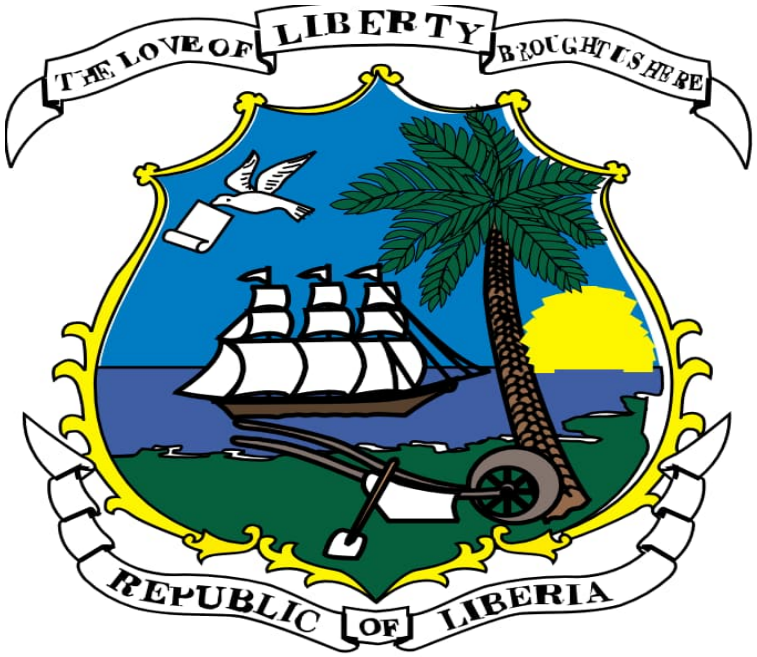

Government of Liberia

"Whole of Government" National Digital Strategy (2025 – 2029)

Commissioned by the Ministry of Posts and Telecommunications

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Abbreviations and Acronyms

ACE	Africa Coast to Europe
API	Application Programming Interface
ATM	Automatic Teller Machine
BPR	Business Process Re-engineering
CBL	Central Bank of Liberia
CCL	Cable Consortium of Liberia
CERT	Computer Emergency Response Team
CIO	Chief Information Officer
CNDRA	Center for National Documents and Records Agency
CNII	Critical National Information Infrastructure
CSA	Civil Service Agency
CSC	County Service Center
DPG	Digital Public Good
DPO	Development Partner Organization
EA	Enterprise Architecture
ECOWAS	Economic Community of West African States
e-GIF	e-Government Interoperability Framework
EPA	Environmental Protection Agency
GAC	General Auditing Commission
GNI	Gross National Income
GoL	Government of Liberia
GTMI	GovTech Maturity Index
ICT	Information and Communication Technology
ID4D	Identification for Development
IFMIS	Integrated Financial Management Information System
IMF	International Monetary Fund
IRISE	Improving Results in Secondary Education
ITU	International Telecommunication Union
LACC	Liberia Anti-Corruption Commission
LBR	Liberia Business Registry
LBS	Liberia Broadcasting System
LCCPMA	Liberia Cyber Crime Prevention and Mitigation Agency
LDTP	Liberia Digital Transformation Project
LISGIS	Liberian Institute of Statistics and Geo-Information Services
LITAS	Liberia Integrated Tax Administration System
LRA	Liberia Revenue Authority
LTA	Liberia Telecommunication Authority
LTC	Liberia Telecommunication Company

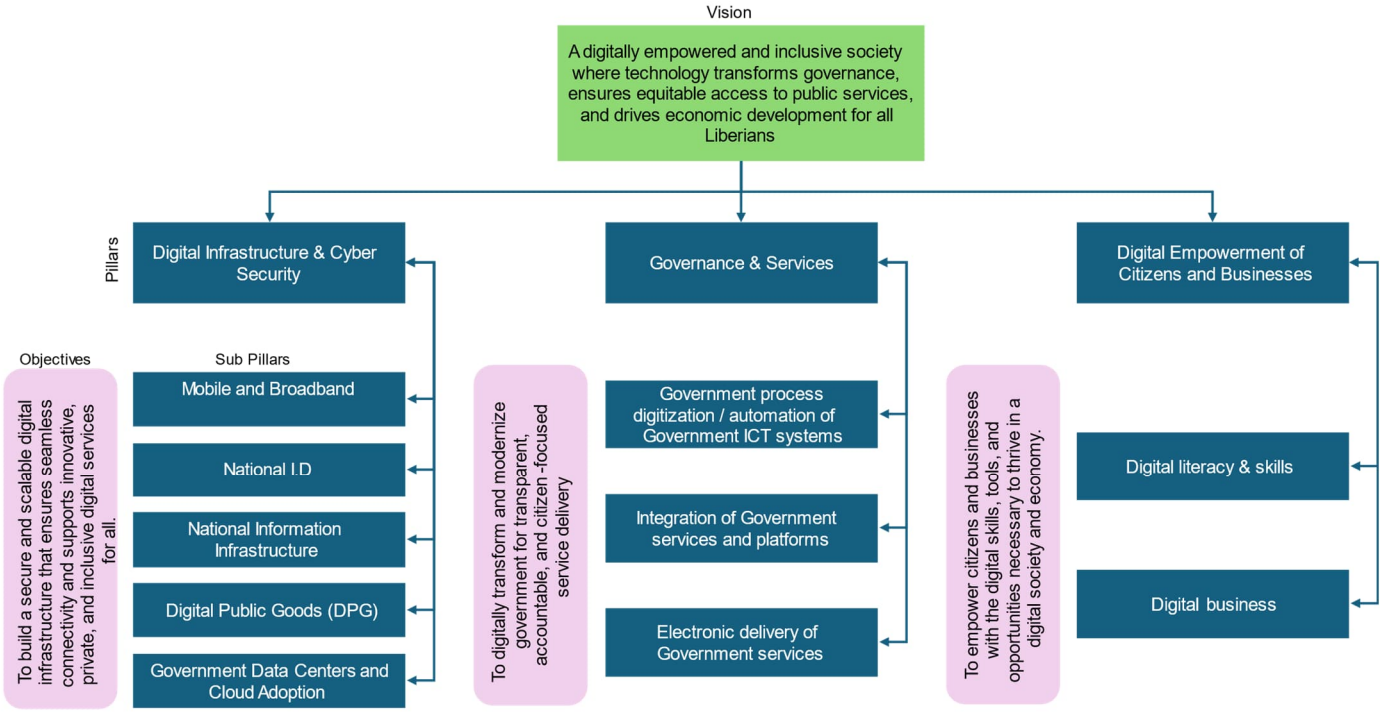
M&E	Monitoring and Evaluation
MAC	Ministry, Agency, and Commission
MFDP	Ministry of Finance and Development Planning
MIA	Ministry of Internal Affairs
MNO	Mobile Network Operator
MOCI	Ministry of Commerce and Industry
MoE	Ministry of Education
MoJ	Ministry of Justice
MoL	Ministry of Labor
MoS	Ministry of State
MoPT	Ministry of Posts and Telecommunications
MOU	Memorandum of Understanding
NASSCORP	National Social Security and Welfare Corporation
NDC	National Data Center
NDTWG	National Digital Transformation Working Group
NGO	Non-Governmental Organization
NIR	National Identification Registry
PAPSS	Pan-African Payment and Settlement System
PFM	Public Financial Management
PMO	Project Management Office
POS	Point of Sale
PPCC	Public Procurement and Concession Commission
PPP	Public Private Partnership
RTGS	Real-Time Gross Settlement
SaaS	Software as a Service
STQA	Security Testing and Quality Assurance
TAS	Tax Administration System
UAF	Universal Access Fund

1 Executive Summary

This document outlines the "Whole of Government" National Digital Strategy, designed to empower both the Government and citizens of Liberia in their digital transformation journey. It provides a detailed roadmap for utilizing digital technologies to enhance public services and connectivity, stimulate economic growth, and reduce the digital divide across the nation. By tackling existing challenges and capitalizing on emerging opportunities, the strategy aims to enhance the digital capabilities of the Government of Liberia for improved access and delivery of public services to the benefit of all citizens.

The strategy detailed in this document includes intervention areas identified through discussions with government and private sector stakeholders, as well as collaborative working sessions dedicated to brainstorming initiatives to advance digital transformation. The strategy is purposed to be a working document to guide and assess the Government of Liberia's progress in achieving its digital transformation objectives.

The diagram below summarizes the overall strategy for digital transformation with its sub-components and the defined objective to be achieved.



Vision

The vision of the "Whole of Government" National Digital Strategy is to establish a digitally empowered, integrated government that is socially inclusive, responsive, and accountable, advancing the knowledge economy and leveraging technology to deliver high-quality public services. It aims to create a digital nation where all citizens, regardless of location, gender, or socio-economic status, have seamless access to digital government services.

The vision emphasizes data-driven innovation, interconnected services, responsible data use, and a safe digital environment while eliminating barriers to access, particularly in rural areas.

Ultimately, it focuses on transforming governance to better meet the needs and rights of all Liberians, stimulate growth and economic development.

Strategic Framework

The strategy is anchored on three key pillars:

1. **Digital Infrastructure & Cybersecurity:** Prioritizes the expansion of broadband connectivity, modernization of ICT infrastructure, and implementation of robust cybersecurity measures. Initiatives include deploying advanced broadband technologies, strengthening the National Digital ID system, and enhancing data centers.

2. **Governance & Services:** Focuses on digitalizing government processes and improving service delivery through integrated platforms and automated workflows. Highlights include enhancing County Service Centers, establishing interoperability frameworks, and expanding e-Government systems for seamless operations.

3. **Digital Empowerment of Citizens and Businesses:** Aims to bridge the digital divide by facilitating digital literacy, promoting entrepreneurship, and supporting businesses adopt digital tools. Flagship programs such as the Liberia Digital Transformation Project, UniPod, and the IRISE project are designed to empower youth and marginalized communities while driving innovation.

To realize the vision of this strategy by the Government of Liberia, areas of intervention have been identified for each strategic pillar. These interventions have been prioritized against the ease of execution and its impact on the "Whole of Government" digital transformation. For a comprehensive digital transformation in Liberia, all activities identified in the strategy must be executed in addition to ongoing and planned activities.

The Government of Liberia has made significant progress in its digital transformation journey, with ongoing and planned activities aimed at achieving a digitally enabled society. With support from development partners like the World Bank and ECOWAS, Liberia is implementing flagship projects such as the Governance Reform and Accountability Transformation (GREAT) and the West Africa Regional Digital Integration (WARDIP) initiatives. These efforts are complemented by initiatives identified in this "Whole of Government" National Digital Strategy, which outlines key activities to improve digital infrastructure, inclusion, and governance. Key ongoing and planned initiatives include the following:

- *Improved internet connectivity*
  Deployment of an additional international submarine cable and enabling the introduction of new internet technologies by issuing a provisional license to Starlink.
- *Digital inclusion*
  Expansion of national ID card issuance and enhancement of its utility.
- *Data center revamp*
  Upgrading the National Data Center to support government systems securely and cost-effectively.

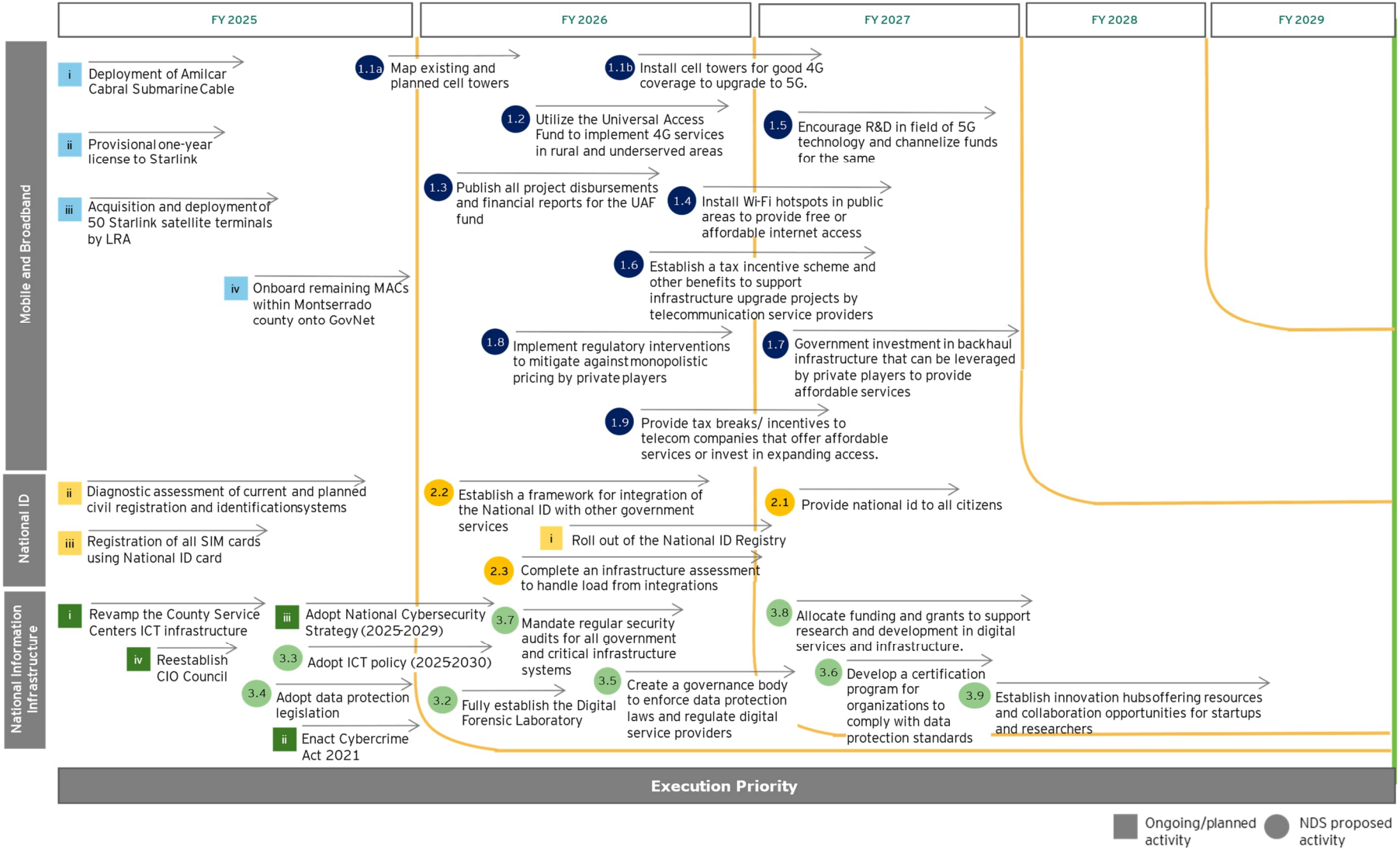
- *Digital governance*
  Development of policies and legislations, including the Data Protection Law, Cybercrime Act, and National ICT Policy (2025-2029), which are key to ensuring the security of information in Liberia and to build trust amongst citizens.

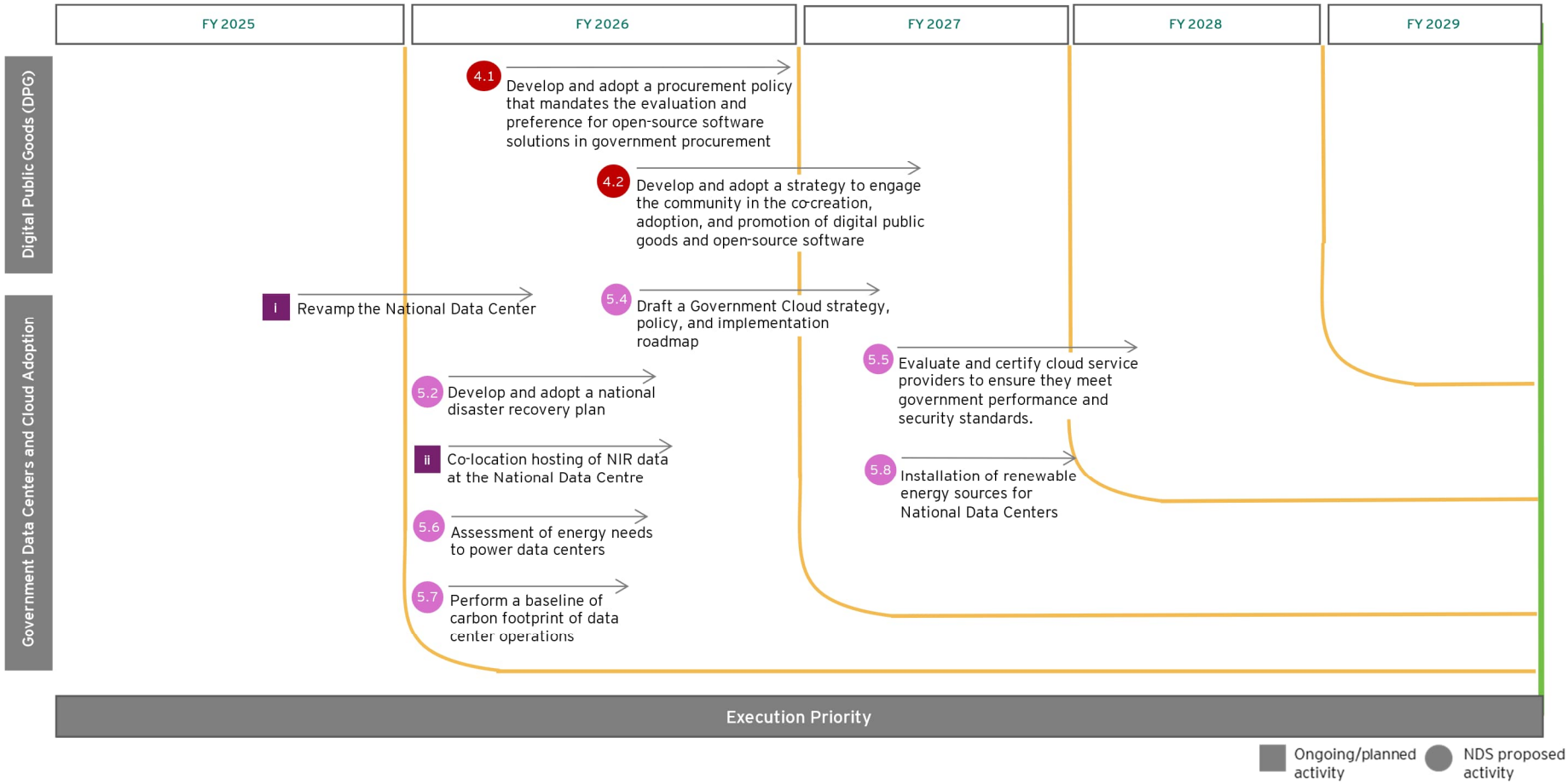
The current state of digital transformation in Liberia is detailed in Chapter 3, following stakeholder engagements. These efforts aim to ensure a safe and trustworthy digital ecosystem, promoting citizen trust and confidence.

