INCLUDE

KNOWLEDGE PLATFORM ON INCLUSIVE DEVELOPMENT POLICIES

Digital Divides or Dividends? Synthesis Report on Digitalisation of Basic Services in Benin, Ghana, Mauritius, Rwanda, and Uganda

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Table of Contents

1. Introduction

Multiple African countries are undertaking rapid digitalisation, driven by increases in access and usage of Information and Communication Technologies (ICT), local innovations and deliberate government initiatives that aim to catalyse the use of digital technologies in socio-economic transformation. The use of digital technologies is taking centre stage in various facets of life, including education, health, work, business, citizen participation, and financial services. There has notably been a steep rise in digital services interventions in recent years, particularly since the COVID-19 outbreak, with many governments adopting online platforms and technologies to facilitate remote learning, public services delivery, provide economic relief through cash transfers and conduct electoral processes. However, knowledge of these interventions is insufficient and fragmented, and the impacts on inequality are unknown and contested.

Moreover, progress on the critical pillars for digital transformation - an enabling policy and regulatory environment; digital infrastructure; digital skills and human capacity; and digital innovation and entrepreneurship - which are laid out in the African Union (AU) Digital Transformation Strategy for Africa (2020-2030) - are not well documented, particularly at the national and subnational levels. This makes it difficult to guide effective policy and practical interventions in this area. The AU Strategy, as shown in figure I, provides a blueprint for societal and economic transformation and singles out various sectors and cross-cutting themes as pathways to prosperity and inclusivity.

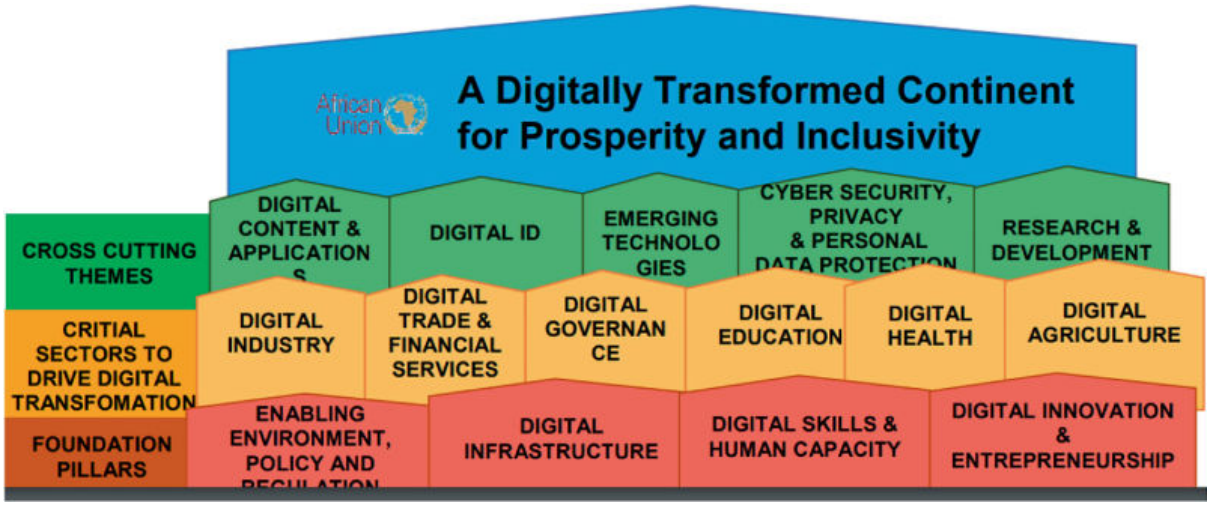

Figure I: African Union Digital Transformation Strategy for Africa (2020-2030) Conceptual Framework

In much of the continent, the COVID-19 crisis provided a boon for increased usage of digital technologies in areas such as education, cashless transactions and mobile or digital health, with the aim of maintaining the flow of information, wellbeing and participation. Indeed, COVID-19 exhibited the need for African governments, along with non-state actors including civil society and the private sector, to invest more in digitalisation as an enabler of efficient, cost-effective and inclusive services, and of socio-economic development. However, the pandemic also illuminated the problem of unequal access to technology and how a large number of people in Africa are locked out of participating in the digital society, including from attaining learning, being able to work remotely, and participating in democratic processes. Only 28.2% of Africa's population uses the internet, according to the International Telecommunications

Union (ITU).[1] Poor women, rural populations, refugees and persons with disabilities face particularly acute digital exclusion.[2] There is indeed a growing concern that minority and marginalised communities are being left behind in accessing information and services with the advent of COVID-19.[3] This is because, despite the recent expansion in ICT usage, digital exclusion persists due to limited access and affordability of the requisite technological tools, low digital literacy skills and shortage of content in accessible formats, among other factors.

Accordingly, there is a need to generate sound evidence on if/how the digitalisation of services is delivering dividends by reducing poverty and inequality, the factors that enable such dividends, and how the digitalisation agenda can be more inclusive so as to better contribute to development, build back better after the COVID-19 fallout, and ultimately attain the Sustainable Development Goals (SDGs).

This Synthesis paper summarises the findings of case studies on the digitalisation of basic services in five countries - Benin, Ghana, Mauritius, Rwanda, and Uganda. The case studies examined these countries' unique national contexts surrounding digitalisation, provided a mapping and examples of digitalised services, and tried to assess how inclusive these interventions are. The studies focused on Government-to-Citizen services that impact poor and the most vulnerable groups, such as the use of online platforms and technologies to provide education, social protection, healthcare, and civil registration, as well as inter-governmental services like digital administration. An overview of these services can be found in Section 3.2.

The paper compares the five countries in their enabling environments for digital transformation, such as the legal and regulatory environment, infrastructure and affordability, and digital skills, in order to identify key areas for investment and development cooperation (Section 4). Comparisons are also made with counterparts in the region, in particular high performers in e-government and digitalisation such as Kenya and South Africa. The paper further takes a comparative look at country performance based on indices such as the E-Government Development Index (EGDI), Network Readiness Index (NRI), Global Cybersecurity Index (GCI) and the e-Participation Index. The EGDI measures three dimensions of e-government, namely provision of online services, telecommunication connectivity and human capacity, while the NRI assesses the "future readiness" of countries based on these pillars: Technology, People, Governance, and Impact. The GCI measures the commitment of countries to cybersecurity at a global level, with the assessment focusing on (i) Legal Measures, (ii) Technical Measures, (iii) Organisational Measures, (iv) Capacity Development, and (v) Cooperation.[4] Based on three core components - eInformation, eConsultation and eDecision making - the eParticipation Index provides insights into how different countries are using online tools in promoting interaction between the government and its people, as well as among the people, for the benefit of all. An attempt is made to flesh out the causal factors that link actions adopted by the different countries to the results that are in place today in terms of infrastructure expansion, as well as access and affordability.

The final section of the synthesis seeks to identify the extent to which existing services narrow or widen inequalities. The e-services from the case studies are assessed in terms of how they

[1] ITU, Measuring digital development Facts and figures 2019, https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2019.pdf
[2] Reflections of a Digital Divide, https://a4ai.org/wp-content/uploads/2021/11/A4AI-Media-Representations-Discussion-Paper.pdf
[3] Why Access to Information on Covid-19 is Crucial to Persons with Disabilities in Africa, https://cipesa.org/2020/04/why-access-to-information-on-covid-19-is-crucial-to-persons-with-disabilities-in-africa/ and Promoting Digital Inclusion for Refugees Aming the Covid-19 Crisis in Egypt, https://cipesa.org/2021/04/promoting-digital-inclusion-for-refugees-amid-the-covid-19-crisis-in-egypt/
[4] https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx

enable greater access (spatial and social equity), usage (affordability, skills, relevant content) and participation in key basic services. Common successes and obstacles from the case studies are documented.

A major goal of this Synthesis Paper is to identify links between the enabling conditions, performance in e-governance, and the inclusiveness of digital basic service interventions. By doing this, it provides knowledge and guidance that can be adapted by other countries that seek to maximise the potential and minimise the risks of digitalising basic services. Furthermore, by situating the findings within ongoing debates on the digitalisation of basic services, and linking them to continental digitalisation strategies and overall continental progress, the Synthesis Paper offers lessons and best practices for replicating and scaling digital services and making them more inclusive, while highlighting critical gaps for knowledge and practice.

2. Methodology

The studies that formed the basis of this Synthesis Paper were developed through a combination of qualitative and quantitative approaches. In all the countries under study, researchers reviewed and analysed digitalisation-related legislation, policy documents and existing literature, as well as websites, online portals and digital public services.

Furthermore, the researchers conducted in-depth interviews with officials in state agencies in charge of digitalisation of public services to understand the supply-side perspectives on digitalisation efforts. Additional interviews were conducted with members of Civil Society Organisations (CSOs) and selected private sector agencies active in digitalisation processes. This allowed the research to generate a wholesome picture of the efforts and initiatives undertaken by the various governments to facilitate the digitalisation of public services as well as the access to and usage of the services by public officials and citizens. The interviews and reviews enabled the researchers to assess progress in implementing the various initiatives and their effect on inclusion in the digital society and digital economy.

For some of the countries under study, quantitative data was collected through surveys. In Benin, the survey involved 800 respondents in the communes of Cotonou and Abomey-Calavi, in Ghana there was a nationwide survey of 1,694 individuals, whereas in Uganda the survey involved 40 households. These surveys focused on demand-side experiences of digitalisation, including how available, affordable and accessible the services are, and how wellbeing and human rights issues are affected by the digitalisation of basic services in the focus countries.

The analysis of the country case studies to generate this Synthesis paper took a comparative approach, exploring variances in the context and regulatory policies and practices of the different countries. Illustrative initiatives from each country were highlighted and additional literature reviews conducted to buttress the evidence provided in the initial reports. Further, analysis of select online platforms explored their content and accessibility based on consideration for a diversity of users. The aim was to establish how these platforms enhance or undermine equality and universal access.

Whereas a sector approach to the analysis of country case studies was initially envisaged, this was found not to be feasible due to limited amount of information in the individual country reports and paucity of information in the public domain. In this regard, it was not possible to analyse, for instance, factors enabling inclusion in the education sector across the five countries. The recommendations in this paper combine 1) the conclusions of the different reports on the causative factors for delivering dividends or for deepening divides; and 2) the inferences made by the synthesis on the basis of the inclusion analysis and the emerging factors to which success and failure can be attributed.

Ultimately, the synthesis took a keen interest in understanding the enabling conditions for inclusive digital transformation, moving from analysing legislation and policies to unpacking how they are implemented and the impact they have had on inclusiveness, particularly for poor and marginalised communities.

