and women.[37] A number of notable initiatives are targeting the populations, for example, the UAE's Digital Schools programme targeting young people in refugee camps and marginalised communities, irrespective of their social, economic and educational backgrounds. In developed markets, older people are now one of the principal groups that require support. To this end, 'Seniors Go Digital', an initiative of the Government of Singapore, in partnership with a coalition of corporates, community organisations, donors, and volunteers, aims to improve the digital skills of older residents through in-person and digital training.

Digital Literacy Exchange Program (DLEP) in Canada

Canada's Digital Literacy Exchange Programme (DLEP) was the $30 million government digital skills programme focused on supporting a broad range of communities underrepresented in the digital world:

- Persons with disabilities
- Indigenous People
- Newcomers to Canada
- Language minorities
- Low-income individuals
- Individuals with low education levels
- Those living in rural and remote communities
- Seniors (aged 65 and older).

Starting in 2018, it focused on equipping Canadians with the necessary skills to engage with computers, mobile devices and the internet safely, securely and effectively. Over a four-year period, it reached more than 357,000 participants from underrepresented groups, supporting a number of community groups in the process. It was found to be effective at increasing use skills and confidence in using the internet and was particularly effective at reaching seniors.[38] The second phase began in 2022, with additional funding of $17.6 million.

[37] GSMA, State of Mobile Connectivity 2023 and State of Mobile Connectivity 2024, 2023 & 2024
[38] Innovation, Science and Economic Development Canada, Audit and Evaluation Branch, 2021

The GSMA Works With Governments, Mobile Operators and Development Partners on Advancing Digital Skills

Advancing digital skills is a key priority for the mobile industry and central to the GSMA's mission to promote digital inclusion. Through its Connected Society and Connected Women programmes, the GSMA actively supports governments, mobile operators and other stakeholders in LMICs to design and implement effective, evidence-based digital skills strategies. This support spans a range of areas, including data and research, technical assistance, implementation tools and knowledge exchange.

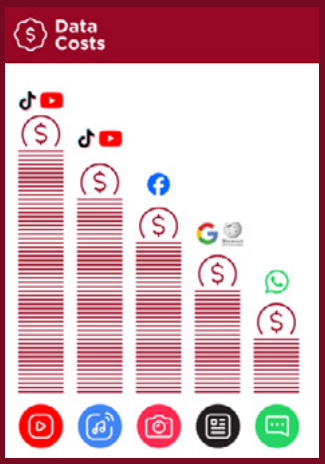
A core component of this effort is the Mobile Internet Skills Training Toolkit (MISTT), a free, adaptable resource that helps organisations teach essential mobile internet skills, enabling people to meet every day needs and improve their lives. The GSMA provides partners with end-to-end support to apply MISTT in their context, including help with campaign planning, training-of-trainers and impact monitoring. The GSMA's support to policymakers in deploying MISTT has led to a tangible, real-world impact.

For example:

- In Malawi, the Universal Service Fund (USF) is using MISTT to train SMEs in three cities. The training aims to empower small businesses with mobile internet skills to support trade and digital empowerment, with plans to expand to additional districts.
- In Zambia, the national regulator ZICTA has localised MISTT content and is preparing to train a pilot group of artisans, farmers and young people in rural and peri-urban areas across five provinces.
- In Côte d'Ivoire, the GSMA worked with the Tony Blair Institute and the ministry in charge of digital transformation to pilot a training for women micro-entrepreneurs in Tiassalé in December 2024. Following the success of the pilot, the programme is set to scale to additional cities in 2025.

Free resources to implement digital skills programmes: The Mobile Internet Skills Training Toolkit

The Mobile Internet Skills Training Toolkit (MISTT) is a free, easy-to-use set of resources designed to teach essential mobile internet skills using a train-the-trainer model.



MISTT is available in more than 30 languages and includes a wide range of modular lessons on popular apps like WhatsApp, YouTube and Google, as well as on core digital topics such as using a smartphone, downloading apps, managing data costs and staying safe online. The content is offered in both written and video formats, so it can be easily adapted to different local contexts and learner needs. Guidance for trainers is also included, supporting effective and consistent delivery.

MISTT is designed to break down digital skills barriers by equipping trainers to educate communities and customers, particularly those new to the internet. It has been deployed in numerous countries and has already helped to train more than 75 million people. Beyond improving digital literacy and boosting mobile internet use, MISTT deployments have demonstrated a strong return on investment, highlighting that digital skills training can deliver both social impact and commercial value.[39]

To strengthen cross-sector collaboration, the GSMA also launched the Mobile Digital Skills Alliance, which brings together a broad coalition of actors working on digital skills in LMICs, including mobile ecosystem companies, policymakers, international organisations, NGOs and development partners. The Alliance serves as a platform to share knowledge, generate insights and align efforts to accelerate digital skills development and digital inclusion.

The importance of this work is further underscored by the GSMA's ESG Metrics for Mobile framework,which includes digital skills training as a core priority for the mobile sector. This framework supports operators in measuring and disclosing their impact on digital inclusion through a sector-specific ESG lens.[40]

These partnerships illustrate how the GSMA is working hand-in-hand with policymakers and local stakeholders to ensure that digital skills training is both impactful and inclusive, laying the groundwork for broader digital transformation globally.

[39] GSMA, Accelerate digital inclusion by addressing key barriers to mobile internet adoption and use, 2022
[40] GSMA, ESG Metrics for Mobile Benchmarking 2024, 2025

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