Implementation Roadmap

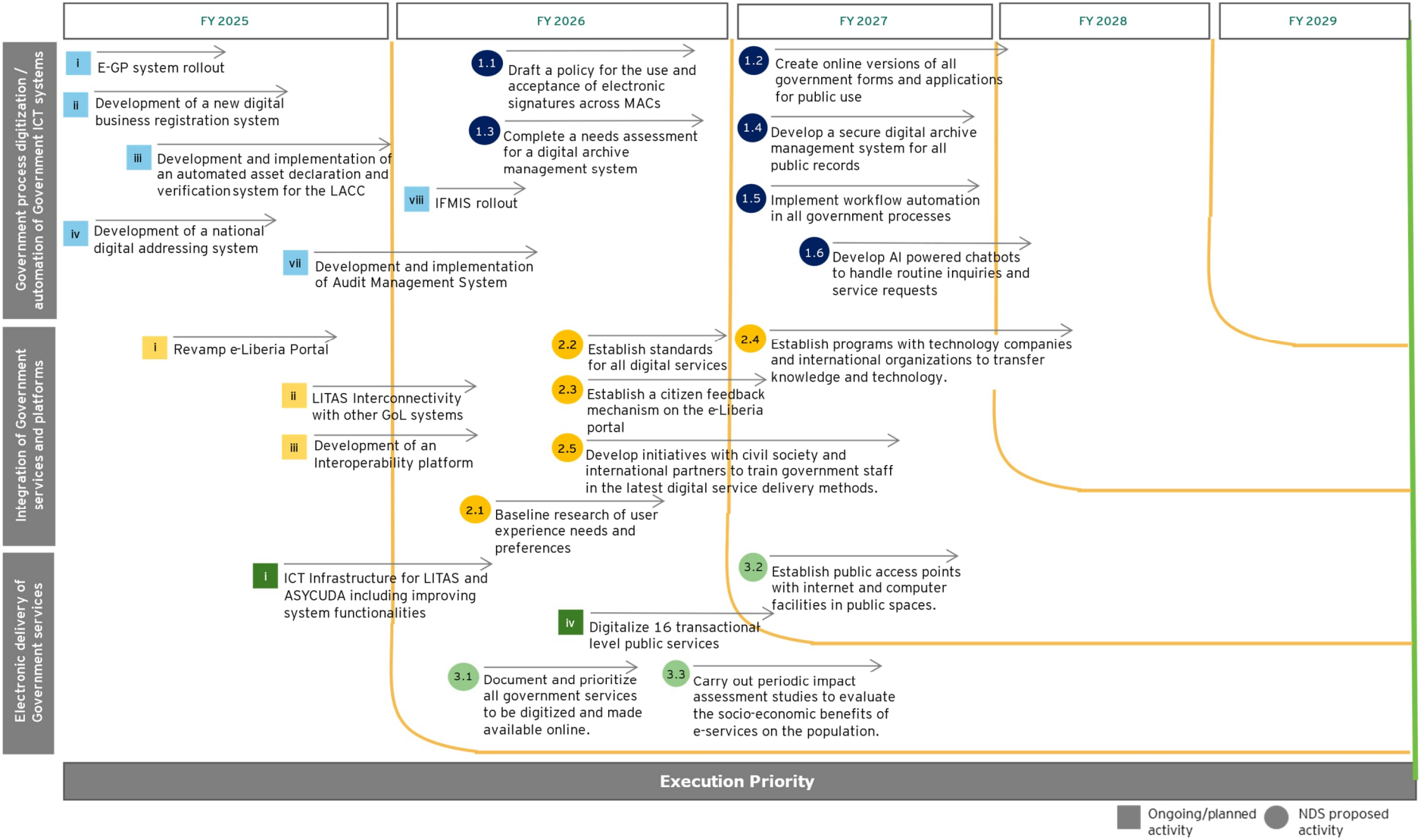
This strategy provides a detailed roadmap that includes actionable steps, timelines, and performance indicators to achieve the objectives. A monitoring and evaluation framework to measure progress and ensure accountability throughout the implementation phase is mentioned in the subsequent sections. A high-level view of the implementation roadmap indicating the start for each initiative have been provided below. A detailed breakdown of the planned duration is provided in Chapter 7.

Pillar 1 – Digital Infrastructure & Cyber Security

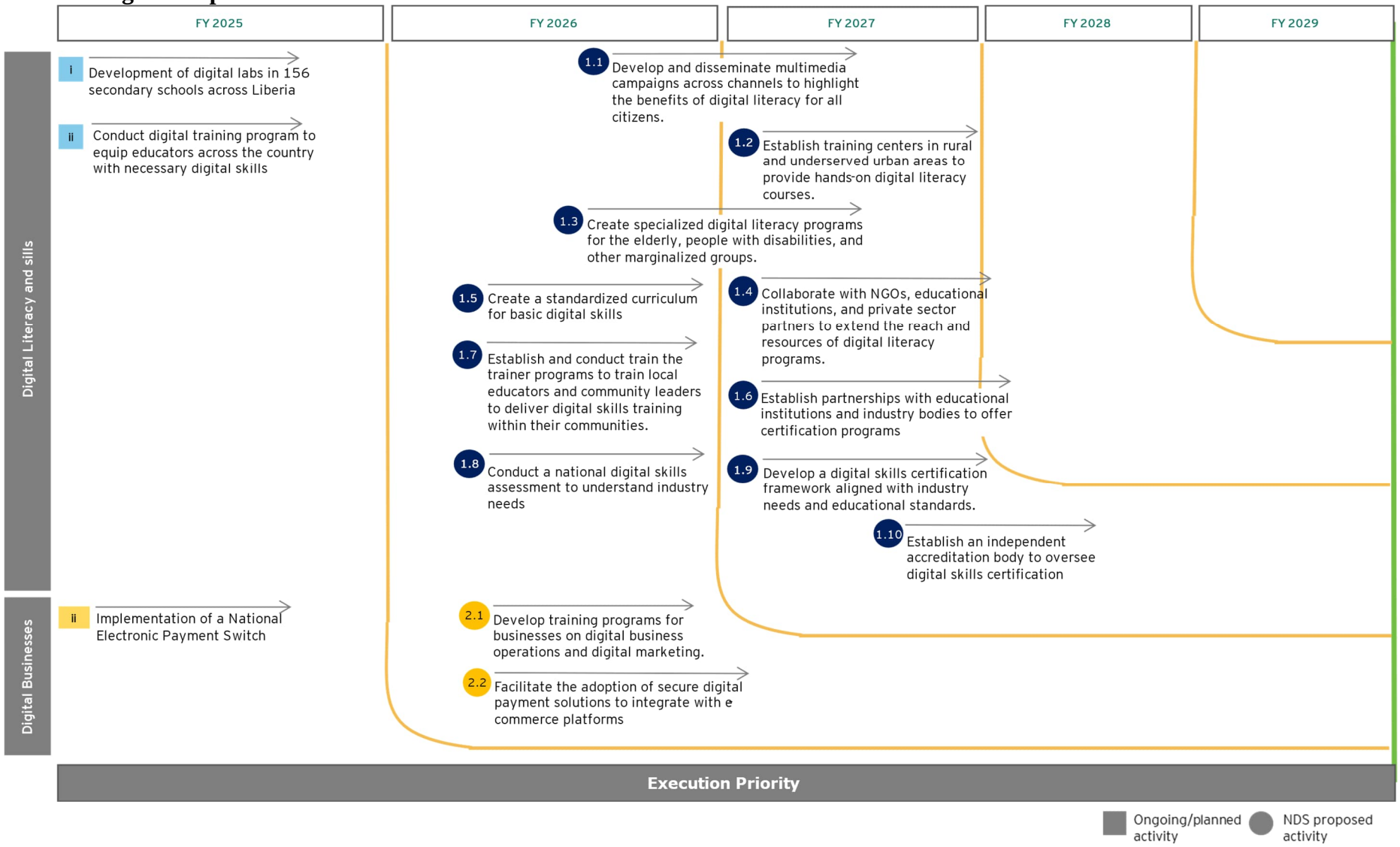



FY 2025
FY 2026
FY 2027
FY 2028
FY 2029
Digital Public Goods (DPG)
Government Data Centers and Cloud Adoption
4.1 Develop and adopt a procurement policy that mandates the evaluation and preference for open-source software solutions in government procurement
4.2 Develop and adopt a strategy to engage the community in the co-creation, adoption, and promotion of digital public goods and open-source software
i Revamp the National Data Center
5.4 Draft a Government Cloud strategy, policy, and implementation roadmap
5.5 Evaluate and certify cloud service providers to ensure they meet government performance and security standards.
5.2 Develop and adopt a national disaster recovery plan
ii Co-location hosting of NIR data at the National Data Centre
5.8 Installation of renewable energy sources for National Data Centers
5.6 Assessment of energy needs to power data centers
5.7 Perform a baseline of carbon footprint of data center operations
Execution Priority
Ongoing/planned activity
NDS proposed activity

Pillar 2 – Governance and Services



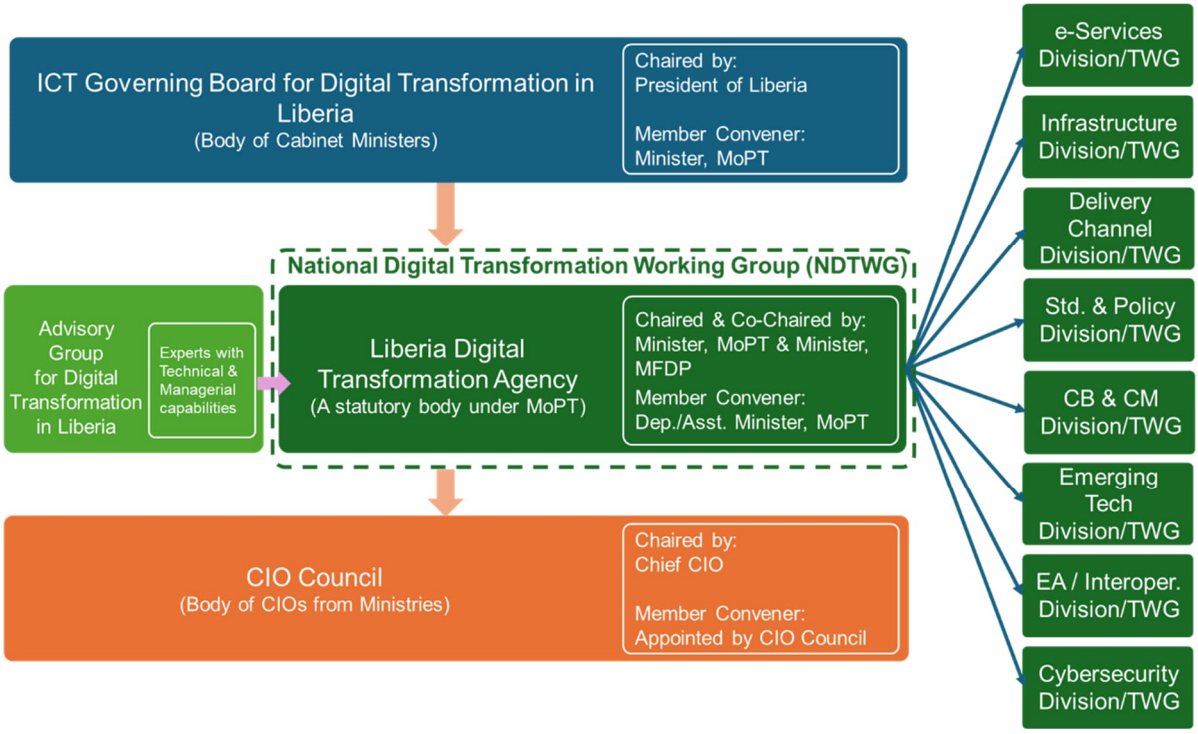
Pillar 3 – Digital Empowerment of Citizens and Businesses



Governance Structure

The success of Liberia's digital transformation depends on a strong governance structure with leadership and oversight at the highest levels of government. Achieving a Whole-of-Government digital transformation requires a robust strategic governance framework that facilitates seamless coordination and collaboration across government entities while ensuring the sustained continuity of digital initiatives.

The governance structure has been designed to oversee digital transformation, particularly in government entities, and the implementation of this strategy. The governance structure is to be led by an ICT Governing Board consisting of ultimate decision makers, chaired by the President of Liberia with support from Cabinet. To deliver the mandates of the ICT Governing Board and serve as the ICT implementation arm of the Government of Liberia, a dedicated institution should be established through legislation. A National Digital Transformation Working Group would facilitate coordination of digital transformation in the short-term. The Chief Information Officer would drive the digital transformation in Liberia, providing oversight and assisted by the CIO Council to enable coordination and collaboration between MACs in alignment with Liberia's national development goals.



2 Introduction

Liberia stands poised to embrace the transformative power of digital technology. To support the digital transformation efforts in Liberia, it has become necessary to develop a “Whole of Government” national digital strategy that reflects Liberia’s unique identity, addresses its specific challenges, and seizes the opportunities presented by the digital era. This strategy will serve as a beacon, guiding the Government of Liberia towards a future where service delivery, digital inclusion, innovation, and sustainability are at the forefront of national development.

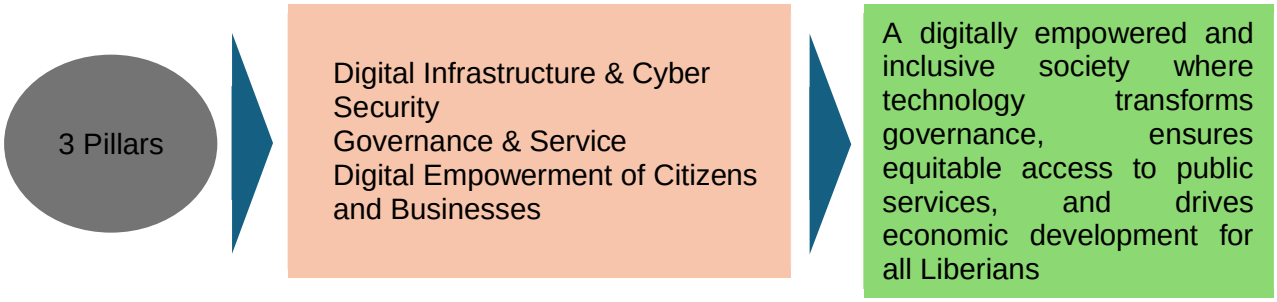
The “Whole of Government” national digital strategy for Liberia is rooted in the country's vision for economic development and social progress. It aims to bridge the digital divide, ensuring that every Liberian, regardless of location or socioeconomic status, has access to the benefits of digital connectivity. The strategy outlines key objectives such as expanding digital infrastructure, enhancing digital literacy and education, and nurturing a culture of technology enabled service delivery and cultivating a digital society.

In crafting this “Whole of Government” national digital strategy, the Government of Liberia lays the foundation for a technology empowered public sector, transforming public service delivery and its people. It is a commitment to a future where the thoughtful and strategic adoption of digital technologies accelerates Liberia's growth, development, and prosperity are accelerated by. This strategy is purposed to be a working document to guide and assess progress in achieving the digital transformation objectives.

2.1 Approach

The strategy including the intervention areas were identified through discussions with government and private sector stakeholders, and working sessions dedicated to brainstorming initiatives on 3rd and 4th December 2024 and a validation workshop on 11th December 2024. The list of stakeholders in attendance can be found in Appendix A. Subsequent engagement with stakeholders on feedback and additional inputs were had through January 2025. The approach to developing the strategy also included a detailed questionnaire (Appendix B) shared with the MACs to collate the different viewpoints and considerations while designing this national strategy.

Three key pillars underpin the "Whole of Government" National Digital Strategy. These have been identified to be the principal drivers through which the vision of attaining ‘an integrated government and a digitally empowered and socially inclusive nation’ can be achieved. **These pillars are: Digital Infrastructure & Cyber Security, Governance & Service, and Digital Empowerment of Citizens and Businesses.** Each pillar seeks to ensure the improvement of foundational elements necessary to establish a fully-fledged digital transformation in which all Liberians can equitably participate.



2.2 Structure of the document

The document is structured as below:

Chapter 1: The executive summary provides an overview of the "Whole of Government" National Digital Strategy report.

Chapter 2: Introduction to the "Whole of Government" National Digital Strategy, the approach, and details of the structure of the document.

Chapter 3: Provides a brief background and current state of the digital landscape in Liberia.

Chapter 4: Presents the vision for the "Whole of Government" National Digital Strategy. This chapter also outlines the strategic objectives to enable Liberia's digital transformation.

Chapter 5: Describes the strategic pillars to drive the digital transformation in Liberia. This chapter covers areas of intervention with specific initiatives.

Chapter 6: Provides financial estimates for the implementation of the initiatives including cost considerations.

Chapter 7: Sets out the roadmap for the implementation of the initiatives to achieve the digital transformation objectives.

Chapter 8: Details a structured governance framework necessary to implement the strategy through a "Whole of Government" approach.