3. Findings

This section presents the findings of the study. First, it provides a contextual overview of the countries studied, which centres on the ICT landscape and the legal and regulatory framework. The ICT landscape subsection reviews access and affordability of ICT, infrastructure roll-out, and access to electricity. There is also a comparative review of the performance of different countries on indices such as the E-Government Development Index (EGDI), Network Readiness Index (NRI), and the e-Participation Index. Furthermore, the section provides an overview of the laws and policies in the study countries which govern the digital technology sector and charts the digitalisation journey of the different countries. This context provides a backdrop against which case studies on basic digitalisation services are reviewed in sub-section 3.2. It also helps to explain the findings of the analysis that follows in sub-section 3.3, which discusses how the digitalisation of services has impacted inclusion, looking specifically at equitable access across geographic and social groups, affordability, digital literacy and participation.

3.1 Contextual Overview

3.1.1 ICT Landscape

All countries studied - Benin, Ghana, Mauritius, Rwanda, Uganda - have made steady progress in extending network coverage and boosting telephone and internet penetration. However, the results are mixed, as some countries, such as Uganda and Rwanda, have comparatively lower telephone and internet penetration rates. With the exception of Mauritius and Ghana, the other countries have relatively low levels of electrification.

Mauritius
Mauritius ranks higher than other African countries on most indices that measure the level of digital readiness. For example, on the 2022 EGDI, Mauritius was ranked at position 75 out of 193 countries assessed.[5] It also had the second highest rank in Africa, after South Africa, followed by Seychelles and Tunisia. On the NRI, Mauritius is ranked 72 out of 131 countries globally.[6] Access to electricity stands at 99% of the population.[7] The GCI ranking for Mauritius is 17 out of 194 countries globally and first in the Africa region.[8]

Figures from the Information and Communication Technology Authority (ICTA) of Mauritius indicate that there are 1.8 million internet subscriptions and a penetration rate of 143%, while mobile subscriptions stand at 1.9 million equivalent to a penetration rate of 155%.[9] Whereas the Authority's figures are not disaggregated by gender or geographic coverage, the ITU Digital Development Dashboard 2020, showed that 78% of females and 81% of males own a

[5] https://publicadministration.un.org/egovkb/Data-Center
[6] Network Readiness Index, https://networkreadinessindex.org/country/mauritius/
[7] Access to Electricity, https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS
[8] Global Cybersecurity Index 2020, https://www.itu.int/epublications/publication/D-STR-GCI.01-2021-HTM-E
[9] ICT Mauritius Market Observatory, https://www.icta.mu/observatory-mobile/#

mobile phone.[10] This is much higher than in Kenya where only 47% of women own a mobile phone. In South Africa, ITU statistics indicate that more women (80%) own a mobile phone compared to men (77%). Notably, the ITU Digital Development Dashboard does not indicate gender gap figures in mobile phone ownership for the majority of African countries including the other study countries – Benin, Ghana, Rwanda and Uganda.

Table I: Key ICT Indicators[11]

Country	Telephone penetration	Internet penetration	Access to electricity
Benin	103%	69%	41%
Ghana	130%	75%	85%
Mauritius	155%	143%	99%
Rwanda	80%	60%	50.9%
Uganda	73%	55%	42.1%
Kenya	123%	30%	71.4%
South Africa	169%	70%	84.4%

Rwanda

In Rwanda, the internet penetration rate stood at 60% (7.9 million subscriptions) and mobile penetration rate was 80% (10.5 million subscriptions) by the second quarter of 2022.[12] Whereas the ITU Digital Development Dashboard does not provide gender gap statistics for Rwanda, the 2020 FinScope Report showed that 87% of adults in Rwanda had access to a mobile phone with females (84%) having less access compared to men (90%).[13]

Further, Rwanda has a target of attaining 100% universal access to electricity by 2024.[14] As at the end of 2022, the country had a connectivity rate of 77%, with 51.1% of households connecting through the national grid and 25.8% accessing through off-grid systems such as solar.[15] Moreover, there is a stark rural-urban divide, with urban areas enjoying a 97% access rate in 2020 compared to 44% for rural areas. In addition, gender disparities persist, with more male-headed households (31.2%) accessing electricity compared to 21.1% of female-headed households.[16]

The 2022 EGDI ranked Rwanda 44 positions below Mauritius at 119th out 193 countries. Nonetheless, Rwanda performed better than Uganda and Benin. On the NRI for 2020, Rwanda ranks 101st out of the 131 countries.[17] Moreover, Rwanda is ranked 57th globally and 7th at continent level on the GCI.

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[10] ITU Digital Development Dashboard, https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx
[11] World Bank Data and National Communications Regulatory Statistics
[12] RURA Report, https://rura.rw/fileadmin/Documents/ICT/statistics/ICT_Statistics_Report_for_Telecom__Media_and_Broadcasting_Sector_as_of_the_Second_Quarter_of_the_Year_2022.pdf
[13] https://www.bnr.rw/fileadmin/user_upload/2020_Rwanda_Finscope.pdf
[14] Rwanda's 100% electrification target by 2024 receives frw 82.1 billion financing boost (reg.rw)
[15] Access (reg.rw)
[16] Country-brief-Rwanda_Nov2020_final.pdf (energia.org)
[17] Rwanda – Network Readiness Index

Ghana

In Ghana, 75% of the population use the internet.[18] The mobile phone remains the main device for accessing the internet and the subscriptions stand at 40.9 million, which represents a penetration rate of 130%.[19] However, concerns remain about the low levels of device ownership by locality and gender. According to the 2020 Household Survey on ICT, ownership of mobile phones stood at 63% in urban areas, compared to 44% in rural areas. Similar location disparities were recorded for households' ownership of radio, television and internet usage. Ownership of mobile phones amongst women was 52% compared to 56% for men.[20] At position 106 on the EGDI 2022, Ghana comes second after Mauritius among the five countries studied, while on the NRI and GCI it is ranked 103 and 43, respectively. Electrification access stands at 85%.

Uganda

As of June 2022, Uganda had a total of 31.3 million telephone subscriptions which translates to a 73% penetration rate. At 23.7 million broadband subscriptions, internet penetration is at 55%.[21] According to a 2018 nation-wide survey by the National Information Technology Authority of Uganda (NITA-U), 76.6% of respondents named high cost as the main limitation to their use of the internet.[22] The same reason was reported in the 2022 survey, which also cited the rural-urban divide (84.9% vs 92.1% vs) and a gender gap (84.6% female and 89.6% male) in mobile phone ownership.[23]

Uganda's internet access problems partly arise from the low electricity coverage. There are 1.6 million connections to the national grid.[24] World Bank figures put electrification at 42% of the population.[25] On the EGDI for 2022, Uganda is ranked 144. Rankings on the NRI and GCI are also low at 116 and 72, respectively. Access to ICT is further undermined by high and multiple taxation of internet data, mobile airtime and ICT devices.[26]

Benin

In Benin, current figures indicate an internet penetration rate of 69%, of which women constitute 32.8%.[27] There are 13.3 million mobile subscriptions which represent a penetration rate of 103%,[28] Although electrification is among the key pillars of Benin's Government Action Program CAP 2021-2026,[29] only 41% of the population has access to electricity.

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[18] National Communications Authority Bulletin, https://nca.org.gh/wp-content/uploads/2022/11/Statistical-Bulletin-Q2-2022.pdf
[19] ibid
[20] Ghana Household Survey 2020, https://nca.org.gh/wp-content/uploads/2021/02/Household-Survey-on-ICT-in-Ghana-Abridged-NRF.pdf
[21] Market Performance Report 2Q22 https://www.ucc.co.ug/wp-content/uploads/2022/11/UCC-2Q22_Final-Report_With-Response-to-ED-Comments-2-compressed.pdf
[22] NITA IT Survey 2018, https://www.nita.go.ug/reports/national-it-survey-2018-final-report
[23] NITA IT Survey 2022, https://www.nita.go.ug/sites/default/files/2022-09/NATIONAL%20IT%20SURVEY%20REPORT%202022.pdf
[24] Half Year 2022 Results Presentation, https://www.umeme.co.ug/umeme_api/wp-content/uploads/2022/08/Umeme_H1-2022-Results-Presentation_Final.pdf
[25] The World Bank, Access to electricity (% of population)- Uganda, https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=UG
[26] Taxing Ugandan Citizens Out Of The Digital Society, https://cipesa.org/2022/04/policy-brief-taxing-ugandan-citizens-out-of-the-digital-society/
[27] https://arcep.bj/wp-content/uploads/2022/06/Tableau-de-bord-Internet-au-31-Mars-2022.pdf
[28] https://arcep.bj/wp-content/uploads/2022/09/OBSERVATOIRE-DE-LA-TELEPHONIE-MOBILE-sept.pdf
[29] https://beninrevele.bj/secteur/electricite/

Benin is 110th on the NRI, 149th on the EGDI and 56th on the GCI, which makes it an average performer. Among the countries studied, it only beats Uganda on "network readiness" but on the cybersecurity index it places above Rwanda and Uganda. The ongoing expansion of the fibre optic network across the country with connections to government ministries and agencies, the reform of the telecoms sector in 2017 to make it more competitive and efficient,[30] as well as the ongoing electricity access expansion initiatives, are all expected to result in higher telephone and internet access and usage rates.

Table II: Performance on ICT Indices

Country	**E-Government Development Index (EGDI) (2022)**		**Global Cybersecurity Index (GCI) 2020**		**Network Readiness Index (NRI) 2022**
	Global Ranking	*Regional Ranking*	*Global Ranking*	*Regional Ranking*	
Benin	149	24	56	6	110
Ghana	106	7	43	3	103
Mauritius	75	2	17	1	72
Rwanda	119	13	57	7	101
Uganda	144	22	72	9	116
Kenya	113	10	51	5	77
South Africa	65	1	59	8	68

3.1.2 Legal and Regulatory Environment

The various countries have enacted laws and policies that govern the digital technology sector. The countries developed their ICT policies, mostly between 2008-2016, which laid the foundations for growth of their ICT sectors in the period just after they liberalised their telecoms sectors. More recently, the various countries have enacted Broadband Plans and Strategies, or "Digital Visions" in a move that exhibits the realisation by various governments that in order for their digitalisation agendas to bear meaningful benefits, a greater number of citizens must have access to fast, modern, and affordable internet and devices, as well as efficient services by the public and private sectors. Overall, the prevailing legal and regulatory environment in the study countries aims at catalysing digitalisation. Across the board, strategies and plans outline clear digitalisation objectives, ambitious targets and success indicators, with support from the top levels of government and ongoing efforts to mainstream technology in all spheres of public services provision.