Chapter 9: Outlines a monitoring and evaluation framework for the implementation of the initiatives to ensure the success of the "Whole of Government" national digital strategy.

3 Background

The Government of Liberia (GoL) launched a reform program in 2018 aimed at expanding public sector capacity and service delivery, administrative decentralization, and governance. As part of the Government's digitization efforts, the Liberia ICT Policy (2019-2024) was adopted. The ICT policy was centered on three pillars: Structure, Empower, and Transform (SET), aimed at integrating ICT in ways that promote economic growth and social inclusion. The Government is also committed to enhancing transparency and accountability, supported by the IMF and DPO-backed programs.

As things stand, there has been limited progress towards achieving the objectives of the reforms and initiatives. Challenges such as low population density, poor infrastructure, and the lack of efficient systems contribute to the inefficient service delivery of public services. Many citizens experience limited accessibility to critical public services, like birth and death registration, particularly in rural areas. Women, who are often primary caretakers, face additional barriers due to time and resource constraints. Efforts like the creation of County Service Centers (CSCs) to provide over 50 public services, have had some limited success. Most services are paper-based, and capacity issues, coupled with poor funding and centralized control, have hindered progress.

Liberia ranks low on the World Bank GovTech Maturity Index (GTMI) in Group D (with a score of 0.211 in 2022, below the regional average score of 0.394), indicating significant room for overall advancement in GovTech maturity and digital transformation. Weak service delivery and citizen engagement, as well as weak GovTech enablers such as the regulatory ecosystem contributes significantly to the low GTMI score. At present, there is no dedicated institution for digital transformation and significant data management challenges exist due to siloed systems across government entities, making data exchange difficult and inefficient.

3.1 Current state

Liberia is on a digital transformation journey, striving to build a connected, inclusive, and robust digital society. While Liberia has made significant strides in infrastructure development and connectivity, substantial gaps persist, particularly in rural and underserved regions.

3.1.1 As-Is: Digital Infrastructure & Cyber Security

The expansion of Liberia's digital infrastructure is a collaborative endeavor between public and private sector players. Telecommunication service providers such as LTC Mobile, Orange, MTN, and CSquared are key in driving connectivity across the country. International broadband connectivity is provided through the Africa Coast to Europe (ACE) cable, managed by Cable Consortium of Liberia (CCL). The ACE cable has a capacity of 600GB with Liberia currently utilizing 30-40% of the capacity. The benefits of the large capacity of the ACE cable are not fully realized due to limited domestic distribution infrastructure and limited professional experts. In a bid to strengthen international connectivity, the Government of Liberia plans to deploy the Amilcar Cabral Submarine Cable. The current plan is to site the landing station in Buchanan, to further encourage the expansion of telecommunication infrastructure outside of Monrovia.

Investments in metropolitan fiber networks, such as the 200+ km network in Monrovia, have improved urban connectivity, but these advances are yet to extend beyond the capital. The country's digital landscape is characterized by a concentration of mobile and broadband services in urban areas, while rural areas remain heavily reliant on 2G and 3G network technology. The deployment of 4G technology is largely limited to major cities and has only 39% geographic coverage, leaving rural regions digitally excluded.

The high cost of mobile broadband services remains a significant barrier to adoption, with mobile voice and data costing approximately 8.8% of Liberia's Gross National Income (GNI) based on 2023 figures from ITU, well above regional target of 2%. Despite these challenges, Liberia has made notable progress in increasing mobile broadband subscriptions, which rose to 42% in 2022 from 26% in 2020. While the basic structures of the National Internet Exchange Point are in place under an association of licensed Mobile and Internet Service Providers, it is yet to be fully operationalized.

The Liberia Telecommunications Authority has issued a one-year provisional license to Starlink, with the goal of increasing internet coverage across Liberia and improving accessibility to high-speed internet across Liberia. Starlink has established an operational office in Liberia where devices and subscriptions can be purchased. Subscriptions for businesses start from $250/month with ownership after 24 months. Up to 220 Mbps download and 25 Mbps upload unlimited internet is the expected speed. The Liberia Revenue Authority has acquired 50 Starlink satellite terminals with plans to deploy them to its offices countrywide to facilitate access to service.

Telecommunication service providers face disruptions to deployed terrestrial telecommunication infrastructure, particularly during road construction, which affects service delivery and increases operational costs related to replacements. High fees charged and high taxes on imported equipment affect their ability to quickly expand the reach of the network infrastructure to improve accessibility across Liberia.

A government network (GovNet) was rolled out in 2019 through a partnership with LTC Mobile and CSquared to use the fiber optic backbone and provided 52 Ministries, Agencies and Commissions (MACs) with internet infrastructure. Bandwidth allocated to each connected MAC is 25MB, however, some MACs expressed concerns of its adequacy to support their operations. There are plans to onboard the remaining MACs within Montserrado county onto GovNet. For MACs in counties without fiber optic infrastructure, they are connected to GovNet through other internet service providers.

Budgetary constraints faced by MACs impact the timely payment for internet services consumed. Stable electricity is also a challenge across Liberia, where power outages impede the functionality of ICT infrastructure and the ability to deliver consistent digital services.

The National Identification Registry (NIR) is another key initiative aimed at advancing digital inclusion. The registry issues biometric-based National ID cards to citizens and permanent residents, providing a digital identity that can be leveraged across various public and private services. However, as of December 2024, only 15% of the population had received their ID cards, indicating that a significant portion of the population remains without a digital identity.

As part of the World Bank ID4D initiative, there are plans to complete a diagnostic assessment of the current and planned civil registration and identification systems across Liberia, by May 2025. The assessment will cover the technical infrastructure, operational processes,

inclusiveness and utility of the identification systems to identify gaps and opportunities for improvement.

APIs have been developed for the integration to other MACs; however these are developed on a case-by-case basis and standardized APIs are not available. These APIs are used by various entities, such as Ministry of Finance and Development Planning, Liberia Revenue Authority and banks, to verify the identity of citizens and legal residents. There are plans to additionally integrate the national ID with other public services, such as birth registration, health, and driver's license. As part of efforts to enhance national security and protect against fraud and unauthorized use, the National Identification Registry has signed an MOU with the Liberia Telecommunications Authority that mandates all SIM card owners to register their SIM cards using the NIR-issued ID card by July 2025 otherwise the SIM card will be disconnected.

The on-premise centralized data storage system of the NIR poses a risk of physical damage and unauthorized access, and there is no dedicated disaster recovery site currently in place. Discussions are underway to provide co-location hosting at the National Data Centre for additional safeguards of the data.

The country's digital transformation is hampered by infrastructure challenges with limited ICT infrastructure at some MACs and obsolete systems and software being used. This further compound the operational inefficiencies and undermines the government's ability to deliver digital services effectively. The National Data Center (NDC), managed by LTC Mobile, is underutilized and relies on outdated systems, impacting its ability to provide advanced technology services and support modern cloud services.

There is no National Disaster Recovery Center to provide resiliency to ICT systems deployed at various MACs. The Central Bank of Liberia has established a disaster recovery center, but it is used primarily by financial institutions operating in Liberia. Ministries, Agencies, and Commissions (MACs) also face challenges digitizing their services due to decentralized ICT project management, inadequate network infrastructure, and limited budgets. These constraints prevent the effective implementation of digital initiatives across the public sector.

A new national ICT policy (2025-2029) has been drafted and is undergoing consultation for approval and adoption. The Data Protection Law has been validated by stakeholders and pending submission to the Executive for onward submission to the parliament. The purpose of this legislation is to provide the legal framework needed to protect the privacy of individuals' data.

The cyber security landscape in Liberia is at its early stages. The Government of Liberia is in the process of building the regulatory framework and institutions to secure its digital space. The Cybercrime Act 2021 that has been drafted seeks to provide the legal, regulatory, and institutional framework to address cybercrimes in Liberia. Key in the act is the protection of Critical National Information Infrastructure (CNII), however the minimum standards, guidelines and procedures to secure identified CNII have not been established.

To further guide cybersecurity governance in Liberia, a draft National Cybersecurity Strategy for 2025 – 2029 has been developed, pending consultation review and legislative approval. The maturity assessment, as part of the national cybersecurity strategy (2025-2029), highlights the gaps to be addressed by the strategy, legislation, and policies. Some individual MACs have established ICT policies, business continuity and disaster recovery policies and plans, however these institutional policies are outdated as periodic reviews and updates have not been finalized.

From the MACs engaged, there is limited implementation of international security standards, such as ISO standards, to secure systems and infrastructure.

In 2019, the Liberia Cyber Crime Prevention and Mitigation Agency (LCCPMA) was established as a non-governmental agency. Its mandate is to provide cyber security and digital forensics education to the Government and people of Liberia, to prevent and mitigate cybercrimes. The Ministry of Posts and Telecommunications is leading efforts to establish a Digital Forensic Laboratory comprising of a digital forensic lab wing dedicated to investigations using digital technology, and a Computer Emergency Response Team (CERT) to monitor and mitigate against threats. This Laboratory will be dedicated to conduct investigations using digital technology to monitor and mitigate against threats. ECOWAS has pledged to support the project digital forensic equipment for the Digital Forensic Laboratory.

3.1.2 As-Is: Governance & Services

The Ministry of Posts and Telecommunications (MoPT) plays a central role in Liberia's digital transformation agenda, overseeing key areas such as policy development and implementation, e-Governance, digital transformation, cybersecurity, and capacity building. The appointment of a national Chief Information Officer (CIO) is strategic to facilitate the coordination of ICT initiatives across the various government institutions. The CIO is to be supported by the CIO Council, a body made up of CIOs from MACs, to drive digital transformation.

Liberia’s policy landscape requires significant modernization as governance challenges persist. There is no standalone central institution focused solely on coordinating ICT implementation across the Government of Liberia. The e-Governance Strategy elapsed in 2018 and has not been updated; the e-Government Interoperability Framework standards and policies were last updated in 2014.

Currently, MACs pursue their own initiatives independently leading to inefficiencies, duplications, and limited interoperability. At the institutional level, MACs are at varying levels of maturity in relation to up-to-date policies, such as their IT policy, information security policy, disaster recovery plan and policy. In some MACs, there are no cyber security related policies or periodic reviews have not been undertaken to align the policies with modern trends and operations. A concerted effort is required to ensure the policy frameworks of all MACs are at a standard level, ensuring effective management of ICT within the institutions.

As per engagements with key stakeholders, there is low awareness and utilization of Digital Public Goods (DPGs) to support the development of government ICT projects. The only DPG identified in use is the Open Data Platform used by the Liberian Institute of Statistics and Geo-Information Services (LISGIS). The use of DPGs can provide substantial benefits for Liberia, such as reduced administrative costs, availability of continuous improvement to technology solutions, and facilitate standardization across countries while adopting open-source based solutions.

Liberia's digital ecosystem includes critical systems in the public finance management (PFM) domain such as Integrated Financial Management Information System (IFMIS) for government revenue and budget management, Liberia Integrated Tax Administration System (LITAS) for domestic tax management, Asycuda for customs tax management, and Tax Administration System (TAS) for tax reporting. However, TAS, which has been in use for over a decade, is set

to be phased out in favor of LITAS. Partial integration exists between these systems limiting effective PFM management and decision making. A wholistic approach is needed to improve the interoperability of these systems in order to harness the data for governance.

Furthermore, Liberia's e-Procurement project (e-GP), a SaaS system, managed by the Public Procurement and Concession Commission (PPCC) has been developed with integrations with other online platforms, such as the revenue tax payment system (LRA) and the online social security platform (NASSCORP). The e-GP has been piloted and rolled out to six MACs. There are plans to onboard an additional fifty (50) public sector institutions across the 15 counties in 2025, and all MACs onboarded within three years. The PPCC faces challenges like limited internal capacity and reliance on external cloud hosting in place of hosting at the National Data Centre. Operational modules are the tendering, bid submission, bid evaluation, award of contract. Integrations with LRA and NASSCORP are advanced, integrations with the Liberia Business Registry and IFMIS are pending due to the unavailability of APIs from those systems. Future goals for the e-Procurement system include local hosting, financing sustainability, and protecting procurement officers from interference.

The asset declaration system of the Liberia Anti-Corruption Commission (LACC) is currently manual involving the use of PDF documents, which provides limited functionality and usability and impacts the efficiency of LACC. Analytics and insights are not possible in the current format, emphasizing the urgent need for a robust digital document management system to index files for efficient search, retrieval, and analysis. There are plans to develop an automated asset declaration and verification system by 2027. A whistleblower application has been developed to support the LACC receiving anonymous reports on corruption from citizens.

The Liberia Business Registry (LBR), once a pioneer in online service provision, is in the process of developing a new digital business registration system. Integrations with LRA, NIR, Liberia Immigration Service, and NASSCORP are planned for the new system.

The Government of Liberia is far advanced with the development of a national digital addressing system to support Liberia's long-term vision of socio-economic transformation and development. The digital addressing system will support the Government of Liberia with decision making and planning, ensuring public resources are targeted appropriately.

Several integrations between different MAC ICT systems have been completed in Liberia. These integrations are through peer-to-peer APIs developed to exchange data. However, the APIs have been designed to be system and institution specific and are not standardized to easily support the needs of various MACs. PFM institutions, such as Liberia Revenue Authority (LRA), Ministry of Finance and Development Planning (MFDP), and Central Bank of Liberia (CBL), are at the forefront of integrating their systems. The Liberian Tax Administration System (LITAS), managed by the LRA, is to be integrated with the Integrated Financial Management Systems (IFMIS) operated by the MFDP. The National ID system has been integrated with some banks and government institutions to facilitate identity validation processes, enhancing security and verification for financial transactions. County Service Centers (CSCs) have been established in the 15 counties in Liberia to serve as one-stop shops to increase access to public services as part of the decentralization and de-concentration agenda. However, these CSCs have not met the objectives as they are generally under-resourced and lack the support from the line MACs needed to deliver consistent public services.

Many of the services to be provided have not been effectively digitized, they are either unavailable or require final processing of the services to be done in Monrovia.

3.1.3 As-Is: Digital Empowerment of Citizens and Businesses

Liberia faces significant challenges bridging the digital divide. Economic disparities, limited accessibility to infrastructure, and a lack of affordable devices prevent many Liberians from benefiting from digital services. In addition, low levels of digital literacy further hinder citizens' ability to engage with digital platforms and participate in the digital economy. The education sector struggles to provide the necessary digital skills due to limited ICT curriculum, resources, and infrastructure. In 2022, the national literacy rate was 58.6% for the population 15 years and older with low school attendance rates, both of which are more pronounced in rural areas.

Initiatives such as the Liberia Digital Transformation Project, the UniPod initiative, and the IRISE project aim to address these issues by providing pathways to increase digital literacy and digital skills to foster innovation and entrepreneurship among Liberia's youth. The IRISE (Improving Results in Secondary Education) project seeks to advance secondary education with enhanced facilities and digital skills training. Through the IRISE project, digital labs will be introduced in 156 secondary schools across Liberia. For educators, a digital training program has been launched with the goal of equipping educators across the country with the necessary digital skills to create a digitally empowered educational ecosystem.

In 2019, the Government of Liberia introduced a free tuition policy for undergraduates in Liberian public universities in a bid to increase enrollment into higher education. The University of Liberia has introduced the Department of Computer and Information Sciences to offer ICT related programs, beginning with a Bachelor of Science Degree in Information Technology program. Many of the higher education institutions in Liberia offer undergraduate degrees, diploma, and certificate programs in information technology and specialized technology ICT areas such as telecommunication engineering, cybersecurity, and software development. Two leading private universities, BlueCrest University College and Starz University, currently offer ICT related master's degree programs, and the University of Liberia is advancing plans to launch the Online MSc in Computer Science program. However, despite the advancements globally in emerging technology such as AI, cloud and robotics, significant development of emerging technology education at the local level is lacking in Liberia.

One of the main challenges faced in many Ministries, Agencies, and Commissions (MACs) is the limited training and capacity building opportunities available to staff. Many ICT departments face gaps in delivering services due to the limited technology skills of personnel, especially in new and emerging technologies such as cybersecurity, data analytics, and artificial intelligence.

Digital financial services and entrepreneurship are emerging areas of growth in Liberia. The digital payment ecosystem is growing, with initiatives like the Pan-African Payment and Settlement System (PAPSS) led by the Central Bank of Liberia (CBL), signaling a move toward a more integrated and automated financial system. Systems such as the Real-Time Gross Settlement (RTGS) are helping modernize Liberia's financial ecosystem. The Central Bank of Liberia seeks to implement a National Electronic Payment Switch to facilitate centralized interoperability with retail payments between financial service providers (including

banks and mobile network operators) and enhance electronic payments. Currently, payment interoperability is achieved through bilateral agreements between the financial service providers.

The adoption of e-payment solutions, such as mobile money, is growing steadily. In 2023, the number of active mobile money subscribers and number of registered institutions increased by 2.7% and 80.9% respectively. The value of transactions on alternate electronic payment channels, i.e. ATM and POS, dropped in comparison to increased transaction values on mobile banking and internet banking channels.

The uptake of digital financial tools remains constrained by low digital literacy and limited access to capital, restricting the broader use of digital platforms for business growth. Only a small percentage of businesses have successfully integrated digital financial tools, hindering their ability to scale and innovate.

3.1.4 Ongoing and planned projects summary

The Government of Liberia in supporting the digital transformation agenda has identified and is undertaking various projects. Some projects are enabled with the support of development partners, such as the World Bank and ECOWAS. The table below summarizes the ongoing and planned projects supporting digital transformation in Liberia.