Among the laws that have been enacted include those on cybercrime and cybersecurity; electronic signatures; data protection; and general laws governing the use of ICT, telecom networks and services. All countries have laws and policies that aspire for inclusive access and usage of digital technologies and e-services (see table III).

[30] https://arcep.bj/wp-content/uploads/2019/01/ARRETE-N%C2%B0-2017-017-SUR-LES-REDEVANCES.pdf

The enactment of data protection laws, a key legislation for the sector, has been very spread out and in some cases misused. Mauritius (2004) and Ghana (2008) are pioneers in enacting laws that govern data protection, and Benin passed its data protection law not long after in 2009. Uganda (2019) and Rwanda (2021) trailed behind in this effort. In Rwanda, this led to the suppression of online civic space and undermined trust in online public services. The prevailing landscape in Uganda has been criticised for hampering citizens' use of the internet and other digital technologies. The Computer Misuse Act has been weaponised against critical opinion and dissent. Moreover, the industry regulator, Uganda Communications Commission (UCC), which is responsible for the regulation of communication networks (television, radio, telecommunications companies, and internet service providers) is often criticised for lacking independence and placing undue controls on the use of ICT.

The five countries have regulatory authorities for the telecommunications sector and data protection. In addition, centres for research, innovation and skills building have been established, alongside dedicated agencies that offer strategic leadership and spearhead the implementation of digitalisation agendas (see table III). Oversight over the various bodies and agencies lies within the line Ministries, except in Benin where some agencies are directly supervised by the Presidency.

3.1.3 Linking Enablers to Performance

The foregoing analysis indicates that countries have attained different levels of ICT penetration and usage. Affordability remains a key concern in most countries. Also, fewer women use digital technologies compared to men, although Mauritius stands out as having a narrower digital gender divide than the other countries. The access and usage figures, as well as rankings on global indices, suggest that early adopters of national digitalisation agendas, notably Mauritius and Ghana, have attained more progress than countries such as Benin, whose digitalisation journeys are more recent. It is no wonder that Mauritius and Ghana have been the leaders on the EGDI, the GCI and the NRI. In all countries, the rates of mobile phone access are higher than those of internet usage. This may be down to issues of digital literacy, trust and security, awareness of mobile internet, availability of broadband infrastructure and type of handsets owned. Indeed, research in 2022 cited some countries with high levels of mobile ownership but relatively wide gender gaps in mobile internet use.[31] In particular, this research noted that Kenya had a mobile ownership gap of 6% and a mobile internet use gender gap of 38%, followed by Nigeria with 5% and 36% respectively, and Senegal with 7% and 16% respectively.

Over the last several years, African countries have instituted various policies, laws, regulations and “masterplans” to enhance digitalisation. However, in spite of their existence, many of the policies provisions that aspire to deliver digital dividends are only partially and in some cases haphazardly implemented. It is also apparent that countries which have had a longstanding tradition of developing visions and policies that mainstream ICT in national socio-economic development, and which offer support to the non-public sectors (citizens, private sector), notably Ghana, Mauritius, and Rwanda (to a lesser extent) have made considerable headway in engendering inclusion. Benin, which has had most of its dedicated digitalisation effort over the last decade, has not made as much headway as Mauritius and Ghana that started the digitalisation process 20 years ago.

The impact of having clear digital visions and national level plans for digital transformation is a key enabler - with performance on indices a direct result of deliberate government policy that promotes ICT literacy, private sector investments, and widespread access and affordability of ICT. The EDGI recognises Rwanda and Mauritius as recording rapid

[31] GSMA, The Mobile Gender Gap Report 2022, The Mobile Gender Gap Report 2022, https://www.gsma.com/mobilefordevelopment/blog/the-mobile-gender-gap-report-2022/

eGovernment development as a result of strategies aligned with national policies and the SDGs. Specifically, the explicitness of Mauritius's Digital Transformation Strategy, including through outlining best practice, encouraging cross-sectoral collaboration and alignment with the Public Sector Business Transformation Strategy. Indeed, Mauritius has successively formulated National Strategic Plans since 1998, with periodic reviews and updates in 2006, 2011 and the latest being the Mauritius Strategic Plan 2030. Similarly, Rwanda's digitalisation agenda has been guided by a series of five-year ICT strategic plans, widely referred to as National Information Communication Infrastructure (NICI) plans, implemented since 2001. The EDGI applauds Rwanda for its long-term vision under the SMART Rwanda Master Plan.

Indeed, just as they do on infrastructure roll-out and access rates, as well as an enabling legal and regulatory environment, Mauritius and Rwanda are ahead of the other study focus countries in vision and policy making for digital trade and financial services as priorities. In this regard, Mauritius has enacted a dedicated law for the Fintech sector - the Virtual Asset and Initial Token Offering Services Act 2021 which is aimed at regulating the developing Fintech sector. Moreover, Rwanda has drafted a Fintech Strategy and Policy (2022-2027).

Still on the private sector front, in Mauritius, the creation of the Board of Investment in 2001 (presently Economic Development Board) is actively promoting foreign investments in the ICT Sector while creating a level playing field for local enterprises through its competitive incentives. [32] The National Productivity and Competitiveness Council (NPCC) is currently implementing the "Enterprise Go Digital" programme to boost digitalisation among business enterprises.[33] In Rwanda, the SRMP focuses on building business and innovation to place Rwanda as Africa's ICT Hub, using a private sector driven economy.

A major challenge in the regulatory environment is harmonising ICT policies and governing bodies. It is evident that there are multiple entities regulating ICT development and digitalisation efforts, and in some countries, there have been efforts towards harmonised implementation. A June 2022 Council of Ministers Decree in Benin saw the merger of the Digital Development Agency (ADN), the Information Services and Systems Agency (ASSI), the National Information Systems Security Agency (ANSSI) and the Beninese Agency for Universal Electronic Communications and Postal Services (ABSU-CEP) to form a single Agency of Digital Technologies and Information Systems (ASIN) to ensure rationality, efficiency and consistency of digitalisation efforts. The ASIN, another agency that regulates the digital sector, was placed under the dual supervision of the Ministry of Digital Technology and Digitalisation (MND) and the Ministry of Economy and Finance (MEF).

Similarly in Ghana in 2021, the Ministry of Communication was renamed the Ministry of Communication and Digitalisation with a renewed mandate as the focal point for digitisation initiatives in the country. Meanwhile, Uganda has announced intentions to dissolve the National Information Technology Authority (NITA-U) and have its mandate taken over by the ICT ministry, in a move it hopes will "address challenges of duplication of work, overlaps of mandates, conflicts, and wasteful expenditures."[34] It is too early to tell whether the merger into a single agency in Benin and the rationalisation in Ghana and Uganda will lead to more efficiency. However, these rationalisation moves speak to the realisation that some countries have too many regulatory agencies responsible for digitalisation, which may result in duplicative and inefficient rollout of initiatives.

[32] https://www.edbmauritius.org/ict

[33]https://npccmauritius.org/en/about-enterprise-go-digital.html

[34] ICT ministry, Nita-U clash over Shs710b, https://www.monitor.co.ug/uganda/news/national/ict-ministry-nita-u-clash-over-shs710b-4017032

Table III: Overview of the Legal and Regulatory Environment

Benin	**Ghana**	**Mauritius**	**Rwanda**	**Uganda**
Key laws and policies				
The Digital Code, 2018 Law Relating to Electronic Communications and Post, 2014 Law on the Protection of Personal Data, 2009 Digital Sector Policy Statement (DPS)	National Communications Authority Act, 2008 Electronic Communications Act, 2008 Data Protection Act, 2012 Electronic Transactions Act, 2008 National Information Technology Agency Act, 2008 Cybersecurity Act, 2020 The Ghana ICT for Accelerated Development (ICT4AD) Policy National Broadband Policy & Implementation Strategy	Information and Communications Technology Act, 2001 Electronic Transaction Act, 2000 Cybersecurity and Cybercrime Act, 2021 Data Protection Act, 2017 Virtual Asset and Initial Token Offering Services Act 2021	Law Governing Information and Communication Technologies, 2016 ICT Sector Strategic Plan 2018-2024 SMART Rwanda Master Plan National Broadband Policy, 2022 National Cyber Security Policy, 2015 National Data Revolution Policy, 2017 Data Protection Law 2021 Law on the Prevention and Punishment of Cybercrime, 2018 Local Digital Content Promotion Strategy and Implementation Plan 2018-2022	Data Protection and Privacy Act, 2019 Electronic Signatures Act, 2011 Electronic Transactions Act, 2011 Broadband Policy, 2018 Communications Act, 2013 National Cybersecurity Strategy eGovernment Policy Framework, 2011 Universal Service and Access Fund Regulations, 2019

	Ghana National Cyber Security Policy & Strategy		ICT Hub Strategy 2024	
Key Institutions and Initiatives				
Ministry of Digital Technology and Digitalisation Electronic Communications and Postal Regulatory Authority (ARCEP) Beninese Agency for Universal Electronic Communications & Postal Services (ABSU-CEP) Beninese Digital Infrastructure Company (SBiN) National Agency for the Identification of Persons (ANIP) Personal Data Protection Authority (APDP) Agency for Digital Technologies and Information Systems (ASIN) Government Action Program (CAP) 2021-2026	National Communication Authority (NCA) National Information and Technology Agency (NITA) Data Protection Commission (DPC) The National Cyber Security Centre (NCSC) Ghana Investment Fund for Electronic Communications (GIFEC) Ghana-India Kofi Annan Centre for Excellence in ICT Accra Digital Centre National Cyber Security Authority	Information Communication Technology Authority (ICTA) Ministry of Information Technology Communication and Innovation (MITCI) National Computer Board Data Protection Office Mauritius Research and Innovation Council (MRIC) Digital Mauritius Strategic Plan 2030 Digital Government Transformation Strategy 2018-2022	Ministry of ICT & Innovation (MINICT) Rwanda Information Society Authority (RISA) Rwanda Utilities Regulatory Authority (RURA) Rwanda Development Board (RDB) National Identification Agency (NIDA)	Uganda Communications Commission (UCC) The National Information Technology Authority-Uganda (NITA-U) Ministry of ICT & National Guidance Personal Data Protection Office Digital Transformation Programme Digital Uganda Vision

3.2 Case Studies of Digitalisation of Services

A key concern of this Synthesis Paper is understanding some of the basic public services that have been digitised in the different countries. Accordingly, this section presents a brief profile of some of those services, including elements of success and challenges to inclusion. The case studies presented here then form the basis of the inclusion analysis that follows in sub-section 3.3.

The countries have instituted digitalisation efforts to deliver dividends to citizens across a wide range of sectors. Resource appropriation through dedicated budget allocations, in-kind contributions, private-public partnerships, foreign direct investments and bilateral agreements are a key driver of digitalisation.

Below are key basic digital services in the focus countries, which were documented by the country case studies.

Centralised Portals
Centralised online portals for accessing public services and management of information requests exist across all the study countries, with various levels of uptake. The platforms provide a mix of fully digitised services (application, payment and completion online) while others are a combination of online procedures and relocation offline to complete the processes, in sectors ranging from immigration, agriculture, utilities, revenue collection, health, education and many more. The combination of online and offline is common for civil registration services which require biometric data collection, such as passports, national identification cards and driving licences. These civil registrations and the resultant digital IDs have become a primary requirement for citizens access to digitised services.

Benin's gouv.bj provides 560 services, of which 132 are fully digitised - application, payment and completion online - while the other services require applicants to visit a physical office. For its part, ghana.gov.gh serves as a Ghana government online centre, managing and hosting all central and local e-government services. In Mauritius, govmu.org centralises 85 e-government services. Rwanda's Irembo (/irembo.gov.rw) provides access to over 100 e-government services. Uganda's gou.go.ug was established with a similar vision to those in Benin, Ghana, Mauritius and Rwanda. However, it is now defunct and in its place is the eCitizen portal (eCitizen.go.ug) which serves as a directory of various e-government platforms.

As one-stop public service centres, the portals are promoting efficiency in service delivery and access to information, reducing bureaucracy and promoting accessibility by reducing the burden of travelling to government offices. For instance, Rwanda's Irembo portal has reportedly reduced government's administrative expenditure while ensuring consistent and convenient service delivery to citizens, at home and abroad.[35] Similarly, in Tanzania, a study found that the tanzania.go.tz portal had significantly improved public service delivery by reducing the cost of citizens' access to public services. According to this study, which involved interviews with 110 respondents (86 public services consumers and 24 civil servants from ministries and government agencies), the portal had enhanced citizens' access to information, improved quality of services, saved time and led to procedural fairness. Yet this study also noted a need for continuous awareness among citizens and efficient integration of more e-government services.[36] However, there are few studies on the impact of centralised portals in the focus countries.

[35] https://www.ktpress.rw/2022/06/wtdc-2022-how-digitalisation-transformed-service-delivery-in-rwanda/
[36] https://www.eajournals.org/wp-content/uploads/Assessing-the-Impacts-of-One-Stop-Government-Portal-on-Improvement-of-Public-Service-Delivery-in-Tanzania.pdf

Whilst data security and privacy protection remain key concerns, interoperability and centralised service initiatives, in addition to the prevailing data protection and cybersecurity regimes, in the study countries have aimed to address this through Public Key Infrastructure (PKI) for authentication and e-signatures.

Education

Governments have recognised the potential of technology to improve the quality of education and deliver dividends for learners, teachers, and guardians. Online curriculums, connectivity in schools, online enrolment, alongside interconnection among research centres and online transmission of national examination results have been rolled out across the five countries.

In Ghana, student enrolments from junior to senior secondary school have been digitised since 2005. The system, known as the Computerised School Selection and Placement System (CSSPS), automatically admits public school students on scholarships, overcoming regional restrictions on students and guardians having to travel to secure admissions. Meanwhile, up to 13 universities in the country have deployed open access platforms for students and faculty to promote eLearning and administration. Examples include the University of Ghana's Sakai platform; University of Cape Coast's Moodle platform; the University of Cape Coast XPay platform; and the Kwame Nkrumah University of Science and Technology app called AIM. As a result of the closure of learning institutions during the COVID-19 pandemic, the various eLearning platforms, coupled with messaging platform WhatsApp, broadcast media and virtual conferencing on Zoom, enabled continued learning for students. However, the same revealed stark regional, social and economic inequalities in Ghana's education system. Barriers included unstable electricity, limited access to smart devices, digital illiteracy and high costs of internet data despite efforts to provide students with subsidised internet bundles in partnership with local telecommunications operators.[37]

Under the School IT Project in Mauritius, ICT labs with internet connections have been set up in both private and public primary and secondary schools since 2000. In 2017, as part of the Nine-Year Basic Continuous Education (NYBCE) reforms, the Early Digital Learning Platform (EDLP) was introduced to ensure all learners in the country get equal exposure to technology, while transforming the teaching and learning environment through the use of digital technologies. Efforts under the reforms became instrumental during the COVID-19 pandemic, with online platforms along with televised broadcasts of classes enabling remote learning. However, inequality challenges similar to those in Ghana were recorded. To ensure continued learning for underprivileged students, 5,000 vulnerable households listed in the Social Register and the National Social Inclusion Foundation database benefited from free internet and soft loans for devices from the Development Bank of Mauritius.[38]

Health

In the public health sector, digitalisation is still in its infancy on the continent and across the study countries. However, it registered significant progress in response to the COVID-19 pandemic. In Benin, Ghana, Mauritius, Rwanda and Uganda, existing online services in the health sector include scheduling of appointments for COVID-19 sample collection, payments, medical history, insurance claims and test results transmission. Prescription and pharmacy services remain primarily offline, with patients required to physically travel and process these in person.

[37] https://www.aljazeera.com/features/2020/4/7/what-covid-19-reveals-about-educational-inequality-in-ghana

[38] https://www.dbm.mu/computer/#:~:text=3%25%20p.a.&text=To%20meet%20cost%20of%20purchase,printers%20and%20individual%20internet%20connections.&text=Applicants%20must%20register%20with%20the,Planters%20Welfare%20Fund%20where%20applicable.

The study found Rwanda as an outlier. In 2009, Rwanda committed USD 32 million to enhance its health sector through technology, with specific allocations to systems installations, epidemiological surveillance, telemedicine, infrastructure at health centre and hospital levels. Various eHealth programmes have since been implemented by the government including in partnership with the private sector. Among them is Babyl, a mobile-based eHealth platform, which enables remote consultations, diagnosis and prescriptions, among others.[39] Babyl is accessible through both smartphone and feature phones. According to the Ministry of Health, the platform has resulted in health service delivery rising five-fold, and helped overcome challenges related to access to primary health due to inadequate infrastructure and long distances.[40] The government also partnered with Zipline to introduce a drone delivery system for urgent medical supplies such as blood and vaccines to rural and remote hospitals and clinics, thus improving patient survival compared to when traditional means of transport were used for delivery.[41] Digitalisation also saw the government introduce robots as part of its COVID-19 response measures. [42]

Notably, Rwanda's most popular health sector digital transformation initiative is the national health insurance scheme known as *mutuelles de sant* or Community-Based Health Insurance (CBHI). Through this scheme, low income households benefit from subsidised coverage for healthcare. The CBHI is fully digitised and accessible via mobile and web and is integrated with both online banking and mobile money. Access for those without devices and connectivity is provided through health centres, Irembo agents or relatives and friends. The scheme enables access to universal healthcare through Babyl.

Land Registration

Land rights remain a highly contested issue on the continent, especially with regards to women's property rights and inheritance, and land use by the poor, including for agriculture.[43] Technology has provided a ray of hope in land information management and empowerment of women and other marginalised groups through supporting registration, address systems and transfers. In Ghana, the Ministry of Special Development Initiatives (MDSI) in collaboration with the Ministry of Local Government and Rural Development and the Land Use and Spatial Planning Authority (LUSPA), introduced a digital address system in 2017. Popularly known as Ghana Post GPS, it allows users to generate digital addresses with the aid of geocoding technology to ease navigation within the country. The system was upgraded to include property ownership details and has to-date enabled the registration of four million properties. However, the system has not been successful in informal settlements, threatening the livelihoods of the urban poor.[44]

In Rwanda, the Land Tenure Regularisation Programme (LTRP) is similar to Ghana Post GPS. The programme has with joint funding from the governments of Rwanda, United Kingdom, Sweden and the Netherlands, parcelled and demarcated land into digital cadastres, linked to the tax authority (for revenue collection) and banks and microfinance institutions (for

[39] https://www.babyl.rw/

[40] https://www.newtimes.co.rw/article/191723/News/e-health-service-delivery-rose-fivefold-a-health-ministry and https://www.healthcare.digital/single-post/2018/02/17/rwanda-s-bid-to-enhance-universal-health-access-through-tech-blazes-yet-another-trail

[41] https://www.minict.gov.rw/news-detail/rwanda-signs-agreement-with-zipline-to-use-drones-for-delivery-of-essential-medical-products and https://www.devex.com/news/opinion-how-public-private-partnerships-boost-health-tech-in-rwanda-102883

[42] https://www.moh.gov.rw/news-detail/rwanda-launches-anti-epidemic-robots-to-boost-the-fight-against-covid-19

[43] https://pure.diis.dk/ws/files/68278/Land_rights_and_land_conflicts_in_Africa_a_review_of_issues_and_experiences.pdf

[44] https://www.liverpooluniversitypress.co.uk/doi/10.3828/idpr.2021.2 and https://www.researchgate.net/publication/225536619_Out_of_place_Global_citizens_in_local_spaces_A_study_of_the_informal_settlements_in_the_Korle_lagoon_environs_in_Accra_Ghana

mortgages and loans), and reduced transfer processes from 30 days in rural districts and 14 days in Kigali to three days.[45] The programme has enabled more land ownership among women either as individuals and as co-owners.[46] Additionally it has minimised land-related conflicts.