SN	Project Name	Lead Institution	Timeline	Status
Digital Infrastructure & Cyber Security				
1	Deployment of Amilcar Cabral Submarine Cable	Ministry of Posts and Telecommunications	2024 - 2027	**Initiated** • Deployment of the additional submarine cable to be supported by the WARDIP[1] project. • MoPT has undertaken site visits for the landing site.
2	Provisional one-year license to Starlink	Liberia Telecommunications Authority (LTA)	2024 - 2025	**Ongoing** • LTA has issued a 1-year provisional license for Starlink operations to enhance internet coverage in Liberia.
3	Acquisition and deployment of 50 Starlink satellite terminals by Liberia Revenue Authority	Liberia Revenue Authority (LRA)	2024	**Ongoing** • LRA has deployed 21 Starlink terminals to LRA hotspots around the country, with 29 more terminals yet to be installed.
4	Onboard outstanding MACs within Montserrado county onto GovNet	LTC Mobile		**Planned**
5	Diagnostic assessment of current and planned civil registration and identification systems across Liberia	World Bank/ National Identification Registry (NIR)	2025	**Planned** • The assessment is part of the World Bank ID4D initiative.

[1] West Africa Regional Digital Integration Program (WARDIP) SOP2

SN	Project Name	Lead Institution	Timeline	Status
6	Integrate the National ID with other public services, such as birth registration, health, and driver's license	NIR	2026 - 2029	**Planned** • The activity will be supported by the GREAT project.
7	Rollout of the National ID	NIR	2026 - 2029	**Planned** • Mass registration and issuance of digital IDs for up to 2 million Liberian nationals and residents. The activity will be supported by the GREAT project.
8	Registration of all SIM cards using the National ID card	NIR/ LTA	2024 - 2025	**Ongoing** • NIR and LTA signed an MOU to mandate SIM registration with National ID card by July 2025 else the SIM card will be disconnected.
9	Revamp the National Data Center	MoPT/ LTC Mobile	2025 - 2027	**Planned** • The activity will be supported by the GREAT Project
10	Co-location hosting of NIR data at the National Data Centre	NIR/ LTC Mobile	2025 - 2027	**Planned** • To be undertaken as part of the National Data Center revamp activity.
11	Adoption of National ICT Policy (2025-2029)	MoPT	2025	**Ongoing**
12	Enactment of Cybercrime Act 2021	MoPT	2025 - 2026	**Ongoing**
13	Enactment of Data Protection Law	MoPT	2025 - 2026	**Ongoing**
14	Adoption of draft National Cybersecurity Strategy (2025 – 2029)	MoPT	2025	**Ongoing** • National Cybersecurity Strategy has been officially approved by MoPT
15	Establish Digital Forensic Laboratory	MoPT	2025 - 2026	**Ongoing**

SN	Project Name	Lead Institution	Timeline	Status
				• The activity is enabled by the Government of Liberia, ECOWAS and WARDIP
16	Revamp the County Service Centers (CSCs) ICT infrastructure	Ministry of Internal Affairs	2025 - 2027	**Initiated** • The activity is supported by the GREAT project
Governance & Services				
17	Reestablish CIO Council	MoPT	2025 - 2026	**Planned**
18	Digitalizing public services	MoPT	2026 - 2030	**Planned** • Digitalization of 16 transactional level online services through the GREAT project
19	E-GP system rollout to all MACs	Public Procurement and Concession Commission (PPCC)	2025 - 2028	**Planned** • Rollout to an additional 50 MACs to commence in 2025 • The activity is supported by the GREAT project
20	Development and implementation of an automated asset declaration and verification system for the LACC	Liberia Anti-Corruption Commission	2024 - 2027	**Ongoing** • Development of the system design, requirements and bidding document to hire a solution provider is ongoing • The activity is supported by the GREAT project
21	Development of a new digital business registration system	Liberia Business Registry	2024 - 2025	**Ongoing** • The activity is supported by the LIFT[2] project
22	Development of a national digital addressing system	MoPT	2025 - 2026	**Ongoing** • Technical work on the addressing system has been completed • The activity is supported through a PPP arrangement

[2] Liberia Investment, Finance and Trade Project (LIFT)

SN	Project Name	Lead Institution	Timeline	Status
23	Revamp of e-Liberia Portal	MoPT	2025 - 2026	**Ongoing** • Development of the system design, requirements and bidding document to hire a solution provider is ongoing • The activity is supported by the GREAT project
24	Development of an Interoperability platform	MoPT	2025 - 2026	**Ongoing** • Development of the system design, requirements and bidding document to hire a solution provider is ongoing • The activity includes LITAS interconnectivity with other GoL systems • The activity is supported by the GREAT project
25	ICT infrastructure for LITAS and ASYCUDA including improving system functionalities	LRA	2025 - 2027	**Ongoing** • The activity is supported by the GREAT project
26	Development and implementation of an Audit Management System	General Auditing Commission and Public Accounts Committee of the National Legislature	2025 - 2027	**Ongoing** • Identification of consultant to develop bidding document ongoing • The activity is supported by the GREAT project
27	IFMIS rollout to MACs and County Treasuries	Ministry of Finance and Development Planning	2026 - 2028	**Planned** • The activity will be supported by the GREAT project for 21 MACs and 11 County Treasuries in County Service Centers
Digital Empowerment of Citizens and Businesses				
28	Development of digital labs in 156 secondary schools across Liberia	Ministry of Education	2020 - 2025	**Ongoing** The activity is supported by the IRISE[3] project

[3] Improving Results in Secondary Education (IRISE)

SN	Project Name	Lead Institution	Timeline	Status
29	Conduct digital training program to equip educators across the country with necessary digital skills	Ministry of Education	2025	**Ongoing** The activity is supported by the IRISE project
30	Implementation of a National Electronic Payment Switch	Central Bank of Liberia	2025 - 2027	**Initiated** The activity is supported by the LIFT project

4 Vision

The vision of the National Digital Strategy is to

> "***Establish a digitally empowered and inclusive society where technology transforms governance, ensures equitable access to public services and drives economic development for all Liberians*"**

The vision further expands to each of the three pillars that underpin the strategy for Liberia with each pillar having a well-defined objective to achieve. The image below illustrates the same.

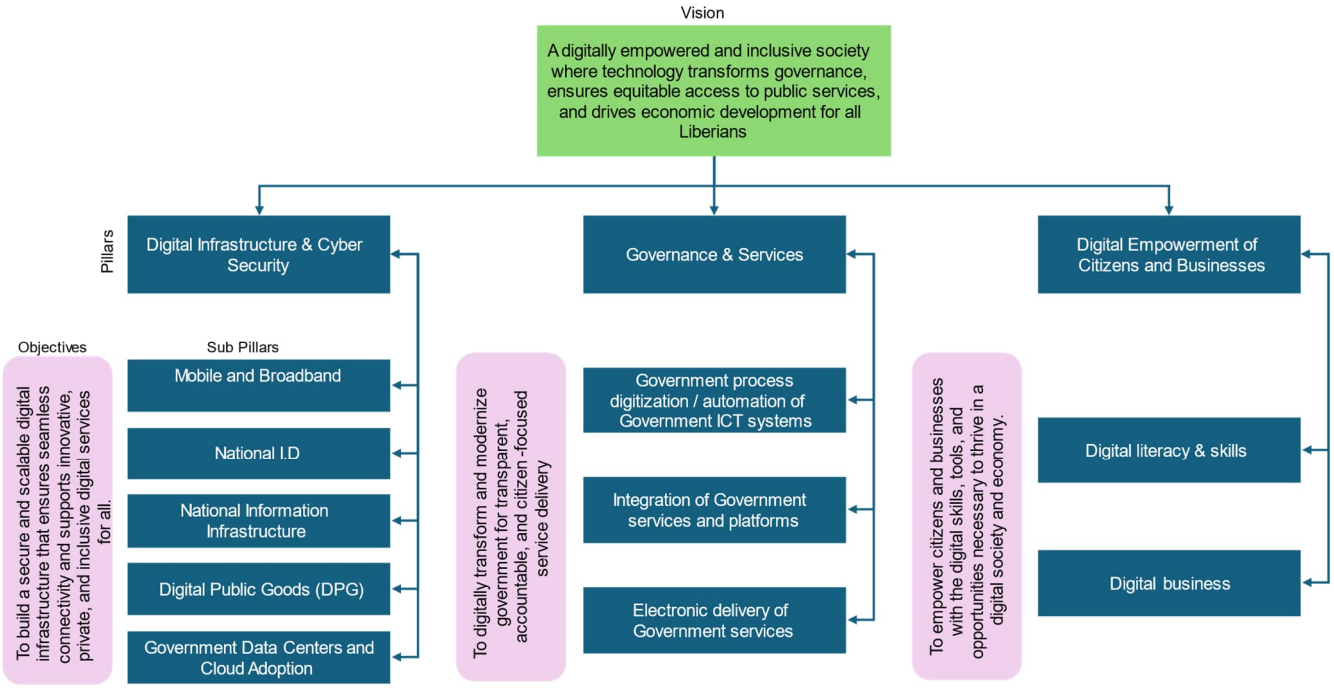


Figure: Vision and strategy objectives

5 Detailing the 'Transformation Pillars'

This chapter details the three strategic pillars that are the principal drivers for digital transformation namely Digital Infrastructure & Cyber Security, Governance & Service and Digital Empowerment of Citizens and Businesses. The following details are covered under each pillar:

- Objective and vision statement for each pillar
- Areas of intervention under each pillar (and the corresponding sub-pillars).
- Initiatives to achieve the objective and vision statement.

5.1 Pillar 1: Digital Infrastructure & Cyber Security

5.1.1 Objective

Digital Infrastructure serves as the foundational framework that supports digital transformation. It encompasses a range of physical and virtual assets, which work together to facilitate seamless communication, data management, and access to digital services. By improving the digital infrastructure, the Government of Liberia can enhance public service delivery, drive innovation, and ensure that citizens and businesses are well-connected, both locally and to the global digital economy, thereby fostering an environment conducive to sustainable development and inclusive growth.

Vision statement: *"To enhance access to internet services and foster seamless interoperability across government platforms, driving efficiency, transparency, and inclusivity in Liberia's digital ecosystem."*

5.1.2 Areas of Intervention

Sub-Pillar	As-Is	Areas of Intervention
Mobile and Broadband	● Geographic area coverage as of 2022: 2G – 63%, 3G - 55%, 4G – 39%	Physical expansion of mobile and broadband infrastructure to increase coverage, especially in rural and underserved areas.
	● At present, the country does not have widespread 4G and no 5G connectivity ● MNO Orange plans to rollout 5G	Encourage the adoption of advanced technologies such as 5G and fiber optics to enhance network capacity and speed.
	● Price of mobile voice and data 8.8% of GNI in 2023	Make connectivity services more affordable for citizens and businesses.
National ID	● 15% ID issuance has been achieved ● National ID is currently used to cleanse & facilitate government payroll	Integrate the National Digital ID with various government and private sector services to streamline processes and enhance security.

Sub-Pillar	As-Is	Areas of Intervention
	and is integrated with LRA.	
	● Infrastructure hosted at NIR head office in Monrovia	Utilize a secure and scalable technology framework that can adapt to future advancements and increase in demand.
National Information Infrastructure	● National Cybersecurity Strategy yet to be approved ● Digital Forensic Laboratory setup is in progress	Implement comprehensive cybersecurity measures to protect national information infrastructure from cyber threats including establishment of Computer Emergency Response Team (CERT)
	● Data Protection Act yet to be enacted	Establish a regulatory framework that supports the growth of digital services while ensuring data protection and privacy.
	● UniPod project has been established in UoL ● GoL has established the Liberia Innovative Fund for Entrepreneurs	Create an ecosystem that encourages innovation in digital services and infrastructure development.
Digital Public Goods (DPG)	● Only open data platform currently in use	Support the development and use of open-source software and platforms for government and public services.
	● Limited sustainability of projects implemented due to lack of funds	Develop sustainable models for the maintenance and scaling of digital public goods.
Government Data Centers and Cloud Adoption	● Siloed government data centers ● National Data Center is underutilized	Modernize government data centers to improve efficiency, integration, security, and scalability
	● No national cloud policy. Some MACs (e.g. NIR) have deployed cloud-based services	Adopt a cloud-first policy to accelerate the migration of government services to secure cloud platforms.
	● No assessments of data centers have been conducted in relation to green technology and sustainability	Promote the use of green technology in data centers to reduce the environmental impact of digital infrastructure.

5.1.3 Initiatives

Mobile and Broadband

Physical expansion of mobile and broadband infrastructure to increase coverage, especially in rural and underserved areas

1. Install cell towers across Liberia for good 4G coverage with a provision to upgrade to 5G. Further map existing and planned towers for better management and planning.
2. Utilize the Universal Access Fund (UAF) to implement 4G services in rural and underserved areas
3. Publish all project disbursements and financial reports for the public for the UAF
4. Install Wi-Fi hotspots in public areas to provide free or affordable internet access

Encourage the adoption of advanced technologies such as 5G and fiber optics to enhance network capacity and speed.

1. Encourage research and development (R&D) in the field of 5G technology and channel funds for the same
2. Establish a tax incentive scheme and other benefits to support infrastructure projects by telecommunication service providers

Make connectivity services more affordable for citizens and businesses

1. Government to invest in backhaul infrastructure which then can be leveraged by private players to provide services at an affordable cost
2. Implement regulatory interventions to ensure that pricing by private players do not exhibit monopolistic tendencies.
3. Provide tax breaks or incentives to telecom companies that offer affordable services or invest in expanding access.

National ID

Integrate the National Digital ID with various government and private sector services to streamline processes and enhance security.

1. Provide national id to all citizens
2. Establish a framework for integration of the National ID with other government services

Utilize a secure and scalable technology framework that can adapt to future advancements and increased demand.

1. Complete an infrastructure assessment to handle load from integrations

National Information Infrastructure

Implement comprehensive cybersecurity measures to protect national information infrastructure from cyber threats.

1. Adopt the National Cybersecurity Strategy (2025-2029).

2. Fully establish the Digital Forensic Laboratory including operationalization of CERT to respond and mitigate cybersecurity incidents.
3. Mandate regular security audits for all government and critical infrastructure systems

Establish a regulatory framework that supports the growth of digital services while ensuring data protection and privacy.

1. Adopt ICT policy 2025 - 2030
2. Enact data protection legislation
3. Create a governance body to enforce data protection laws and regulate digital service providers
4. Develop a certification program for organizations that comply with data protection standards

Create an ecosystem that encourages innovation in digital services and infrastructure development.

1. Allocate funding and grants to support research and development in digital services and infrastructure.
2. Establish innovation hubs that offer resources and collaboration opportunities for startups and researchers

Digital Public Goods (DPG)

Support the development and use of open-source software and platforms for government and public services.

1. Develop and adopt a procurement policy that mandates the evaluation and preference for open-source software solutions in government procurement

Develop sustainable models for the maintenance and scaling of digital public goods

1. Develop and adopt a strategy to engage the community in the co-creation, adoption, and promotion of digital public goods and open-source software

Government Data Centers and Cloud Adoption

Modernize government data centers to improve efficiency, security, and scalability.

1. Perform a needs assessment of the National Data Centre and develop a plan to enhance the capabilities of National Data Center (including cloud enablement) with the costing details
2. Develop a national disaster recovery plan with the costing details
3. Upgrade of national data center and setting up of disaster recovery center

Adopt a cloud-first policy to accelerate the migration of government services to secure cloud platforms

1. Draft a Government Cloud strategy, policy, and implementation roadmap

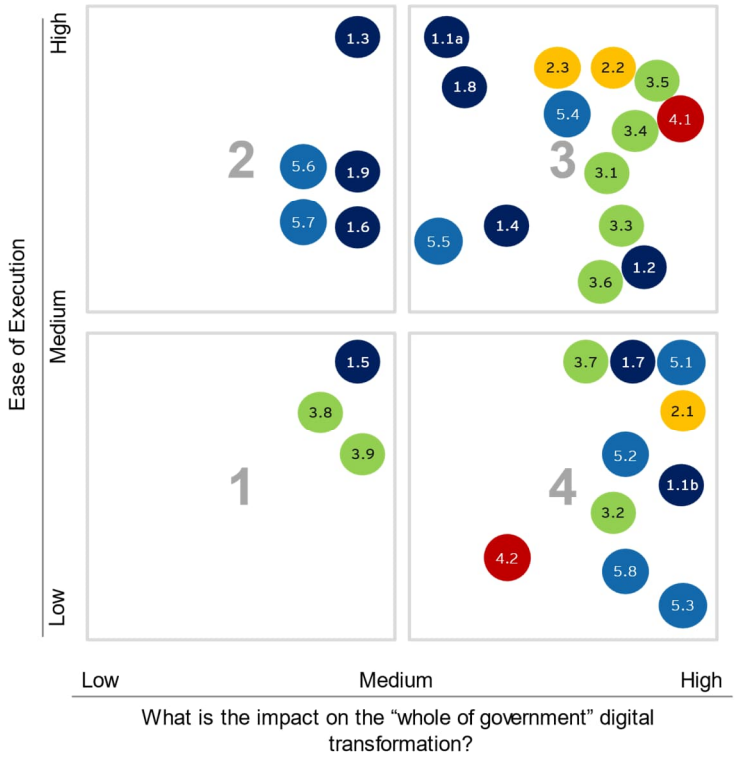
2. Evaluate and certify cloud service providers to ensure they meet government security and performance standards.

Promote the use of green technology in data centers to reduce the environmental impact of digital infrastructure

1. Assess the energy needs to power data centers
2. Perform a baseline of carbon footprint of data center operations
3. Install renewable energy sources for National Data Centers

Prioritization of Initiatives

The initiatives identified to enable the digital transformation under the Digital Infrastructure and Cybersecurity pillar have been prioritized below based on the ease of execution and the impact of the initiative to the “Whole of Government” digital transformation.



1 Mobile and Broadband

1.1a Map existing and planned cell towers

1.1b Install cell towers for good 4G coverage to upgrade to 5G

1.2 Utilize the Universal Access Fund to implement 4G services in rural and underserved areas

1.3 Publish all project disbursements and financial reports for the UAF fund

1.4 Install Wi -Fi hotspots in public areas to provide free or affordable internet access

1.5 Encourage R&D in field of 5G technology and channel funds for the same

1.6 Establish a tax incentive scheme and other benefits to support infrastructure upgrade projects by telecommunication service providers

1.7 Government to invest in backhaul infrastructure which then can be leveraged by private players to provide services at an affordable cost

1.8 Implement regulatory interventions to ensure that pricing by private players is not following monopolistic tendencies

1.9 Provide tax breaks/ incentives to telecom companies that offer affordable services or invest in expanding access.

2 National ID

2.1 Provide national ID to all citizens

2.2 Establish a framework for integration of the National ID with other government services

2.3 Complete an infrastructure assessment to handle load from integrations

3 National Information Infrastructure

3.1 Adopt National Cybersecurity Strategy (2025 - 2029).

3.2 Fully establish the Digital Forensic Laboratory including operational CERT and framework to respond to and mitigate cybersecurity incidents

3.3 Mandate regular security audits for all government and critical infrastructure systems

3.4 Adopt ICT policy 2025 - 2030

3.5 Enact data protection legislation

3.6 Create a governance body to enforce data protection laws and regulate digital service providers

3.7 Develop a certification program for organizations to comply with data protection standards

3.8 Allocate funding and grants to support research and development in digital services and infrastructure

3.9 Establish innovation hubs that offer resources and collaboration opportunities for startups and researchers

4 Digital Public Goods

4.1 Develop and adopt a procurement policy that mandates the evaluation and preference for open-source software solutions in government procurement

4.2 Develop and adopt a strategy to engage the community in the co -creation, adoption, and promotion of digital public goods and open - source software

5 Government Data Centers and Cloud Adoption

5.1 Perform needs assessment of the National Data Centre and develop a plan to enhance the capabilities of National data center

5.2 Develop and adopt a national disaster recovery plan

5.3 Upgrade of national data center and set up of disaster recovery center

5.4 Draft a Government Cloud strategy, policy, and implementation roadmap

5.5 Evaluate and certify cloud service providers to ensure they meet government performance and security standards.

5.6 Assessment of energy needs to power data centers

5.7 Perform a baseline of carbon footprint of data center operations

5.8 Installation of renewable energy sources for National Data Centers

Quadrant summary

1. **Status quo –** Difficult to execute, low advantage to digital transformation
2. **Small Quick Wins –** Easier to execute, low advantage to digital transformation
3. **Pursue -** Easier to execute, high advantage to digital transformation
4. **Major Projects –** Difficult to execute, high advantage to digital transformation

5.2 Pillar 2: Governance & Services

5.2.1 Objective

Governance & Services pillar focuses on the government service delivery, automation, and integration. The goal is to transform the interaction between citizens and government, making it more efficient, accessible, and responsive to their needs.

Vision statement: *"To develop comprehensive policy frameworks to guide building a secure, unified ICT infrastructure that delivers seamless, accessible, and transparent e-government services."*

5.2.2 Areas of Intervention

Sub-Pillar	As-Is	Areas of Intervention
Government process digitization / automation of Government ICT systems	• Paper-based manual processes requiring final processing in Monrovia	Convert paper-based government processes to digital formats to streamline operations and reduce manual errors.
		Implement automation tools to handle routine administrative tasks, freeing up human resources for more complex service needs
Integration of government services and platforms	• Existing e-Liberia portal only consolidates website links of MACs	Create a single online portal that provides access to all government services and information.
	• e-Government strategy and e-GIF outdated and yet to be updated	Design government digital services with a focus on user experience, ensuring that they are intuitive, accessible, and meet the needs of all citizens, including those with disabilities.
	• No national plan to guide PPPs and leverage private sector, civil society, and international organizations	Foster partnerships with the private sector, civil society, and international organizations to leverage expertise, technology, and resources for the development of integrated government services.
Electronic delivery of Government services	• Consultancy project to revamp e-Liberia portal initiated	Expand the range of government services available online, ensuring they are user-friendly and accessible on multiple devices.
	• County Service Centers under resourced	Launch initiatives to ensure that all segments of the population, including those with limited access to technology, can benefit from e-services.

Sub-Pillar	As-Is	Areas of Intervention
	● M&E framework for deployed e-services has not been developed	Implement a robust monitoring and evaluation system to track the usage, effectiveness, and impact of e-services.

5.2.3 Initiatives

Government process digitization / automation of Government ICT systems

Convert paper-based government processes to digital formats to streamline operations and reduce manual errors.

1. Draft a policy for the use and acceptance of electronic signatures across MACs
2. Digitize all government forms and applications for public use
3. Complete a needs assessment for a digital archive management system
4. Develop a secure digital archive management system for all public records

Implement automation tools to handle routine administrative tasks, freeing up human resources for more complex service needs

1. Implement workflow automation in all government processes
2. Develop AI powered chatbots to handle routine inquiries and service requests

Integration of Government services and platforms

Create a single online portal that provides access to all government services and information**.**

1. Complete the development of the e-Liberia portal
2. Establish a citizen feedback mechanism on the e-Liberia portal

Design government digital services with a focus on user experience, ensuring that they are intuitive, accessible, and meet the needs of all citizens, including those with disabilities.

1. Baseline research of user experience needs and preferences
2. Establish standards for all digital services

Foster partnerships with the private sector, civil society, and international organizations to leverage expertise, technology, and resources for the development of integrated government services.

1. Establish programs with technology companies and international organizations to transfer knowledge and technology.
2. Develop initiatives with civil society and international partners to train government staff in the latest digital service delivery methods.

Electronic delivery of Government services

Expand the range of government services available online, ensuring they are user-friendly and accessible on multiple devices.

1. Document and prioritize all government services to be digitized and made available online.

Launch initiatives to ensure that all segments of the population, including those with limited access to technology, can benefit from e-services.

1. Establish public access points with internet and computer facilities in community centers, libraries, and other public spaces.

Implement a robust monitoring and evaluation system to track the usage, effectiveness, and impact of e-services.

1. Conduct periodic impact assessment studies to evaluate the socio-economic benefits of e-services on the population.

Prioritization of Initiatives

The initiatives identified to enable the digital transformation under the Governance and Services pillar have been prioritized below based on the ease of execution and the impact of the initiative to the "Whole of Government" digital transformation.

1 Government process digitization/automation of Government ICT systems

- 1.1 Draft a policy for the use and acceptance of electronic signatures
- 1.2 Digitize all government forms and applications for public use
- 1.3 Complete a needs assessment for a digital archive management system
- 1.4 Develop a secure digital archive management system for all public records
- 1.5 Implement workflow automation in all government processes
- 1.6 Develop AI powered chatbots to handle routine inquiries and service requests

2 Integration of government services and platforms

- 2.1 Complete the development of the e-Liberia portal
- 2.2 Establish a citizen feedback mechanism on the e-Liberia portal
- 2.3 Baseline research of user experience needs and preferences
- 2.4 Establish standards for all digital services
- 2.5 Establish programs with technology companies and international organizations to transfer knowledge and technology
- 2.6 Develop initiatives with civil society and international partners to train government staff in the latest digital service delivery methods.

3 Electronic delivery of Government services

- 3.1 Document and prioritize all government services to be digitized and made available online.
- 3.2 Establish public access points (citizen service centers) with internet and computer facilities in community centers, libraries, and other public spaces.
- 3.3 Carry out periodic impact assessment studies to evaluate the socio-economic benefits of e-services on the population.

Quadrant summary

1. **Status quo** – Difficult to execute, low advantage to digital transformation
2. **Small Quick Wins** – Easier to execute, low advantage to digital transformation
3. **Pursue** - Easier to execute, high advantage to digital transformation
4. **Major Projects** – Difficult to execute, high advantage to digital transformation

5.3 Pillar 3: Digital Empowerment of Citizens and Businesses

5.3.1 Objective

Digital empowerment of citizens and businesses focuses on providing them with the tools, skills, and access necessary to effectively participate in the digital economy and society. This is a key objective of digital transformation, aiming to bridge the digital divide and ensure that all members of society can benefit from technological advancements.

Vision statement: *"To develop an inclusive and robust digital ecosystem, focusing on empowering both the private and public sectors to drive the digital economy."*

5.3.2 Areas of Intervention

Sub-Pillar	As-Is	Areas of Intervention
Digital literacy & skills	● Liberia Digital Transformation Project is completed. ● UniPod project has been established in UoL. ● IRISE project ongoing	Launch nationwide campaigns to raise awareness about the importance of digital literacy and provide basic digital education to all citizens, targeting various demographic groups including the elderly, rural communities, and marginalized populations.
	● No national digital skills assessment has been conducted to identify training needs	Develop and implement comprehensive digital skills training programs that cater to different skill levels and professional needs, from basic computer use to advanced digital technologies relevant to various industries.
	● No national digital skills certification process has been established	Establish a system of certification and accreditation for digital skills that is recognized by employers and educational institutions, providing a clear pathway for career advancement and further education.
Digital businesses	● Limited e-commerce platforms available. ● The digital payment ecosystem is growing	Promote the development and use of e-commerce platforms to enable businesses to reach wider markets and facilitate online transactions.

5.3.3 Initiatives

Digital literacy & skills

Launch nationwide campaigns to raise awareness about the importance of digital literacy and provide basic digital education to all citizens, targeting various demographic groups including the elderly, rural communities, and marginalized populations.

1. Develop and disseminate multimedia campaigns across television, radio, and online platforms to highlight the benefits of digital literacy for all citizens.
2. Establish training centers in rural and underserved urban areas to provide hands-on digital literacy courses.
3. Create specialized digital literacy programs for the elderly, people with disabilities, and other marginalized groups.
4. Collaborate with NGOs, educational institutions, and private sector partners to extend the reach and resources of digital literacy programs.

Develop and implement comprehensive digital skills training programs that cater to different skill levels and professional needs, from basic computer use to advanced digital technologies relevant to various industries.

1. Create a standardized curriculum for basic digital skills that includes computer literacy, internet navigation, and fundamental software use.
2. Establish partnerships with educational institutions and industry bodies for recognizing the digital skills of individuals at various levels.
3. Establish and conduct train- the- trainer programs to train local educators and community leaders to deliver digital skills training within their communities.

Establish a system of certification and accreditation for digital skills that is recognized by employers and educational institutions, providing a clear pathway for career advancement and further education.

1. Conduct a national digital skills assessment to understand industry needs
2. Develop a digital skills certification framework aligned with industry needs and educational standards.
3. Establish an independent accreditation body to oversee digital skills certification

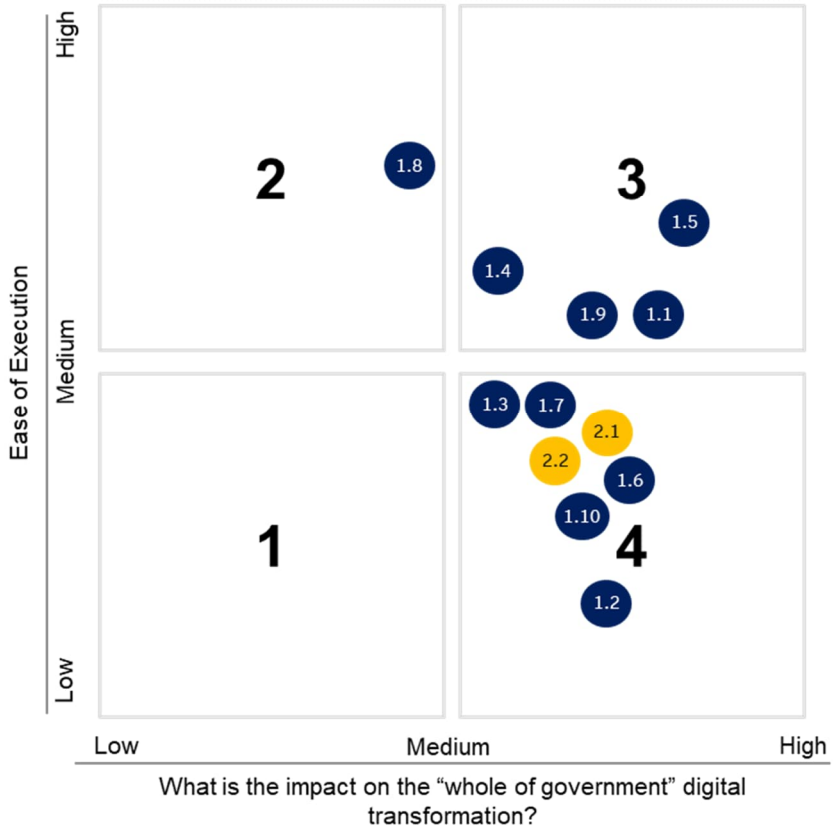
Digital businesses

Promote the development and use of e-commerce platforms to enable businesses to reach wider markets and facilitate online transactions.

1. Develop training programs for businesses on digital business operations and digital marketing.
2. Facilitate the adoption of secure digital payment solutions to integrate with e-commerce platforms

Prioritization of Initiatives

The initiatives identified to enable the digital transformation under the Digital Empowerment of Citizens and Businesses pillar have been prioritized below based on the ease of execution and the impact of the initiative to the "Whole of Government" digital transformation.



1 Digital literacy & skills

1.1 Develop and disseminate multimedia campaigns across television, radio, and online platforms to highlight the benefits of digital literacy for all citizens.

1.2 Establish training centers in rural and underserved urban areas to provide hands-on digital literacy courses.

1.3 Create specialized digital literacy programs for the elderly, people with disabilities, and other marginalized groups.

1.4 Collaborate with NGOs, educational institutions, and private sector partners to extend the reach and resources of digital literacy programs.

1.5 Create a standardized curriculum for basic digital skills that includes computer literacy, internet navigation, and fundamental software use.

1.6 Establish partnerships with educational institutions and industry bodies for recognising the digital skills of individuals at various levels.

1.7 Establish and conduct train the trainer programs to train local educators and community leaders to deliver digital skills training within their communities.

1.8 Conduct a national digital skills assessment to understand industry needs.

1.9 Develop a digital skills certification framework aligned with industry needs and educational standards.

1.10 Establish an independent accreditation body to oversee digital skills certification.

2 Digital businesses

2.1 Develop training programs for businesses on digital business operations and digital marketing.

2.2 Facilitate the adoption of secure digital payment solutions to integrate with e-commerce platforms

Quadrant summary

1. **Status quo** – Difficult to execute, low advantage to digital transformation
2. **Small Quick Wins** – Easier to execute, low advantage to digital transformation
3. **Pursue** - Easier to execute, high advantage to digital transformation
4. **Major Projects** – Difficult to execute, high advantage to digital transformation

6 Financial Estimates

This section presents the financial estimates required to implement the identified initiatives for addressing each 'Area of Intervention' within the Sub-Pillars and Pillars of this strategy. The estimates cover the costs associated with all tangible initiatives involving procurement interventions. The table below provides a summary of Capital Expenditure (CapEx) and Operational Expenditure (OpEx) over a five-year period (2025-2029) for executing the initiative under each pillar.

In the following table the financial estimates are illustrated in two parts; Part-1 (US$517.500mn + US$258.750mn = US$776.250mn) describes the costing for establishing approximately 1500 cell towers across Liberia to improve mobile connectivity and thus address the digital divided. This estimate is primarily described for funding through Public Private Partnership (PPP) and therefore separate from the overall financial estimation.

The details of the financial estimates as well as recommendations are provided in the sub-section 6.1.1 below as well as in Appendix-D. The installation of cell towers is one of the crucial initiatives that will be key in determining the success of the "Whole of Government" national digital strategy. It is recommended that within 5 years i.e. within the strategy period, at least there should be 50% coverage across the country, with priority in rural and underserved areas, with a mix of minimum 4G mobile tower connectivity and Starlink, or similar. A separate strategy should be devised for the arrangement and optimum utilization of funds for this initiative.

The financial estimates presented in Part-2 (US$90.200mn + US$61.613mn = US$151.813mn) largely focuses funding from sources other than PPP i.e. funding from Government sources, multilateral donors and other agencies. The detail of the financial estimates is presented in section 6.1, 6.2 & 6.3

Part-1			
Pillars		**Estimated Cost (in US$ mn)**	
		CapEx	**OpEx (For 5yrs)**
Pillar-1: Digital Infrastructure & Cyber Security	Installation of cell towers across Liberia for good 4G coverage with a provision to upgrade to 5G.	450.000	225.000
15% for exigencies including variations in market rates, priorities, etc.		67.500	33.750
Sub Total-A:		**517.500**	**258.750**

Part-2		
Pillars	**Estimated Cost (in US$ mn)**	
	CapEx	**OpEx (For 5yrs)**
Pillar-1: Digital Infrastructure & Cyber Security	48.261	30.827
Pillar-2: Governance & Services	16.288	4.820
Pillar-3: Digital empowerment of citizens and businesses	13.885	17.930
15% for exigencies including variations in market rates, priorities, etc.	11.766	8.037
Sub Total-B:	**90.200**	**61.613**
Total (Sub Total-A + Sub Total-B)	**607.700**	**320.363**

In line with the vision of the NDS for the Republic of Liberia, the strategy focuses on the use of Public Private Partnership, or PPP as a means of funding some of the eGovernment Project identified.

PPP involves government and private sectors working together to deliver infrastructure or services that are traditionally provided by government. It involves private financing, construction and management of key infrastructure with the primary objective of improving public services. PPPs focus on service outcome, not assets.

It may be noted that the current funding plan for the eGovernment programme does not consider funding from PPP in its estimate on account of the following:

- An overall decision on levy of user charges for government services is yet to be taken and the decision for the same would vary from individual agencies
- There cannot be a practical PPP options if there are no revenue source either through levy of user charges or by appropriation through government budget
- A PPP structure without the above would only lead to increase in the overall project cost as the project cost would have additional expenses on account of funding and risk adjusted profit requirement. Having said that, there could be indirect or direct efficiency gains that may offset the increased cost of the project

While no funding from PPP has been proposed in the financial plan except for installation of cell towers across Liberia for good 4G coverage, the table below makes an assessment of the PPP possibility across the various initiatives proposed under the eGovernment strategy. It may be noted that this assessment is based upon the assumption that levy of service charges or generation of revenue from the delivery of services is possible, especially for Government to business projects, for e.g. if a regional cloud-based data center is established than its cloud services can rendered to neighboring countries at some agreed revenue sharing.