COVID-19 Relief Programmes

In response to the outbreak of COVID-19 and the resultant social-economic impact of restrictions to curb its spread, governments across the continent pioneered various relief systems for the most adversely affected citizens. Upon validation through national IDs and revenue filings, Mauritius's COVID-19 Wage Assistance Scheme (GWAS) provided financial assistance to employees in select sectors as well as self-employed individuals.[47] Managed by the Mauritius Revenue Authority (MRA), bank disbursement under the scheme continued until December 2021. The MRA also managed the solidarity fund for voluntary contributions from individuals and companies to support efforts to address the effects of the pandemic.[48]

The government of Uganda also had a relief programme at the peak of the COVID-19 pandemic. Initially it was through food distribution to the most affected households and was later replaced with cash transfers via mobile money. The shift to mobile money was partly aimed at weeding out "ghost beneficiaries" and inflated costs of food which characterised the phase where the support was offered in physical form. Uganda's neighbour Kenya had from the outset used mobile money transfers in order to ensure the support reached those it was aimed for, namely the most vulnerable in society, rather than being swindled by government officials.[49] From the private sector, to encourage cashless transactions, commercial banks and mobile money service providers waived transaction fees while internet service providers offered subsidised data bundles to encourage remote work and learning.[50]

As highlighted under section 3 above and the select case studies, government commitments, including dedicated resource allocations and partnerships are critical to the success of digitalisation of services, especially for cross cutting themes such as digital ID, privacy and data protection. In Benin, the country's Digital ID programme has strived to diversify funding sources towards self-sustenance. Benin's Digital ID is managed by the National Agency for the Identification of Persons (ANIP) which is responsible for the registration of all natural persons in the country. At initiation, ANIP was allocated 250,000 million Central African Francs (CFA) from the Beninese government. In addition to financing from authentication fees, document issuance fees, development partner financing and donations, the agency benefits from annual budgetary allocations within the framework of the finance law. Meanwhile, the national Data Protection Authority, which oversees the implementation of the data protection and privacy law enjoys subsidies from the state to ensure effective enforcement of its mandate. According to the authority's 2015-2020 activity report, it benefited from government subsidies amounting to 255 million CFA in 2016. The following year, the authority's budgetary allocations increased to 425 million CFA, then declined to 354 million CFA in 2018, and remained unchanged in 2019 and 2020.[51]

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[45] https://www.ktpress.rw/2017/06/rwanda-reduces-land-transfer-processing-to-only-3-days/

[46] https://africa.unwomen.org/sites/default/files/Field%20Office%20Africa/Attachments/Publications/2016/03/tech%20for%20rural%20women%20policy%20brief-web.pdf

[47] https://eservices.mra.mu/eservicesseashome/index38.jsp

[48] https://mof.govmu.org/Documents/Covid-19%20Solidarity%20Fund/Update%20as%20at%2026%20March%202021.pdf

[49] Kenya enhances its cash transfer programmes in response to the COVID-19 pandemic, https://www.fsdkenya.org/blogs-publications/blog/kenya-enhances-its-cash-transfer-programmes-in-response-to-the-covid-19-pandemic/

[50] https://cipesa.org/2020/03/how-technology-is-aiding-the-covid-19-fight-in-africa/

[51] https://apdp.bj/wp-content/uploads/2020/12/Rapport-Bilan_2015-2020_Version-finale.pdf

In Ghana, government financing of digitalisation of services has been coupled with development cooperation. The eGhana Project, which is aimed at generating growth and employment, by leveraging ICT and public-private partnerships to develop the ICT-Enabled Services industry, and contribute to improved efficiency and transparency of selected government functions through e-government applications, is a joint initiative of the World Bank and Government of Ghana. The World Bank committed USD 40 million out of a total budget of USD 115.73 million. The World Bank has co-financed the Ghana Integrated Financial Management Information System (GIFMIS) to the tune of USD 44.70 million. Further support for this project came from other development partners, particularly the European Union (EU) and the UK's Department for International Development. Ghana secured a co-financing agreement of USD 27.32 million from both institutions for the Ghana Integrated Financial Management Information System (GIFMIS) project.

Several bilateral donor agencies are also promoting digitalisation in Rwanda. For instance, Germany's Development Cooperation Agency, GIZ, has a three year programme supporting the development of digital skills and entrepreneurship among young people. Similarly, ENABEL (the Belgium Development Cooperation Agency) is supporting digital skills training in Rwanda Polytechnic and the Rwanda technical and vocational education and training Board (RTB).

From the case studies presented in this section, it is apparent that these African governments have instituted a number of basic digital services in recent years. The services are in line with the critical sectors of AU Digital Transformation Strategy (industry, trade and financial services, eGovernance, education and health) as well as cross-cutting themes such as digital identification and social protection. Common among the countries are centralised online portals and dedicated mobile and web applications for accessing public services. However, statistics of the users of these portals and e-government services are hardly available and there is a stark lack of impact studies to establish the utility of these services, including how they enable inclusion. Nonetheless, the various case studies are indicative of success in ease of access to public services and empowerment including for the vulnerable and marginalised groups, all the while ensuring efficiency and reduction in public expenditure. Yet still, constraints remain especially where relocation to offline methods is necessary or where services are linked to formal documentation (ID, social register or revenue collection databases).

3.3 Inclusion Analysis

This section aims to generate an understanding of how and whether the digitalisation of services is delivering dividends to the public in an inclusive manner. Based on the five country reports, the section looks at inclusion from various angles, such as access (including spatial equality), social equality (such as access for persons with disabilities, gender inclusion, and financial inclusion), usage (affordability, digital literacy, and relevance of content); and citizen participation.

3.3.1 Access

3.3.1.1 Spatial Equality

There has been tremendous modernisation and expansion in ICT infrastructure in all the countries under study, spurred by both public and private sector investments. Some of these initiatives are supported by multilateral institutions, including lending institutions and foreign governments. These investments reflect some of the policies, regulations, and strategies that the different countries have adopted to stimulate the use of ICT as a catalyst for development and to promote nationwide digital access including in rural and underserved areas.

In Benin, a national backbone fibre-optic network across the country covers 2,000 kilometres and a metropolitan network of just over 200 kilometres is due to be installed in the main urban areas.[52] Ghana's investments in infrastructure include an 800 kilometre fibre optic backbone which covers 20 districts and 120 towns and communities.[53] In Mauritius, the InfoHighway provides interconnection between government ministries, departments and agencies (MDAs), with 139 connections and 387 e-government services supported across the country.[54] Rwanda's 4,000 kilometre network covers all districts in the country.[55] Uganda also has a National Backbone Infrastructure initiative, which spans over 3,000 kilometres.[56]

In addition to the backbone fibre-optic infrastructure, Universal Service and Access Funds (USAFs) across the five countries are enabling last mile connectivity to unserved and underserved areas and disadvantaged communities. Uganda's Rural Communications Development Fund (RCDF) has implemented various projects including the establishment of 76 Internet points of presence (POP), 106 Internet cafes, 72 ICT training centres, 4,099 Public payphones, 78 district web portals, 13 MultiPurpose Community Tele-centres (MCT), 708 School ICT laboratories, and 174 Health ICT facilities.[57] However, according to reports, many of the public access points have not been sustained.[58]

Similarly, in neighbouring Rwanda, some 45 sites were completed and operational in 2021-2022 alone by RURA.[59] According to RURA, between 2017 and 2020, Rwf 200 million (USD 192,393) was allocated to increase smartphone penetration in Rwanda under the Universal Access Fund (UAF).[60] Meanwhile, The SMART Kigali initiative has since 2015 provided internet access on public transport.[61] The initiative recently received further investment from a United Arab Emirates firm.[62]

Universal service projects have also been rolled out in Benin, albeit with limited achievements.[63] In Mauritius, the Universal Service Fund has set up various access points including in village halls, health centres, public transport stations, markets and parks, including in remote islands. The ICTA reports that it is redefining its approach and definition of universal access to shift focus onto availability, accessibility and affordability of particular services.[64]

Away from the infrastructure roll out, public access and universal service investments, infrastructure sharing requirements among private sector operators are commonplace and active sharing is widespread, further enabling access in rural areas. For instance, in Uganda, the provisions for infrastructure sharing under section 5(1)(y) of the Uganda Communications Act, 2013, are reinforced by the National Broadband Policy which mandates infrastructure sharing to avoid duplication. The policy calls on the Ministry of ICT to develop appropriate policy and regulatory frameworks and a platform for operators to share broadband

[52] https://www.commsupdate.com/articles/2021/09/16/benin-fibre-expansion-project-gets-usd40m-chinese-loan/
[53] https://nita.gov.gh/projects/jurong-logistics-hub/ and https://www.biztechafrica.com/article/ghanas-800km-fibre-optic-backbone-commissioned/10125/
[54] https://ih.govmu.org/
[55] https://www.ktrn.rw/services-6
[56] https://www.nita.go.ug/projects-service-portfolio/national-backbone-infrastructure-project-nbiegi
[57] https://www.ucc.co.ug/rcdf/
[58] https://www.pulse.ug/news/government-to-install-free-wifi-hotspots-across-the-country/7e6v3yt
[59] https://rura.rw/fileadmin/docs/report/RURA%20-%20ANNUAL%20REPORT%202021-2022.pdf
[60] https://rura.rw/fileadmin/publication/Strategic_Plan_2022-2027_for_RURA_vision.pdf
[61] https://www.newtimes.co.rw/article/127303/News/smart-kigali-400-buses-connected-to-4g-internet
[62] https://ngali.com/uae-firm-to-invest-50m-in-kigali-smart-city-initiative/
[63] https://webfoundation.org/docs/2018/03/Using-USAFs-to-Close-the-Gender-Digital-Divide-in-Africa.pdf and http://www.absucep.bj/htdocs/projets/?proj=902ba3cda1883801594b6e1b452790cc53948fda
[64] https://www.icta.mu/annual-report-2019-2020/

infrastructure plans. Further, the regulator is expected to issue guidelines to avert duplication and enforce the new policy.

Other supportive infrastructure, such as electrification, remain a challenge, with many still not connected to the national grids. Efforts to promote affordable access to electricity through energy sector capacity development in production and coverage have not been matched with new connections. For instance, in 2018, the Uganda government launched the Electricity Connection Policy offering subsidised new connections for households.[65] However, due to funding shortages, the policy was suspended in 2020 and only reinstated a year later, with a significant backlog.[66]

Despite the various efforts to enable universal access through infrastructure roll out, sustainability such as for USAF supported equipment including maintenance and upgrades remains a challenge. As recognised by Benin, there is a need to redefine universal access to shift focus from one-off interventions onto continued availability, accessibility and affordability of services to ensure equitable and inclusive digital development.

3.3.1.2 Social Equality

Accessibility for Persons with Disabilities
Despite increased adoption of technology on the continent, persons with disabilities continue to face exclusion due to a lack of access and affordability of the requisite devices, and failure by service providers to provide information and services in disability-friendly formats.[67] Guidelines for government websites often require accessibility features to be incorporated or indications of how services or information can be obtained in other formats (braille, or hard copy). From the case studies, an overwhelming majority of online portals and e-government services fall short on accessibility requirements, leaving persons with disabilities with limited or no access to e-government services. For instance, of all the five countries' centralised portals, only Mauritius's govmu.org incorporated accessibility features for persons with visual impairment. Moreover, all the portals had no practical information on how to obtain information or services for persons with disabilities, likely leaving many such users no option but to physically visit the government offices to receive services.

It should be noted that although some of the countries studied have web accessibility guidelines drawn up by sector leaders, such as Uganda's National Informational Technology Authority, NITA-U, these are not implemented. Research has shown that inaccessibility of public websites exacerbates pre-existing barriers for persons with disabilities such as unemployment and access to information.[68]

Gender Inclusion
Women in Africa continue to face various challenges that undermine their use of digital technologies. These challenges often mirror the impediments that they face in the offline world, such as in access to education and economic opportunities, or participation in civic processes.[69] In turn, there is a growing gender digital divide in the countries that were studied,

[65] http://www.rea.or.ug/wp-content/uploads/The-Electricity-Connections-Policy.pdf
[66] https://nilepost.co.ug/2021/03/03/government-resumes-free-electricity-connection-policy/
[67] https://cipesa.org/2021/12/cipesa-working-on-advancing-digital-inclusion-for-persons-with-disabilities-in-africa/
[68] https://cipesa.org/2021/03/investigation-finds-more-than-700000-barriers-limiting-website-accessibility-in-mozambique/ and https://cipesa.org/2020/04/why-access-to-information-on-covid-19-is-crucial-to-persons-with-disabilities-in-africa/
[69] Combating Online Violence Against Women and Girls for Universal enjoyment of Digital Rights, https://cipesa.org/2022/03/combating-online-violence-against-women-and-girls-towards-a-digital-equal-world/

which denies a large proportion of women the opportunity to access e-government services. As the GSMA has observed, women in developing countries are less likely than men to have access to mobile phones and use mobile internet, mobile money and other mobile services. This means that women are the most underserved, especially those with low literacy, low incomes, who live in a rural area or have a disability.[70]

Globally, in 2022, 62% of men were using the internet compared to 57% of women, implying a global internet use gender gap of 8%.[71] However, the divide is greater in the least developed countries, many of which are in Africa, where only 19% of women used the internet in 2020, according to the International Telecommunications Union (ITU).[72] However, there is limited availability of reliable gender-disaggregated data in Sub-Saharan Africa.[73] Nonetheless, the GSMA indicates that the gender gap in internet usage in Sub-Saharan Africa stood at 37% in 2021 (only South Asia had a higher gap at 41%), with the key impediments being literacy and digital skills, affordability, safety and security.

This report has chronicled prevalent drivers of lack of access to e-government services in the countries studied, and those challenges largely mirror those that drive the gender digital divide in access to the internet. Accordingly, there is a need to address the barriers to access to income, education and opportunities for women, as well as the impediments that directly relate to access to technology, such as digital literacy, affordability and digital security concerns. This synthesis report has also pointed to figures that show lower phone ownership among women compared to men in Ghana, Uganda, and Rwanda, cited statistics by regulators that only one third of internet users in Benin are women, while separate statistics have indicated lower phone ownership by women in Mauritius compared to men.

Some of the countries under study have policy commitments on addressing the gender digital divide, such as their Broadband Policies. However, beyond these policy documents, sufficient efforts are yet to be invested to meaningfully improve access and usage of digital technologies for women. Those efforts may include digital literacy programmes for women, leveraging Universal Service and Access Funds to fund digital access for women, including to smart phones, measures to combat online violence against women and to improve their digital security. Such proactive and concerted efforts to address the gender digital divide are required across Africa.

In addition to the deep gender disparity in digital access, more women than men face various forms of online violence. The absence of laws designed to address the various forms of online violence against women (such as “revenge pornography”, trolling, and threats), and the lack of comprehensive in-country reporting mechanisms, expand the digital gender divide, keeping many women offline or in self-censorship.[74]

Sustainable Development Goal five aims to achieve gender equality and empower all women and girls, while its Target 5B calls for enhancing the use of enabling technology, in particular ICT, to promote the empowerment of women. With increased digitalisation programmes

[70] GSMA, The Mobile Gender Gap Report 2022, The Mobile Gender Gap Report 2022, https://www.gsma.com/mobilefordevelopment/blog/the-mobile-gender-gap-report-2022/
[71] ITU, Bridging the gender divide, https://www.itu.int/en/mediacentre/backgrounders/Pages/bridging-the-gender-divide.aspx
[72] ITU, Bridging the Gender Divide, https://www.itu.int/en/mediacentre/backgrounders/Pages/bridging-the-gender-divide.aspx
[73] A4AI, Gender and Access, https://a4ai.org/wp-content/uploads/2022/03/AR20-Gender-Sub-Report.pdf and Victor Kapiyo, Bridging the Gender Digital Divide is Critical for Achieving Digital Rights in Africa, https://cipesa.org/2022/06/bridging-the-gender-digital-divide-is-critical-for-achieving-digital-rights-in-africa/
[74] In Search Of Safe Space Online: Research Summary, https://cipesa.org/2020/03/in-search-of-safe-space-online-research-summary/

across the continent, governments and other stakeholders need to address the gender digital divide to meet the SDGs and ensure that women do not continue to be left behind in digital public services provision.

Financial Inclusion

Mobile money continues to expand financial services across the region, moving more unbanked individuals and informal businesses into the digital economy. Indeed, there are over 600 million registered mobile money accounts in Africa, with an estimated transaction value of over USD 700 billion in 2021.[75] In 2019, Mauritius launched a national mobile payment service - My.t Money - integrated with retail and civic service payments.[76] Similar payment systems exist in the other four focus countries, boosted by the high mobile-based transaction subscriptions. The FinScope 2020 report on financial inclusion in Rwanda indicates that three in five adults use mobile money. However, there is a gender gap as 56% of women had mobile money accounts compared to 68% of men.[77] In Ghana, there were over 38 million mobile money accounts as at the end of 2020.[78] Mobile money subscriptions stand at 33.3 million in Uganda and 6.8 million Benin.[79]

The integration of payment initiation via mobile money into the various e-government service platforms has eased transactions for the majority of the public - overcoming barriers for the unbanked and ensuring convenient access to services. Digitalisation has also enabled more citizens to access financing. For example, records in Rwanda's Land Tenure Regularisation Programme (LTRP) system (which has enabled increased land ownership among women) are accessible to microfinance institutions and banks and enables them to verify land registry details and evaluate potential customer information to inform loan decisions.

Furthermore, as demonstrated in the COVID-19 relief programme case study of Uganda, the use of mobile money transfers overcame the challenges related to physical food distribution to vulnerable citizens whose livelihoods were most affected by the lockdown.[80] However, the programme has been criticised for excluding individuals without National IDs or whose phone numbers were registered under different names (a National ID is a prerequisite to SIM card registration). Similar exclusion based on civil registration status was reported in Togo, where the relief programme required beneficiaries to possess a Voters ID.[81] The examples from Togo and Uganda reinforce criticism of mandatory civil registration exercises and their exclusion of vulnerable groups including women, the elderly and ethnic minorities from accessing vital public services.[82]

[75] https://www.gsma.com/sotir/wp-content/uploads/2022/03/GSMA_State_of_the_Industry_2022_English.pdf
[76] https://www.mobileworldlive.com/money/news-money/mauritius-mobile-payment-service-launches/
[77] https://www.bnr.rw/fileadmin/user_upload/2020_Rwanda_Finscope.pdf
[78] https://www.bog.gov.gh/wp-content/uploads/2022/02/Payment-Systems-Annual-Report-2020.pdf
[79] https://www.ucc.co.ug/wp-content/uploads/2022/07/UCC-1Q22-Market-Performanace-Report-1-compressed.pdf and https://arcep.bj/wp-content/uploads/2022/09/OBSERVATOIRE-DES-SERVICES-FINANCIERS-MOBILES-sept.pdf
[80] https://www.independent.co.ug/mobile-money-cash-for-covid-19-poor/
[81] https://cipesa.org/2022/04/togo-fumbling-with-a-digital-id-while-actively-surveilling-citizens/
[82] https://researchictafrica.net/2021/06/23/uganda-are-digital-ids-a-tool-for-inclusion-or-exclusion/

3.3.2 Usage

3.3.2.1 Affordability

In many African countries, cost has been cited as an impediment to the affordability and usage of digital technologies and services. Mauritius is ranked 18th out of 72 countries in the Affordability Report 2021.[83] As shown in Table IV below, Ghana is ranked 23rd, followed by Benin (29th), Uganda (30th) and Rwanda (32nd). The cost of 1GB of mobile data in Mauritius and Ghana is lower than the 2% of the monthly Gross National Income (GNI) as per the recommendation of the United Nations Broadband Commission for Sustainable Development.[84] In comparison, Internet users in Rwanda, Benin and Uganda spend a larger proportion of their monthly income on data.[85]

Table IV: Performance on the Affordability Index[86]

Country	Affordability Index
Benin	29
Ghana	30
Mauritius	18
Rwanda	32
Uganda	30
Kenya	31
South Africa	27

Away from the cost of data, even with the financial inclusion gains mentioned above, transaction fees for digitalised services are also prohibitive, especially with the many citizens living below the World Bank poverty line of USD 1.90 per day. For instance, in Uganda utility payments (water, electricity and pay TV) via the mobile money platform of one of the leading telcos cost up to USD 1 for a transaction of between USD 16 and 33.[87] Meanwhile, for many of the digitalised services, the infrastructure and efficiency gains touted by service providers have not directly translated into reduced costs of services. For instance, whilst registration for Rwanda's Irembo is free, e-government service fees remain highly prohibitive with no difference between the cost pre and post digitalisation.

[83] Affordability Report 2021, https://a4ai.org/report/2021-affordability-report/#:~:text=What%20is%20the%20Affordability%20Drivers,ultimately%20create%20more%20affordable%20broadband

[84] The UN Broadband Commission for Sustainable Development defines the internet as being affordable when 1GB of mobile data is priced at no more than two percent of average income, https://www.broadbandcommission.org/advocacy-targets/2-affordability/ and https://www.theafricareport.com/107259/africa-which-countries-charge-the-most-for-internet-data/

[85] https://a4ai.org/news/mobile-data-costs-fall-but-as-demand-for-internet-services-surges-progress-remains-too-slow/ and Report: Rwandans spend 7% of their income on internet | The New Times | Rwanda

[86] The Affordability Index is produced by the Alliance for Affordable Internet and covered 72 countries in the 2021 edition.