Basic principles for PPP

- PPPs are concerned with services, not assets
  - The government does not need to own infrastructure to deliver services
- PPPs are a procurement option, not a novel method of developing public infrastructure
  - PPP policy sits alongside other procurement methods – i.e. conventional, outsourcing, leasing etc.
  - Suitable to some public projects, not all projects
- PPPs are not ‘new money’
  - Service outputs must be paid for, whether directly (e.g. user charges) or by appropriation
  - Must therefore be affordable – either to users (user charges) or to the budget

Benefits for PPP include

- Unity of responsibility leading to improved delivery of public services
- Reduced lifecycle costs of a project
- Quantifying more accurately the costs of service delivery
- Defining the scope and standards of service required, with timescales for development

- Maintaining a small government and a lean civil service
- Spreading the government's capital works expenditure over the life of a project
- Invoking private sector skills, experience, access to technology, and innovation

The below tables provide an assessment of the PPP possibility across the various initiatives proposed under the eGovernment strategy

Pillar – 1: Digital Infrastructure & Cyber Security					
Sub Pillar	**Area of intervention**	**Actions**	**Estimated Cost (in US$ mn)**		**Funding possibility through PPP**
			CapEx	**OpEx (For 5yrs)**	
Mobile and Broadband	Physical expansion of mobile and broadband infrastructure to increase coverage, especially in rural and underserved areas.	Install cell towers across Liberia for good 4G coverage with a provision to upgrade to 5G. Further map existing and planned towers for better management and planning.	450.000	225.000	
		Utilize the Universal Access Fund to implement 4G services in rural and underserved areas	NA	NA	
		Publish all project disbursements and financial reports for the public for the USOF fund	NA	NA	
		Install Wi-Fi hotspots in public areas to provide free or affordable internet access	0.500	0.675	
	Encourage the adoption of advanced technologies such as 5G and fiber optics to enhance network capacity and speed.	Encourage R&D in field of 5G technology and channelize funds for the same	NA	NA	
		Establish a tax incentive scheme and other benefits to support infrastructure upgradation projects by telecommunication service providers	NA	NA	
	Make the connectivity services more affordable for citizens and businesses	Government to invest in backhaul infrastructure which then can be leveraged by private players to provide services at an affordable cost	NA	NA	
		Implement regulatory interventions to ensure that pricing by private players is not following monopolistic tendencies	NA	NA	
		Provide tax breaks or incentives to telecom companies that offer affordable services or invest in expanding access.	NA	NA	
National I.D.	Integrate the National Digital ID with various government and private sector services to streamline processes and enhance security.	Provide national ID to all citizens	36.00	18.00	
		Establish a framework for integration of the National ID with other government services	0.396	NA	

Pillar – 1: Digital Infrastructure & Cyber Security					
Sub Pillar	**Area of intervention**	**Actions**	**Estimated Cost (in US$ mn)**		**Funding possibility through PPP**
			CapEx	**OpEx (For 5yrs)**	
	Utilize a secure and scalable technology framework that can adapt to future advancements and increased demand	Complete an infrastructure assessment to handle load from integrations	0.396	NA	
National Information Infrastructure	Implement comprehensive cybersecurity measures to protect national information infrastructure from cyber threats including establishment of Computer Emergency Response Team (CERT)	Adopt a national cyber-security strategy (2025-2029)	NA	NA	
		Fully establish the Digital Forensic Laboratory including operational CERT and framework to respond to and mitigate cybersecurity incidents	NA	NA	
	Establish a regulatory framework that supports the growth of digital services while ensuring data privacy and security	Mandate regular security audits for all government and critical infrastructure systems	3.000	7.920	
	Establish a regulatory framework and execution of the interventions on data protection and privacy as defined in the Liberia ICT Policy (2019-2024 & 2025-2030).	Adopt ICT policy 2025 - 2030	NA	NA	
		Enact data protection legislation	NA	NA	
		Create a governance body to enforce data protection laws and regulate digital service providers	NA	NA	
		Develop a certification program for organizations that comply with data protection standards	NA	NA	
	Create an ecosystem that encourages innovation in digital services and infrastructure development	Allocate funding and grants to support research and development in digital services and infrastructure.	5.000	2.912	
		Establish innovation hubs that offer resources and collaboration opportunities for startups and researchers	1.500	1.320	
Digital Public Goods (DPG)	Support the development and use of open-source software and platforms for government and public services.	Develop and adopt a procurement policy that mandates the evaluation and preference for open-source software solutions in government procurement	0.0075	NA	
	Develop sustainable models for the maintenance and scaling of digital public goods	Develop and adopt a strategy to engage the community in the co-creation, adoption, and promotion of digital public goods and open-source software	0.0075	NA	
Government Data Centers	Modernize government data centers to improve	Perform need assessment of the National Data Centre and	0.396	NA	

Pillar – 1: Digital Infrastructure & Cyber Security					
Sub Pillar	**Area of intervention**	**Actions**	**Estimated Cost (in US$ mn)**		**Funding possibility through PPP**
			CapEx	**OpEx (For 5yrs)**	
and Cloud Adoption	efficiency, security, and scalability.	develop a plan to enhance the capabilities of National data center (including cloud enablement)			
		Develop and adopt a national disaster recovery plan			
	Adopt a cloud-first policy to accelerate the migration of government services to secure cloud platforms	Draft a Cloud strategy, policy, and implementation roadmap	0.396	NA	
		Evaluate and certify cloud service providers to ensure they meet government performance and security standards.			
	Promote the use of green technology in data centers to reduce the environmental impact of digital infrastructure	Assessment of energy needs to power data centers	0.660	NA	
		Perform a baseline of carbon footprint of data center operations			
		Installation of renewable energy sources for National Data Centers			

Pillar-2: Governance & Services					
Sub Pillar	**Area of intervention**	**Actions**	**Estimated Cost (in US$ mn)**		**Funding possibility through PPP**
			CapEx	**OpEx (For 5yrs)**	
Government process digitization / automation of Government ICT systems	Convert paper-based government processes to digital formats to streamline operations and reduce manual errors.	Draft a policy for the use and acceptance of electronic signatures	NA	NA	
		Digitize all government forms and applications for public use	0.396	NA	
		Complete a needs assessment for a digital archive management system			
		Develop a secure digital archive management system for all public records	3.50	1.75	
	Implement automation tools to handle routine administrative tasks, freeing up human resources for more complex service needs.	Implement workflow automation in all government processes	3.50	1.75	
		Develop AI powered chatbots to handle routine inquiries and service requests	0.202	1.32	
Integration of Government services and platforms	Create a single online portal that provides access to all government services and information.	Complete the development of the e-Liberia portal	NA	NA	
		Establish a citizen feedback mechanism on the e-Liberia portal	NA	NA	
	Design government digital services with a focus on user experience,	Baseline research of user experience needs and preferences	0.660	NA	

Pillar-2: Governance & Services					
	ensuring that they are intuitive, accessible, and meet the needs of all citizens, including those with disabilities.	Establish standards for all digital services			
	Foster partnerships with the private sector, civil society, and international organizations to leverage expertise, technology, and resources for the development of integrated government services.	Establish programs with technology companies and international organizations to transfer knowledge and technology.	NA	NA	
		Develop initiatives with civil society and international partners to train government staff in the latest digital service delivery methods.	0.050	NA	
Electronic delivery of Government services	Expand the range of government services available online, ensuring they are user-friendly and accessible on multiple devices.	Document and prioritize all government services to be digitized and made available online.	6.000	NA	
	Launch initiatives to ensure that all segments of the population, including those with limited access to technology, can benefit from e-services.	Establish public access points (citizen service centres) with internet and computer facilities in community centers, libraries, and other public spaces.	NA	NA	
	Implement a robust monitoring and evaluation system to track the usage, effectiveness, and impact of e-services.	Carry out periodic impact assessment studies to evaluate the socio-economic benefits of e-services on the population.	1.980	NA	

Pillar-3: Digital empowerment of citizens and businesses					
Sub Pillar	**Area of intervention**	**Actions**	**Estimated Cost (in US$ mn)**		**Funding possibility through PPP**
			CapEx	**OpEx (For 5yrs)**	
Digital literacy & skills	Launch nationwide campaigns to raise awareness about the importance of digital literacy and provide basic digital education to all citizens, targeting various demographic groups including the elderly, rural communities, and marginalized populations.	Develop and disseminate multimedia campaigns across television, radio, and online platforms to highlight the benefits of digital literacy for all citizens.	0.496	NA	
		Establish training centers in rural and underserved urban areas to provide hands-on digital literacy courses.	3.500	5.500	
		Create specialized digital literacy programs for the elderly, people with disabilities, and other marginalized groups.	0.245	0.550	
		Collaborate with NGOs, educational institutions, and	NA	NA	

Pillar-3: Digital empowerment of citizens and businesses					
Sub Pillar	**Area of intervention**	**Actions**	**Estimated Cost (in US$ mn)**		**Funding possibility through PPP**
			CapEx	**OpEx (For 5yrs)**	
		private sector partners to extend the reach and resources of digital literacy programs.			
	Develop and implement comprehensive digital skills training programs that cater to different skill levels and professional needs, from basic computer use to advanced digital technologies relevant to various industries.	Create a standardized curriculum for basic digital skills that includes computer literacy, internet navigation, and fundamental software use.	1.584		
		Establish an independent accreditation body to oversee digital skills certification in partnerships with educational institutions and industry bodies for recogonising the digital skills of individuals at various levels.	1.5	3.960	
		Establish and conduct train the trainer programs to train local educators and community leaders to deliver digital skills training within their communities.	0.396		
	Establish a system of certification and accreditation for digital skills that is recognized by employers and educational institutions, providing a clear pathway for career advancement and further education.	Conduct a national digital skills assessment to understand industry needs	0.396		
		Develop a digital skills certification framework aligned with industry needs and educational standards.	0.396		
		Establish an independent accreditation body to oversee digital skills certification	1.500	3.960	
Digital Business	Promote the development and use of e-commerce platforms to enable businesses to reach wider markets and facilitate online transactions.	Develop training programs for businesses on digital business operations and digital marketing.	3.872	3.960	
		Facilitate the adoption of secure digital payment solutions to integrate with e-commerce platforms			

Legend:

Index	Description
	High propensity to PPP (Cost recovery up to 70%)
	Medium propensity to PPP (Cost recovery up to 50%)
	Low propensity to PPP (Cost recovery up to 30%)
	PPP is not feasible

The estimation includes the cost of implementing and running the initiatives/activities for a period of 5 years. It does not include salaries and administrative cost of the govt employees. A detailed breakdown of these estimates is provided in the following sub-sections.

6.1 Pillar-1: Digital Infrastructure & Cyber Security

6.1.1 Sub Pillar: Mobile and Broadband

6.1.1.1 Area of Intervention: Physical expansion of mobile and broadband infrastructure to increase coverage, especially in rural and underserved areas

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Install cell towers across Liberia for good 4G coverage with a provision to upgrade to 5G. Further map existing and planned towers for better management and planning.	450.000	225.000	Liberia covers a total land area of approximately 111,369 km² and has a population of about 5.5 million. Urban areas require a higher density of mobile towers due to greater user concentrations, whereas rural areas need fewer towers but cover larger geographic areas due to lower population density. Based on these factors, it is estimated that ~ 400 towers with a spacing of 1–3 km will be necessary for urban coverage, and ~ 1,000 towers with a spacing of 5–10 km will be required for rural coverage. Considering redundancy and additional capacity, the total number of cell towers needed nationwide is projected to be around 1,500. According to market standards (Appendix-D), the average cost for a fully operational tower is ~ USD 300,000. This includes towers with a height of 20–40 meters for urban areas and 30–50 meters for rural locations. OpEx includes 10% of the cost of CapEx for 5years	• GoL may implement using a PPP model on revenue sharing basis. • It should be implemented in a phased manner, starting with high density areas • In sparsely and remote areas, GoL may invest in putting towers using Universal Access Fund (UAF) and lease-out to the mobile operators on revenue sharing basis • Based on the study of secondary sources[4] it is understood that the Liberia Revenue Authority (LRA) has acquired 50 Starlink satellite terminals, valued at approximately US$ 162,000, to improve connectivity across its nationwide offices. This initiative is part of a broader strategy to digitize revenue collection and enhance operational efficiency. In addition to the 4G/5G based network technologies, GoL can optimize the investment by introducing satellite-based internet technologies especially in remote and sparsely populated areas where installing towers may not be economically viable. • Satellite based internet technology should be considered as additional option for providing connectivity rather as replacement for 4G/5G based internet technology. A brief comparison between satellite-based and 4G/5G-based internet technologies, covering their pros, cons, and key performance metrics based on the study of secondary sources. presented in Appendix-E

[4] LRA gets 50 Starlink sattelite terminals to power revenue collection nationwide

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Utilize the Universal Access Fund to implement 4G services in rural and underserved areas	NA	NA	NA	• The government should review the UAF utilization regulation to include 4G and other high-speed infrastructure.
Publish all project disbursements and financial reports for the public for the UAF fund	NA	NA	NA	• The government should revive publishing financial and project reports on the official website.
Install Wi-Fi hotspots in public areas to provide free or affordable internet access	0.500	0.675	The cost includes the cost for Access Points, connectivity, site preparation, Wi-Fi management software, etc. Appendix-F provides detailed breakdown of the estimated costing based on the study of secondary sources	• In the initial phase, the public hotspots can be placed in 100 public locations such as CSCs, Government office buildings, shopping/ marketplaces, hospitals, banks, etc. • Government may adopt a PPP model where private players can install hotspot on revenue sharing basis. • It should be done in phases, starting with densely populated public areas, government building, CSCs, tourist areas

6.1.1.2 Area of Intervention: Encourage the adoption of advanced technologies such as 5G and fiber optics to enhance network capacity and speed

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Encourage R&D in field of 5G technology and channel funds for the same	NA	NA	NA	• Institutions like Universities, public IT institutions may provision the allocation of funds for R&D activities in their planned budget
Establish a tax incentive scheme and other benefits to support infrastructure upgrade projects by telecommunication service providers	NA	NA	As per government policies and mandates	• GoL may design appropriate policy for rendering incentives

6.1.1.3 Area of Intervention: Making the connectivity services more affordable for citizens and businesses

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Government to invest in backhaul infrastructure which then can be leveraged by private players to provide services at an affordable cost	NA	NA	NA	• GoL may collaborate with private players with some incentives for attracting investment for the upgrade of the infrastructure • A PPP arrangement may be instituted to recover at least 50% of the investment for e.g. GoL can levy fees for right of way for laying cables or give right to use its ducts for the use of private player.
Implement regulatory interventions to ensure that pricing by private players is not following monopolistic tendencies	NA	NA	NA	• Appropriate MAC, i.e. LTA, should conduct annual reviews of licensee operations and adopt required regulations
Tax Incentives: Provide tax breaks or incentives to telecom companies that offer affordable services or invest in expanding access.	NA	NA	NA	• GoL may design appropriate policy for rendering incentives

6.1.2 Sub Pillar: National I.D.

6.1.2.1 Area of Intervention: Integrate the National Digital ID with various government and private sector services to streamline processes and enhance security

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Provide national ID to all citizens	36	18.00	The estimation is based on the deliberation during the Validation Workshop held on 3-Dec-23, 4-Dec-23 at MoPT. Similar estimates were also discovered from the secondary research. (National Registry wants US$36 Million) OpEx includes 10% of the cost of Capex for 5years An amount of US$2 Million is budgeted by the GREAT project for mass registration and issuance for up to 2 million Liberian nationals and residents	• GoL should link the National ID with social benefit schemes for encouraging citizens to have National ID rather government pushing citizens for National ID.
Establish a framework for integration of the National ID with other government services	0.396	NA	The estimation is based on a 6-month study with 3 experts at US$1000/day	• GoL may utilize experts from industry to accomplish this task

6.1.2.2 Area of Intervention: Utilize a secure and scalable technology framework that can adapt to future advancements and increased demand

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Complete an infrastructure assessment to handle load from integrations	0.396	NA	The estimation is based on a 6-month study with 3 experts at US$1000/day	• GoL may utilize experts from industry to accomplish this task

6.1.3 Sub Pillar: National Information Infrastructure

6.1.3.1 Area of Intervention: Implement comprehensive cybersecurity measures to protect national information infrastructure from cyber threats including establishment of Computer Emergency Response Team (CERT)

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Adopt the National Cybersecurity Strategy (2025-2029).	NA	NA	This is an ongoing initiative	• GoL may consider a standalone National Cybersecurity Policy as the cybersecurity ecosystem matures
Fully establish the Digital Forensic Laboratory including operational CERT and framework to respond to and mitigate cybersecurity incidents	NA	NA	This is an ongoing initiative The initiative is funded by the GoL, ECOWAS, and WARDIP project to an amount of US$450,000	• GoL plans to establish a CERT under MoPT with state-of-art Digital Forensic Laboratory. • The CERT should be an independent body under MoPT
Mandate regular security audits for all government and critical infrastructure systems	3.000	7.920	Estimate of the Capex is based on the cost of setting up the IT system testing Laboratory with necessary hardware (H/W) and Software (S/W) required for operating a IT system testing Lab. Generally, the necessary H/W includes servers, networking equipment, switches & routers, VPN gateway, workstations and peripherals for 5 experts, storage, etc. and software including security testing tools such as Web Application Security Testing, Network Security Testing, API Security Testing, Mobile App Security Testing, Penetration Testing, Cloud Security Testing, Source Code Security Analysis (Static & Dynamic Code Analysis), Password & Credential Security Testing, Social Engineering & Phishing Testing, etc. The Opex includes 10% of the Capex	• GoL may plan to establish a Security Testing and Quality Assurance (STQA) Office • The mandate of STQA shall be to carry security testing and certification of application, networks system of government and critical infrastructure system. This should be a mandatory action for all government agencies, MACs for implementing necessary ICT system. A detailed operating procedure of STQA and guidelines for all MACs may developed for standardized and secure government ICT systems in Liberia. • The STQA should be an independent body under General Auditing Commission (GAC)