[87] https://www.mtn.co.ug/insight/mobile-money-tariffs/

Table V: Overview of Irembo Service Costs in Rwanda

Institution	Service	Cost in Rwanda Francs (RWF) and USD equivalent
Rwanda National Police	Registration for driving test definitive and provisional	RWF 10,000 (USD 9.78)
Rwanda Directorate General of Immigration and Emigration	Ordinary passport	RWF 100,000 (USD 97.80)
Rwanda Social Security Board	Mutuelle	Between RWF 1,000 and 7,000 (USD 0.98-6.85) per person
Rwanda National Police	Motor vehicle inspection	RWF 20,000-40,000 (USD 19.56 -39.12)
	Application for definitive driving licence	RWF 50,000 (USD 48.90)
National Public Prosecution Authority	Criminal record clearance certificate	RWF 1,200 (USD 1.7)
National ID Agency	Application for National ID	RWF 500 (USD 0.49)
The Ministry of Local Government	Birth certificate	RWF 500 (USD 0.49)

The absence of support channels such as call centres, in addition to the challenges related to connectivity and literacy, have led to a rise in the use of intermediaries to facilitate access to services at an additional cost. On top of the high cost of services, data and transaction charges, such agent fees are reported to be a further prohibitive barrier for low income earners. In Rwanda, intermediaries known as Irembo agents are authorised to support service applications as third parties at a fee - a percentage of the e-government service charges. However, this has led to agents prioritising high value applications. The government has indicated that plans are underway to harmonise agent tariffs and enforce penalty measures for substandard agent services.[88]

Digital taxation regimes are another factor affecting affordability. On the one hand, some governments are taking steps to minimise sector taxation as a means of promoting affordability and competition in the sector. In Benin, the telecommunications sector taxation system was unified in January 2017 to a standard flat rate of 10% of operator turnover. Rwanda introduced special incentives packages for technology firms including VAT exemption for IT equipment and corporate income tax holiday of up to seven years, among others.[89] On the other end of the spectrum, as the ICT sector grows across the African continent, several countries are turning to the sector as a target for new revenue streams at the expense of digital access and inclusion.[90] Ghana maintains a levy of 1.5% on all electronic transactions including mobile money. In 2018, Uganda introduced a tax through the Excise Duty (Amendment) Act that required users to pay a daily levy in order to access social media services.[91] The tax, which failed to raise the anticipated revenues, was in 2021 replaced with a 12% levy on internet data.[92]

[88] https://www.newtimes.co.rw/article/163934/News/irembo-agents-to-benefit-from-increased-commission-fees
[89] https://rdb.rw/investment-opportunities/ict/#tab-1-3
[90] https://cipesa.org/2021/07/digital-taxation-doing-more-harm-than-good-for-access-and-rights-in-africa/
[91] https://gazettes.africa/archive/ug/2018/ug-government-gazette-dated-2018-06-29-no-33.pdf
[92] https://cipesa.org/2021/07/uganda-abandons-social-media-tax-but-slaps-new-levy-on-internet-data/

Moreover, device costs add to the catalogue of affordability challenges. In Rwanda, the ICT Sector Strategic Plan 2018-2024 cites low device penetration as a key challenge, acknowledging that smart devices such as computers and smartphones are relatively expensive compared to rural citizens' disposable income. The plan states that financing schemes are to be explored in partnership with private sector vendors. Indeed, the government has partnered with the Mara Group to assemble and sell smartphones in the country.[93] Further, the new Digital Acceleration Project will support the government to expand digital access and adoption by spearheading a series of innovative digital access and inclusion initiatives, including supporting 250,000 households with financing to acquire smart devices.[94] In Uganda, the draft Broadband Infrastructure Blueprint 2022 notes that smartphone penetration is hampered and recommends the need for cheaper smartphones, for example through lower import duties, VAT and excise duties on smartphones.[95]

3.3.2.2 Digital Literacy

The low basic and digital literacy levels among significant proportions of the population in the study countries links to performance on the various indices under section 3.1 and the AU Digital Transformation Strategy foundation pillar relating to skills and human capacity. Consequently, uptake of the various digitalisation initiatives, including the centralised portals, is low. For instance, Irembo in Rwanda has an average 1,500 daily users with many reportedly opting to use Irembo agents and offline payments rather than the mobile payment system. Rwanda's communications regulator RURA acknowledges the low digital literacy rate and has set a target of 100% by 2035.[96]

Basic literacy levels are above 90% in Mauritius.[97] As of 2020, the adult literacy rate in Rwanda stood at 72% while the computer literacy rate of the population aged 15 years and above was 11.9%.[98] Ghana's adult literacy rate is 79% while in Uganda it is estimated at 77%. At 42%, Benin has the lowest literacy rate among the countries studied.[99]

Table VI: Literacy levels [100]

Country	**Adult literacy level (%)**
Benin	42%
Ghana	79%
Mauritius	90%
Rwanda	72%
Uganda	77%

[93] https://www.weforum.org/agenda/2019/10/rwanda-launches-first-made-in-africa-smartphones
[94] https://www.worldbank.org/en/news/press-release/2021/12/01/world-bank-provides-100-million-to-accelerate-rwanda-s-digital-transformation
[95] https://ict.go.ug/wp-content/uploads/2022/01/Uganda-Broadband-Baseline-and-Infrastructure-Blueprint-Draft-2.pdf
[96] https://rura.rw/fileadmin/publication/Strategic_Plan_2022-2027_for_RURA_vision.pdf
[97] World Bank Data, https://data.worldbank.org/indicator/SE.ADT.LITR.ZS?locations=MU
[98] National Institute of Statistics of Rwanda (NISR), Rwanda Household Survey 2019/2020 report, March 2021 https://www.statistics.gov.rw/search/google/Integrated%20household%20living%20conditions
[99] https://data.worldbank.org/indicator/SE.ADT.LITR.ZS
[100] ITU Digital Development Dashboard and National Communications Regulatory Statistics

Kenya	83%
South Africa	95%

Digital literacy initiatives for citizens have been rolled out across the five countries to promote uptake of technology and build human capacity through the incorporation of ICT in the curricula of learning institutions alongside the conduct of training for sections of the adult population. In 2005, the Mauritius National Computer Board (NCB) initiated a nation-wide training drive based on the Internet and Computing Core Certification (IC3). By 2013, more than 266,000 Mauritius citizens, representing a third of the adult population had completed the programme. Meanwhile, the Economic Development Board (EDB) runs ICT training programmes as part of the Digital Industries Academy to address the shortage of skills in the sector and expand the national pool of talent.[101]

Similarly, the Uganda Institute of Information and Communications Technology (UICT) in partnership with the Uganda Communications Commission (UCC) provides digital literacy training around the country, including through a training of trainers (ToT) model. However, this has had limited reach and impact and digital literacy skills remain highly lacking.

To ensure digital skills standards among public administration officials, the government of Benin has also provided capacity building for officials, with formal certification through ICDL, a global computer skills certification body.[102] According to the Mauritius case study, most institutions operating under the Ministry of Information Technology, Communication and Innovation are adequately staffed with technical capacity to operate large ICT projects including the Government Online Centre and the InfoHighway.

In implementing its digitalisation policy framework, the Rwanda government supports youth ICT entrepreneurs by sending them abroad for computer and information technology training. This is in addition to funding the Kigali Institute of Technology in order to increase the number of advanced technology students in the country. In addition to launching nationwide digital literacy initiatives for Mauritian citizens, the NCB has also focused its attention on developing ICT entrepreneurship, including the setting up of an ICT Incubator Centre which has been operational since 2003. The Incubator Centre aims to tap into ICT to support an outward-oriented manufacturing sector. The Centre has since been transformed into a Technopreneurship programme to encourage innovation and creativity in the sector.

Ghana's Business Process Outsourcing Centre (BPO) is dedicated to youth inclusion in the digital economy.[103] The government has also supported the establishment of hubs and labs to promote innovation, employment and entrepreneurship.

3.3.2.3 Relevant Content

There are ongoing calls to promote mainstream linguistic diversity and multilingualism, including in the digital sphere.[104] Mauritius, Rwanda and Uganda boast local content strategies including through efforts under universal access programmes.[105] Whilst these diversity

[101] https://www.edbmauritius.org/newsroom/digital-industries-academy-dia-offering-training-ict-sector
[102] https://icdlafrica.org/find-a-test-centre/benin/
[103] http://www.ites.gov.gh/event.php
[104] https://cipesa.org/2021/11/how-digital-activism-is-helping-african-languages-be-part-of-a-multilingual-web/
[105] See for Rwanda's Local Content Strategy, https://www.minict.gov.rw/index.php?eID=dumpFile&t=f&f=1108&token=911713ddd7b53d278eeedce39c6c535488308c2b and Uganda's RCDF local content provisions, https://www.ucc.co.ug/wp-content/uploads/2017/09/RCDF-Operational-Guidelines.pdf

ambitions were reflected in Mauritius and Rwanda's government portals which are accessible in English and French, as well as Kinyarwanda for the latter, Ghana and Uganda's portals are only available in English and Benin's in French. Accessing services physically, with the attendant costs for travel and time thus becomes a better option for citizens who can interact with officials in local languages.

A key consideration here is that countries will have to move beyond promulgating local content strategies to actually robustly fund their implementation. All these countries have multiple languages and for most there are large populations that are not literate in the official languages of communications, namely English and French. Accordingly, government entities, the private sector and development actors all need to support local language content development as well as the availability of e-government services in local languages to enable more segments of the population to participate in the digital society. They should also consider using different mediums such as radio and television programmes to create awareness about digital services.

3.3.3 Participation

Digital technologies cut across many sectors and require a variety of actors to work together, including through collaboration and partnerships between public and the private sector. It is also crucial that citizens are consulted in the design and implementation of services. Facilitating participation and feedback mechanisms both in the design and implementation of digital services can help ensure that the needs of vulnerable and marginalised groups are met and exclusion is minimised or overcome. Participatory planning and implementation of public services can go a long way in enabling affordable and inclusive digitalisation and stakeholder buy-in.

There have been no comprehensive studies dedicated to understanding the participatory nature of the various digital services rolled out in different countries. However, indices that measure the overall level of eParticipation in these countries can be instructive. The eParticipation Index, which assesses 193 countries, ranks Mauritius at position 91, behind Ghana (86), Kenya (64), South Africa (61) and Rwanda (53). Benin and Uganda are ranked at 110 and 93 respectively.[106]

Table VII: Performance on ICT indices

Country	e-Participation Index
Benin	110
Ghana	86
Mauritius	91
Rwanda	53
Uganda	93
Kenya	64
South Africa	61

[106] https://publicadministration.un.org/egovkb/en-us/About/Overview/E-Participation-Index

From the case studies, there is evidence of participatory decision making and strategic consultations on digitalisation. Regulatory authorities in the focus countries, especially for telecommunications, have a longstanding tradition of consultations in policy and practice processes.[107] For instance, Rwanda has ICT sector working groups that involve civil society and private sector in review and planning.[108] The country's National Broadband Policy states that a joint government and private sector steering committee shall be established to monitor the implementation of the policy. It also requires the regulator to conduct periodic surveys on the current status of Broadband and to develop a measurement criteria for broadband access. However, no publicly available data shows whether this is done.

The national ennov-Benin 2021 workshop set the foundation for Benin's Digital Sector Policy Document (DPS). Similarly, Ghana's efforts under the ICT for Accelerated Development Policy were consultative. In Mauritius, the National Productivity and Competitiveness Council (NPCC)[109] has hosted engagements to promote digitisation among small and medium enterprises.[110] Since its launch, Rwanda's Irembo has undergone two review and update processes based partially on user satisfaction surveys.

Beyond participation and consultative processes, effective financial resource allocation should be evidence-based. It remains unclear if decision making and strategic planning by authorities on digitalisation priorities is informed by data or research. Indeed for all of the studied countries, communications data such as on penetration and subscriptions is not disaggregated by gender, geographic location or specific parameters.

In sum, the inclusion analysis presented in this section shows that, for the most part, the countries studied face numerous challenges that hamper inclusion in usage of e-government services. While the severity of the problems may vary from country to country, they tend to manifest in most countries studied. These include the digital divide faced by rural populations, women and persons with disabilities, the affordability challenges, shortage of local language eServices, and low digital literacy. While countries such as Mauritius and Rwanda are taking visible steps to address a range of these challenges, they largely remain unaddressed for most countries. Even where there are policies and laws that aim to address these inclusion impediments, they remain largely unimplemented.

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107 https://rura.rw/index.php?id=104&tx_news_pi1%5Bnews%5D=1653&tx_news_pi1%5Bday%5D=22&tx_news_pi1%5Bmonth%5D=8&tx_news_pi1%5Byear%5D=2022&cHash=d94937f3ae32688141ce19fd3f06c9c1 and https://www.nita.go.ug/sites/default/files/TORs%20%20%20Consultancy-%20Broadband%20and%20Spectrum%20%20Policies%20Final%20Draft%20-%202017-10-23%20(MoICT).pdf

108 https://www.linkedin.com/pulse/ict-sector-working-group-discussing-targets-ideas-sylvere/

109 https://www.npccmauritius.org/en/

110 https://npccmauritius.org/en/about-enterprise-go-digital.html

4. Conclusion and Recommendations

Improving digital inclusion calls for deliberate **Infrastructure Development** targeted at facilitating wider digital access, availability and affordability as well as creating relevant content, including in local languages, to support greater and beneficial engagement. All the countries studied have leveraged USAFs to fund digital literacy programmes and the extension of telecom networks to rural, unserved and underserved communities. However, there has been mixed success in extending modern communications infrastructure, particularly broadband, into rural, semi-urban and remote areas. As a result, the fairly low spread of broadband internet and limited access to reliable and affordable grid electricity continues to hamper access to digital services in some areas.

A primary reason why people in the focus countries do not use digital technologies and services is because they are expensive and therefore, emphasis should be on enabling **Affordable Connectivity.** With the exception of Mauritius, it is evident that digital skills remain in short supply, particularly among the poor, less educated and marginalised groups. Consequently, continued **Digital Skilling for All** is a necessity, and marginalised groups such as rural dwellers, women, youth and persons with disabilities should be prioritised. In addition, **Awareness About Digital Services** on offer in the various countries is limited. Also, there are many individuals who, despite being aware of the existence of e-government services, do not use them. Awareness creation would result in attitudinal and behaviour change among citizens and any ICT-driven innovations would as a result generate greater uptake among the various social and economic demographics.

Whereas governments have adopted and are implementing various digital transformation strategies, it is not common for **Ordinary Citizens To Be At The Centre of Digital Development**. For some of the countries studied, such as Rwanda, Benin and Uganda, the digital agenda is geared toward strengthening the countries' economies and making public service delivery more efficient. By placing citizens' wellbeing at the centre of the digital transformation agenda and actions, these countries could foster deeper societal changes that tackle inequalities, alleviate poverty and boost socio-economic development. Given that the digital divide in many of the countries studied closely mirrors their socio-economic divide, it is likely that if the factors that underlie that divide are not addressed, it will not be possible to attain meaningful digital inclusion.

The **Evaluation of the Performance of Digital Services** is not common. Without such periodic and honest reviews it is not possible to get an accurate picture of the actual value these services are delivering, the nature and extent of inclusion, and what is needed to ensure that the services are readily accessed by all citizens. Indeed, while the e-government services reviewed in this study had quantitative data on their general reach and performance, there was insufficient differentiation amongst the categories of users to determine inclusiveness. Likewise, there is need for **more research** on the human rights implications of digitalisation of public services, including how duty bearers and rights holders are resourced and capacitated to utilise digital services as well as their knowledge, attitudes and practices towards informing the design of future interventions.

Recent continental digitalisation blueprints, such as the Digital Transformation Strategy for Africa (2020-2030), AU Data Policy Framework and Agenda 2063, also recognise this need. For example, the Strategy calls upon AU Member States to develop a monitoring, evaluation and reporting framework, with appropriate indicators and tools for tracking its performance and impact, while encouraging them to conduct digital transformation readiness assessments. For its part, the Agenda 2063 calls on Member States to set up implementation, monitoring, evaluation systems, underpinned by accountability and transparency, to ensure the attainment of its aspirations. The Data Policy urges Member States to promote public benefits by using

data in new ways that would enable Africa to realise the value of data in public sector decision making, planning, and monitoring and evaluation.

Recommendations

Government

- Implement policy, legislative and administrative measures to improve access and affordability of e-government services, including, tapping into USAFs to expand broadband infrastructure, lowering taxes on digital goods and services, ensuring effective competition in the telecom sector, subsidising internet access costs and establishing digital hubs particularly in marginalised areas.
- Create public awareness and expand digital literacy programmes targeting civil servants, businesses, women, youth, and persons with disabilities, especially those living in rural areas, informal settlements and other marginalised areas to equip them with skills to access e-government services, protect themselves from online risks and harms, and access the myriad opportunities in the digital economy.
- Avail e-government services and government information in local languages and accessible formats.
- Create an enabling environment through the adoption of appropriate strategies, legal, policy and regulatory frameworks to support digital transformation and delivery of e-government services including by ensuring adequate budgetary allocations for the programmes; facilitating research and innovation ensuring accessibility of e-government services for persons with disabilities and marginalised groups; supporting local digital innovation; ensuring effective data governance; and creating effective coordinating mechanisms and structures for implementing e-government services and digital transformation projects.
- Institute Monitoring, Evaluation and Learning measures in collaboration with relevant stakeholders in order to understand the inclusivity, efficacy and impact of digital transformation programmes and e-government services. Such evaluations should mainstream inclusion analysis that links the social dimension of inclusiveness and the macro-level ICT indices, including by using the Social Inclusion Assessment Toolkit (SIAT) 2018.[111]
- Ensure meaningful multi-stakeholder participation and engagement in the entire lifecycle of digital transformation projects and e-government programmes. Consulting the private sector, civil society organisations, academia, media, the technical community and citizens, including marginalised groups and communities such as women, youth, persons with disabilities, the elderly and people living in rural areas and informal settlements would enable the identification of their needs, development of appropriate solutions that meet their needs and skills levels, and ultimately deliver digital dividends to wider segments of society.
- Address gaps in basic electricity infrastructure provision to ensure reliable and affordable energy to facilitate digital transformation including by funding rural electrification programmes, lowering electricity tariffs, promoting environmental sustainability and expanding access to renewable energy solutions such as solar.

Development Partners

- Develop, fund and sustain decentralised and cost-effective digital skills enhancement programmes on the supply side (civil servants) and on the demand side (citizens and business). Such programmes should be implemented in collaboration with relevant stakeholders and provide basic online knowledge as well as digital security and privacy skills.

[111] The World Bank, The Social Inclusion Assessment Tool, https://pubdocs.worldbank.org/en/478071540591164260/SiAT-Logo-web.pdf

- Institute Monitoring, Evaluation and Learning measures in collaboration with government in order to understand the inclusivity, efficacy and impact of digital transformation programmes and e-government services. The focus on the inclusiveness of e-services (or any other digitalisation intervention) can be addressed by using the Social Inclusion Assessment Toolkit (SIAT) 2018.[112]
- Advocate for an integrated approach to digital transformation and e-government service applications that embrace open and accessible digital standards to unlock scale, reusability and interoperability.
- Invest in the development of appropriate digital and electricity infrastructure to help bridge Africa's digital divides by connecting the digitally excluded communities in unserved and underserved areas.
- Share best practices and lessons from other jurisdictions on the implementation of national digital transformation projects and e-government programmes, including new solutions for the digitalisation of sectors such as agriculture, education, energy, finance, governance, health and transport sectors.

Private Sector

- Develop and innovate locally, or adopt proven, off-the-shelf digital technologies and robust enterprise solutions for the delivery of e-government services.
- Invest in research and development to understand the needs of countries, and develop bespoke solutions to meet their e-government and digital transformation agendas.
- Invest in start-ups that are developing innovative solutions for the delivery of e-government services and digital transformation solutions which in turn will create jobs and improve access to public services in the agriculture, education, energy, finance, governance, health and transport sectors.
- Collaborate with other stakeholders including academia, civil society, government, and the technical community to deliver locally relevant, cost-effective, efficient and inclusive digital technologies and enterprise solutions for the delivery of e-government services.
- Invest in the expansion of broadband and community networks; manufacture and supply of inexpensive digital devices; digital upskilling programmes to bridge the digital divide and connect the marginalised, unserved and underserved communities.

Civil Society

- Advocate and lobby key stakeholders to implement laws, policies, programmes and measures to facilitate greater inclusion and access to e-government services, especially for marginalised, unserved and underserved communities.
- Monitor, evaluate and document through studies, reports and case studies, the human rights impact of e-government services and digital transformation projects in African countries.
- Advocate for enhanced stakeholder engagement and greater transparency and accountability of governments, private sector and development partners in the decision making process throughout the lifecycle of e-government and digital transformation projects.
- Create public awareness and expand digital literacy programmes targeting women, youth, persons with disabilities especially those living in rural areas, informal settlements and other marginalised areas to equip them with skills to access e-government services, protect themselves from online risks and harms, and access the myriad of opportunities in the digital economy.

[112] The World Bank, The Social Inclusion Assessment Tool, https://pubdocs.worldbank.org/en/478071540591164260/SiAT-Logo-web.pdf