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
			including cost of 5 experts @US$1000/day for a period of 5 years	

6.1.3.2 Area of Intervention: Establish a regulatory framework that supports the growth of digital services while ensuring data protection and privacy

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Adopt ICT policy (2025 – 2030)	NA	NA	The ICT policy (2025-2030) has been drafted pending validation and approval	• Implementation of the approved policy
Enact data protection legislation	NA	NA	It is already in process of enactment as supplementary act to the Telecommunication act of 2007	• Enactment of the data protection legislation
Create a governance body to enforce data protection laws and regulate digital service providers	NA	NA	It is already provisioned in data protection legislation	• Formation of governance body to enforce data protection laws and regulate digital service providers
Develop a certification program for organizations that comply with data protection standards	NA	NA	The proposed Data Protection Agency should carry out the certification program for all MACs in Liberia	• Along with various audits, certification should also be the mandate for Data Protection Agency

6.1.3.3 Area of Intervention: Create an ecosystem that encourages innovation in digital services and infrastructure development

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Allocate funding and grants to support research and development in digital services and infrastructure.	5.000	2.912	The CapEx is estimated based on the creation of a funding corpus to support private sector firms, individuals, and agencies of Liberia in conducting research and development (R&D) in the ICT domain, with a maximum funding limit of US$500,000 per applicant. The OpEx is projected to cover the engagement of two experts for five years at a rate of US$1,000 per day, along with the procurement of two laptops costing US$3,500 each. Additionally, 10% of the total administrative cost is factored into the overall expenditure.	• GoL may use this corpus in the form of grant to support private sector firms, individuals, and agencies of Liberia for R&D in the domain of ICT. • The grant can be given based on the application and submission and screening of proposal by the applicants with a maximum funding of US$500,000. GoL may establish certain eligibility criteria for selecting the applicants which could be based on value/innovation for the country and viability of the idea/innovation. • GoL should also establish a monitoring mechanism to avoid the misuse of the funds. • GoL can engage the private players in creating the funding corpus and in lieu of this it can have MoU for the sharing of revenue generated from the project or the usage rights
Establish innovation hubs that offer resources and collaboration opportunities for startups and researchers	1.500	1.320	Estimation for establishing 15 innovation hubs (One in each county) with 10 seat capacity. The estimation is based on factors such as facility setup, furniture, connectivity, etc. The OpEx includes 10% of the capex for covering costs such as power, internet connectivity and other operational charges plus cost of two resources for a period of 5 years at US$500/day for managing the innovation hubs	• These innovation hubs shall be an aid/support for the youth with digital technical capabilities for R&D, innovations, and start-ups. • This can also be done in collaboration with the private sector, for example, firms such as Microsoft, Google, etc. can be engaged to establish such centers. • GoL can assess PPP options on revenue sharing basis for the usage of innovation hubs

6.1.4 Sub Pillar: Digital Public Goods (DPG)

6.1.4.1 Area of Intervention: Support the development and use of open-source software and platforms for government and public services

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Develop and adopt a procurement policy that mandates the evaluation and preference for open-source software solutions in government procurement	0.0075	NA	Estimate is based on the cost of hosting 3 consultation and validation workshops with 50 participants with $50 per participant for developing national procurement policy	• Government may conduct workshop with government officials, industry experts and other stakeholders for formation of policy with preference for open-source software solutions

6.1.4.2 Area of Intervention: Develop sustainable models for the maintenance and scaling of digital public goods

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Develop and adopt a strategy to engage the community in the co-creation, adoption, and promotion of digital public goods and open-source software	0.0075	NA	Estimate is based on the cost of hosting 3 consultation and validation workshops with 50 participants with $50 per participant for developing national procurement policy for developing policy for promoting DPG & open-source based software development	• Government may conduct workshop with government officials, industry experts and other stakeholders to shape up the DPG strategy

6.1.5 Sub Pillar: Government Data Centers and Cloud Adoption

6.1.5.1 Area of Intervention: Modernize government data centers to improve efficiency, security, and scalability

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Perform need assessment of the National Data Centre and develop a plan to enhance the capabilities of National data center (including cloud enablement) Develop and adopt a national disaster recovery plan Upgrade of national data center and setting up of disaster recovery center	0.396	NA	The estimation is based on a 6-month study with 3 experts at US$1000/day to perform need assessment of national data center, upgradation, develop national disaster recovery and setting up of disaster recovery center.	• While GoL may move towards establishing its own data center based on cloud platform, in the interim period, it may reach out to data centers in neighboring countries offering regional cloud services to host applications and other data center requirements. • GoL may create a cloud-based regional data center and its cloud-based service can be rendered to the countries within the region on revenue sharing basis.

6.1.5.2 Area of Intervention: Adopt a cloud-first policy to accelerate the migration of government services to secure cloud platforms

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Draft a Government Cloud strategy, policy, and implementation roadmap Evaluate and certify cloud service providers to ensure they meet government performance and security standards.	0.396	NA	The estimation is based on a 6-month study with 3 experts at US$1000/day	• GoL should establish its data center based on cloud technology. It may serve as private cloud for its govt agencies and institutions for hosting and various data center needs. • Going forward GoL may position its data center as regional cloud data center on revenue sharing basis for offering various cloud services for the countries within the region.

6.1.5.3 Area of Intervention: Promote the use of green technology in data centers to reduce the environmental impact of digital infrastructure

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Assessment of energy needs to power data centers	0.660	NA	The estimation is based on a 6-month study with 5 experts at US$1000/day The study shall provide the factors and costing for the installation of renewable energy source for National Data Centre	• GoL should augment the power supply at MACs with additional renewable energy sources for continuous and stable power supply. • GoL can engage private player on revenue sharing basis for proving power using green sources
Perform a baseline of carbon footprint of data center operations				
Installation of renewable energy sources for National Data Centers	NA			

6.2 Pillar-2: Governance & Services

6.2.1 Sub Pillar: Government process digitization / automation of Government ICT systems

6.2.1.1 Area of Intervention: Convert paper-based government processes to digital formats to streamline operations and reduce manual errors

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Draft a policy for the use and acceptance of electronic signatures across MACs	NA	NA	Already included in Electronic Transactions Act	• The policy should be implemented by MACs
Digitize all government forms and applications for public use Complete a needs assessment for a digital archive management system	0.396	NA	The estimation is based on a 6-month study with 3 experts at US$1000/day to assess the requirements and volume for digitization	• The study may do the necessary assessment of the forms to digitize • GoL may utilize experts from industry to accomplish this task
Develop a secure digital archive management system for all public records	3.50	1.75	The estimation is based on prevailing market rates for implementing Document/Archival management system The OpEx includes 10% of the Capex for meeting the operational cost for 5years	• GoL may utilize experts from industry to accomplish this task

6.2.1.2 Area of Intervention: Implement automation tools to handle routine administrative tasks, freeing up human resources for more complex service needs

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Implement workflow automation in all government processes	3.50	1.75	The estimation is based on prevailing market rates for implementing e-Office system with workflow and DMS The OpEx includes 10% of the Capex for meeting the operational cost for 5 years	• GoL may utilize experts from industry to accomplish this task

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Develop AI powered chatbots to handle routine inquiries and service requests	0.202	1.32	The estimation of Capex is based on prevailing market rates for implementing AI based chatbots The OpEx includes 10% of the Capex for meeting the operational cost plus the cost one expert resource @ US$100/day for the period of 5 years for regular updates in the AI model	• GoL may utilize experts from industry to accomplish this task

6.2.2 Sub Pillar: Integration of Government services and platforms

6.2.2.1 Area of Intervention: Create a single online portal that provides access to all government services and information

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Complete the development of the e-Liberia portal	NA	NA	As per the GREAT project appraisal document by World Bank an allocation of US$6mn already included to support the digitalization of selected 50 Ministry services and enhance citizen access through the e-Liberia Portal. Currently the consultancy to revamp the e-Liberia portal is ongoing	• 100% of the digitized services accessible through the e-Liberia portal by 2029
Establish a citizen feedback mechanism on the e-Liberia portal	NA	NA	Already part of the e-Liberia portal upgrade project	• NA

6.2.2.2 Area of Intervention: Design government digital services with a focus on user experience, ensuring that they are intuitive, accessible, and meet the needs of all citizens, including those with disabilities

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Baseline research of user experience needs and preferences	0.660	NA	The estimation is based on a 6-month study with 5 experts at US$1000/day	• Government may induct experts from industry to accomplish this task
Establish standards for all digital services				

6.2.2.3 Area of Intervention: Foster partnerships with the private sector, civil society, and international organizations to leverage expertise, technology, and resources for the development of integrated government services

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Establish programs with technology companies and international organizations to transfer knowledge and technology.	NA	NA	The proposed National Digital Transformation Working Group (NDTWG) shall establish connections with technology companies and international organizations for necessary knowledge transfer program	• GoL may undertake knowledge transfer program in association with technology companies and international organizations • GoL can engage technology companies and international organizations on revenue sharing basis for knowledge and technology transfer
Develop initiatives with civil society and international partners to train government staff in the latest digital service delivery methods.	0.050	NA	The estimation is based conducting 50 workshops/training programs for a batch of 20 participants with $50 per participant cost for capacity building	• GoL may conduct workshop with youths, individual in collaboration with private/international experts for various digital service delivery methods • GoL can engage civil society and international partners on revenue sharing for imparting training on their technologies for knowledge and technology transfer

6.2.3 Sub Pillar: Electronic delivery of Government services

6.2.3.1 Area of Intervention: Expand the range of government services available online, ensuring they are user-friendly and accessible on multiple devices

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Document and prioritize all government services to be digitized and made available online.	6.000	N/A	Digitalization of additional 20 Ministry services @US$300,000/service for accessing through e-Liberia portal. The estimation is based on estimates provided in the World Banks's GREAT PAD document.	• Government may utilize experts from industry to accomplish the digitalization of 20 Ministry services • Govt can form PPP arrangements with the service providers for implementing and delivering services which GoL levies user fees. For example, for issuance of birth/death and other certificates it can be on revenue sharing basis.

6.2.3.2 Area of Intervention: Launch initiatives to ensure that all segments of the population, including those with limited access to technology, can benefit from e-services

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Establish public access points (citizen service centers) with internet and computer facilities in community centers, libraries, and other public spaces.	NA	NA	Costing not included here as this is already covered in sub-section 6.1.1.1 "Install Wi-Fi hotspots in public areas to provide free or affordable internet access"	• NA

6.2.3.3 Area of Intervention: Implement a robust monitoring and evaluation system to track the usage, effectiveness, and impact of e-services

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	CapEx	OpEx (For 5yrs)		
Carry out periodic impact assessment studies to evaluate the socio-economic benefits of e-services on the population.	1.980	NA	The estimation is based on a 3-month study with 5 experts at US$1000/day from Year 3 to Year 5. The study should be conducted biannually every year from Year 3 to Year 5.	• GoL may utilize experts from industry to accomplish this task

6.3 Pillar-3: Digital Empowerment of Citizens and Businesses

6.3.1 Sub Pillar: Digital literacy & skills

6.3.1.1 Area of intervention: Launch nationwide campaigns to raise awareness about the importance of digital literacy and provide basic digital education to all citizens, targeting various demographic groups including the elderly, rural communities, and marginalized populations

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	Capex	Opex (For 5yrs)		
Develop and disseminate multimedia campaigns across television, radio, and online platforms to highlight the benefits of digital literacy for all citizens.	0.496	NA	The estimation is based on a 6-month study with 3 experts at US$1000/day for identifying and developing content, artwork for media campaign plus the cost of US$100,000 for online and offline disseminating the content as media campaign	• GoL may utilize experts from industry to accomplish this task • GoL can also devise a PPP framework for engaging private players running it campaign on revenue sharing or rights for using advertisement sites
Establish training centers in rural and underserved urban areas to provide hands-on digital literacy courses.	3.500	5.500	Estimation of cost for establishing 20 computer training centers across 20 locations (5 in Monrovia, the rest in each country) in Liberia involves significant investment in infrastructure, hardware, software, and operational costs. The detailed breakdown of the CapEx and OpEx for establishing 20 Computer Training Centers in Liberia is provided in Appendix-G	• GoL may use government buildings/ CSCs to establish the training centers. • This should be done using PPP model on revenue sharing basis
Create specialized digital literacy programs for the elderly, people with disabilities, and other marginalized groups.	0.245	0.550	Estimation of cost includes written, audio, video content development, localization, equipment, LMS integration (National Level Learning Platform) Detailed estimation of placed at Appendix-H	• GoL may induct experts from industry to accomplish this task • Engage NGOs, and other organization on revenue sharing basis

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	Capex	Opex (For 5yrs)		
Collaborate with NGOs, educational institutions, and private sector partners to extend the reach and resources of digital literacy programs.	NA	NA	The proposed CB & CM division/TWG of NDTWG shall establish connections with NGOs, educational institutions, and private sector partners to extend the reach and resources of digital literacy programs	• GoL may undertake knowledge transfer program in association with NGOs, educational institutions, and private sector partners • Engage NGOs, and other organization on revenue sharing basis. For example, government can provide space, CSCs etc to run their programs as well as run GoL programs

6.3.1.2 Area of intervention: Develop and implement comprehensive digital skills training programs that cater to different skill levels and professional needs, from basic computer use to advanced digital technologies relevant to various industries

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	Capex	OpEx (For 5yrs)		
Create a standardized curriculum for basic digital skills that includes computer literacy, internet navigation, and fundamental software use.	1.584	NA	The estimation is based on the cost of creating curriculum with 6 experts for 12 months at US$1000/day	• GoL may induct experts from industry to accomplish this task
Establish partnerships with educational institutions and industry bodies for recognizing the digital skills of individuals at various levels.	1.500	3.960	The CapEx estimate comprises of setting up of office infrastructure, IT Infrastructure, consultancy for developing certification framework, accreditation process, etc. The OpEx includes 10% of the Capex for meeting the operational cost plus the cost of 3 experts at US$1000/day resource for the period of 5years	• GoL may induct experts from industry to accomplish this task • GoL can engage with educational institutions to run digital skills programs.

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	Capex	OpEx (For 5yrs)		
Establish and conduct train the trainer (TTT) programs to train local educators and community leaders to deliver digital skills training within their communities.	0.396	NA	The estimation is based on a 6-month study with 3 experts at US$1000/day	• GoL may utilize experts from industry to accomplish this task

6.3.1.3 Area of intervention: Establish a system of certification and accreditation for digital skills that is recognized by employers and educational institutions, providing a clear pathway for career advancement and further education

Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	Capex	OpEx (For 5yrs)		
Conduct a national digital skills assessment to understand industry needs	0.396	NA	The estimation is based on a 6-month study with 3 experts at US$1000/day	• GoL may utilize experts from industry to accomplish this task
Develop a digital skills certification framework aligned with industry needs and educational standards.	0.396	NA	The estimation is based on a 6-month study with 3 experts at US$1000/day	• GoL may utilize experts from industry to accomplish this task
Establish an independent accreditation body to oversee digital skills certification	1.500	3.960	The CapEx estimate comprises of setting up of office infrastructure, IT Infrastructure, consultancy for developing certification framework, accreditation process, etc. The OpEx includes 10% of the Capex for meeting the operational cost plus the cost 3 experts at US$1000/day resource for the period of 5 years	• GoL may utilize experts from industry to accomplish this task

6.3.2 Sub Pillar: Digital businesses

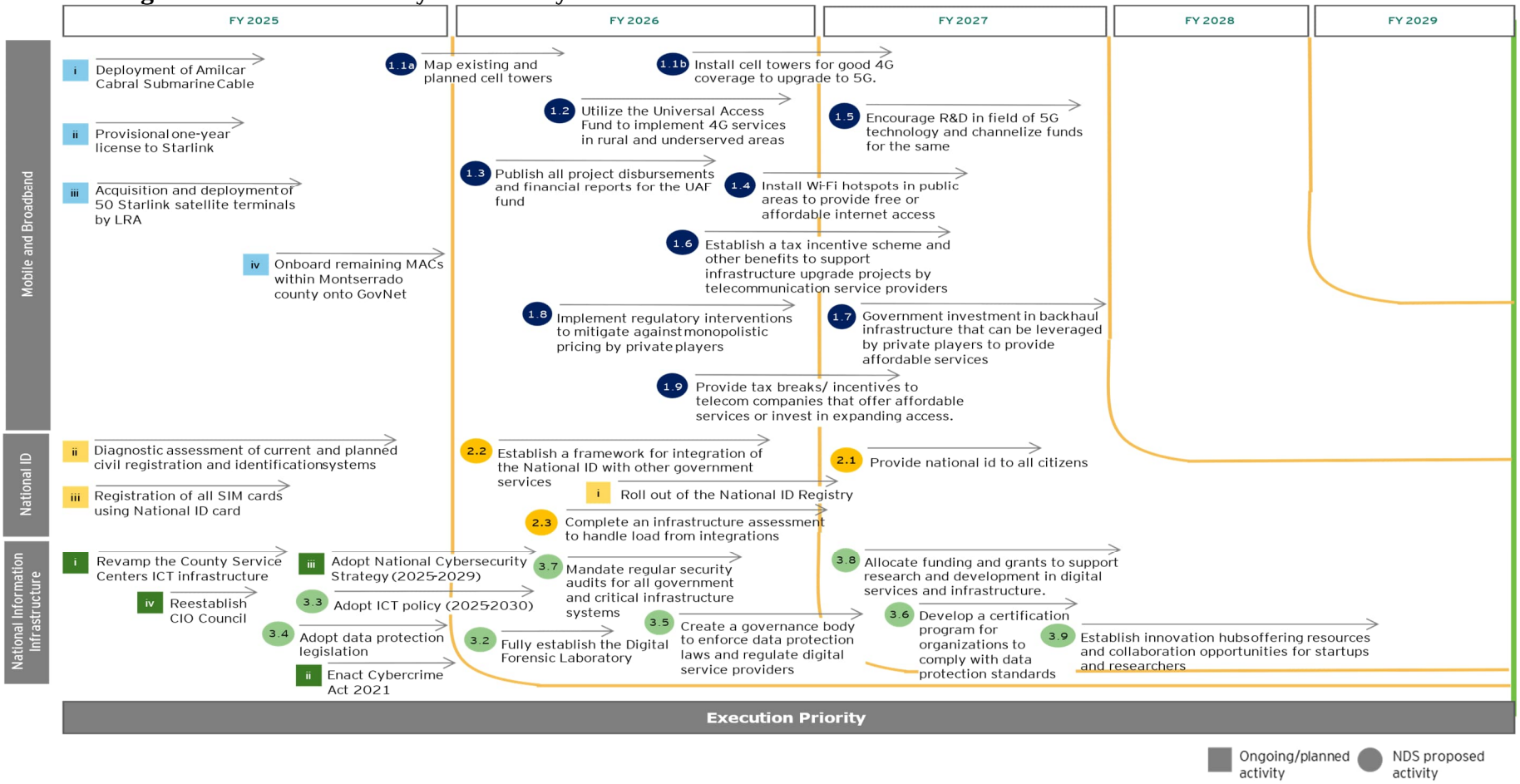
6.3.2.1 Area of intervention: Promote the development and use of e-commerce platforms to enable businesses to reach wider markets and facilitate online transactions

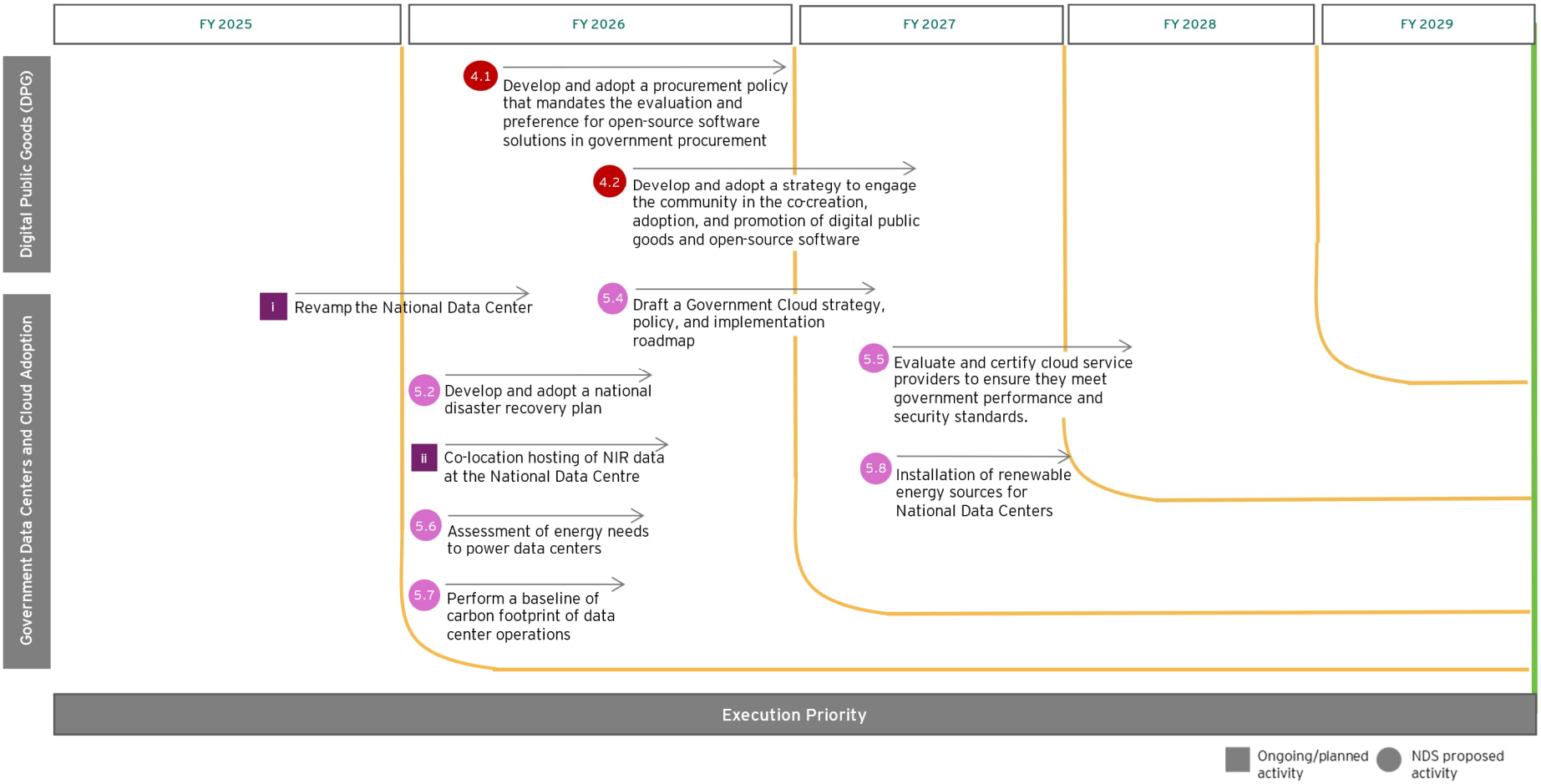
Initiatives	Estimated Cost (in US$ mn)		Assumptions	Recommendations
	Capex	OpEx (For 5yrs)		
Develop training programs for businesses on digital business operations and digital marketing. Facilitate the adoption of secure digital payment solutions to integrate with e-commerce platforms	3.872	3.960	Estimation based on study of secondary source* for implementing mobile-2-mobile payment system, payment gateway and developing training program The OpEx includes 10% of the Capex for meeting the operational cost plus the cost 3 experts at US$1000/day resource for the period of 5years. *https://www.afdb.org/sites/default/files/documents/projects-and-operations/liberia_-_payments_infrastructure_and_systems_upgrade_-_project_appraisal_report.pdf	• GoL may utilize experts from industry to accomplish this task • GoL can engage private players on PPP arrangement for programs on business operations and digital marketing

7 Implementation Roadmap

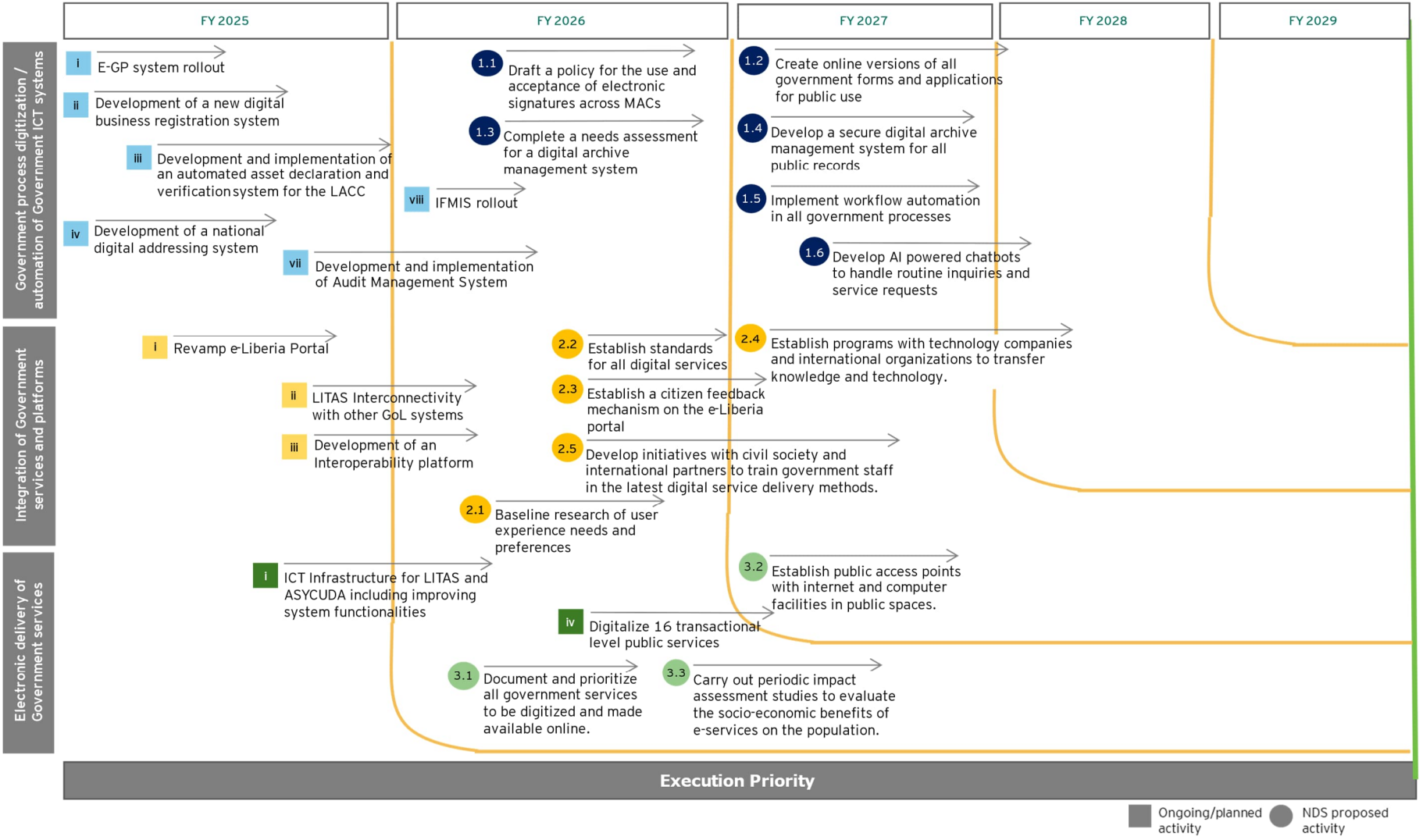
This section presents a roadmap for implementing the identified initiatives for addressing each 'Area of Intervention' within the Pillars and sub-pillars of this strategy. A high-level view of the implementation roadmap indicating the starting time for each initiative have been provided in the below images. A detailed breakdown of the planned duration is provided in the subsequent sub-sections.

Pillar 1 – Digital Infrastructure & Cyber Security

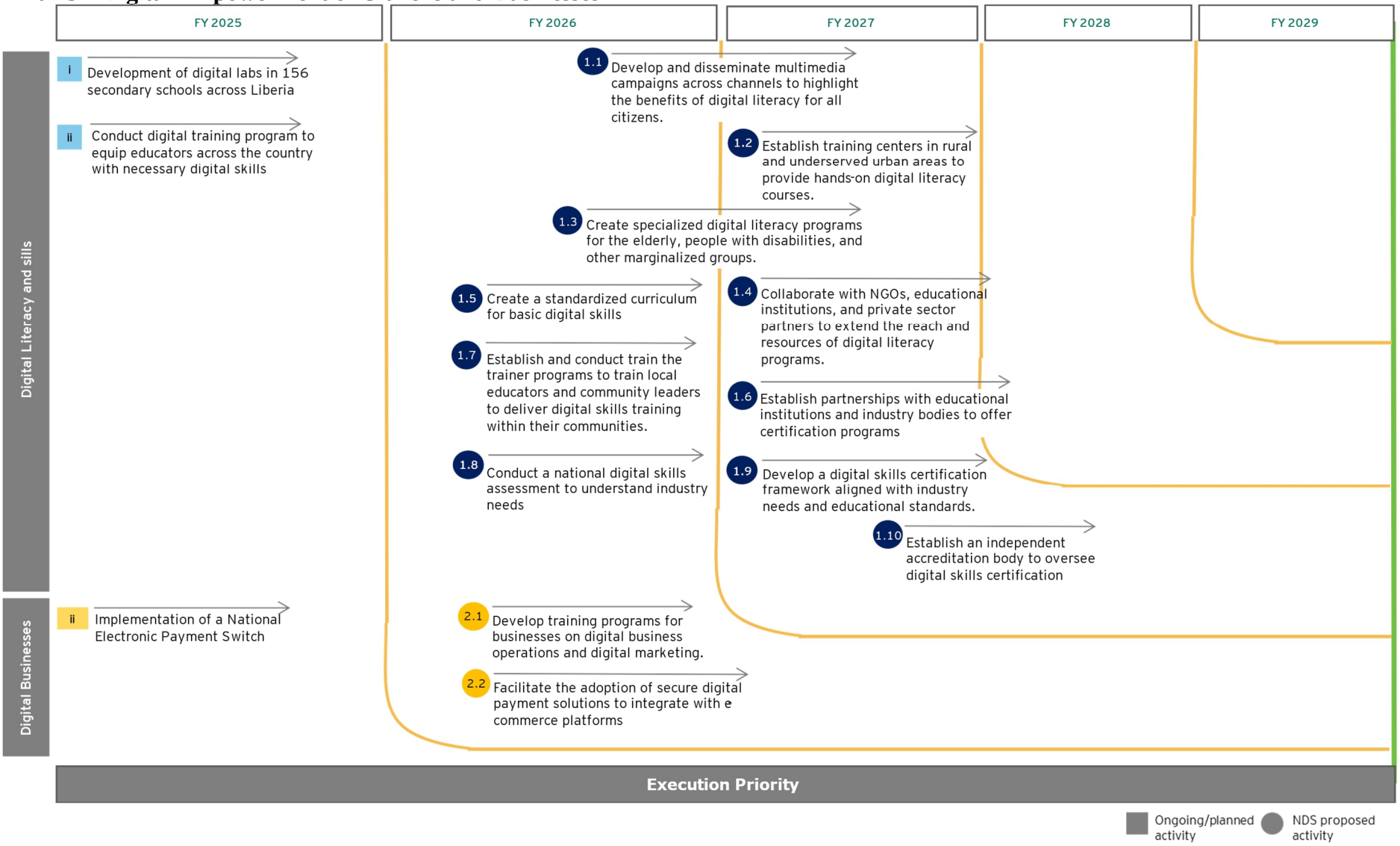



FY 2025
FY 2026
FY 2027
FY 2028
FY 2029
Digital Public Goods (DPG)
Government Data Centers and Cloud Adoption
4.1 Develop and adopt a procurement policy that mandates the evaluation and preference for open-source software solutions in government procurement
4.2 Develop and adopt a strategy to engage the community in the co-creation, adoption, and promotion of digital public goods and open-source software
i Revamp the National Data Center
5.4 Draft a Government Cloud strategy, policy, and implementation roadmap
5.5 Evaluate and certify cloud service providers to ensure they meet government performance and security standards.
5.2 Develop and adopt a national disaster recovery plan
ii Co-location hosting of NIR data at the National Data Centre
5.8 Installation of renewable energy sources for National Data Centers
5.6 Assessment of energy needs to power data centers
5.7 Perform a baseline of carbon footprint of data center operations
Execution Priority
Ongoing/planned activity
NDS proposed activity

Pillar 2 – Governance and Services



Pillar 3 – Digital Empowerment of Citizens and Businesses



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7.1 Digital Infrastructure & Cyber Security

7.1.1 Sub Pillar: Mobile and Broadband

7.1.1.1 Area of intervention: Physical expansion of mobile and broadband infrastructure to increase coverage, especially in rural and underserved areas

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Install cell towers across Liberia for good 4G coverage with a provision to upgrade to 5G. Further map existing and planned towers for better management and planning.	The mapping exercise can start in fourth quarter of 2025 and may be completed within 6 months for the existing set of towers. Beyond that it shall be an ongoing activity. The installation exercise would require planning and procurement process which can be initiated in third quarter of 2026 (post completion of mapping exercise of the existing cell towers)				Map existing and planned cell towers	Install cell towers across Liberia															
Utilize the Universal Access Fund (UAF) to implement 4G services in rural and underserved areas	UAF funds allocation shall be an ongoing exercise which should be regularly monitored for maximizing impact																				
Publish all project disbursements and financial reports for the public for the UAF fund	Published on an ongoing basis																				
Install Wi-Fi hotspots in public areas to provide free or affordable internet access																					

7.1.1.2 Area of intervention: Encourage the adoption of advanced technologies such as 5G and fiber optics to enhance network capacity and speed

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Encourage R&D in field of 5G technology and channel funds for the same	Ongoing																				
Establish a tax incentive scheme and other benefits to support infrastructure projects by telecommunication service providers	Ongoing																				

7.1.1.3 Area of intervention: Make connectivity services more affordable for citizens and businesses

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Government investment in backhaul infrastructure that can be leveraged by private players to provide affordable services	Ongoing																				
Implement regulatory interventions to mitigate against monopolistic pricing by private players	Ongoing																				
Provide tax breaks or incentives to telecom companies that offer affordable services or invest in expanding access.	Ongoing																				

7.1.2 Sub Pillar: National I.D.

7.1.2.1 Area of intervention: Integrate the National Digital ID with various government and private sector services to streamline processes and enhance security

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Provide national id to citizens																					
Establish a framework for integration of the National ID with other government services																					

7.1.2.2 Area of intervention: Utilize a secure and scalable technology framework that can adapt to future advancements and increased demand

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Complete an infrastructure assessment to handle load from integrations																					

7.1.3 Sub Pillar: National Information Infrastructure

7.1.3.1 Area of intervention: Implement comprehensive cybersecurity measures to protect national information infrastructure from cyber threats

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Adopt the National Cybersecurity Strategy (2025-2029)																					
Fully establish the Digital Forensic Laboratory including operational CERT and framework to respond to and mitigate cybersecurity incidents																					
Mandate regular security audits for all government and critical infrastructure systems																					

7.1.3.2 Area of intervention: Establish a regulatory framework that supports the growth of digital services while ensuring data protection and privacy

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Adopt ICT policy 2025 - 2030																					
Adopt data protection legislation																					
Create a governance body to enforce data protection laws and regulate digital service providers																					
Develop a certification program for organizations that comply with data protection standards																					

7.1.3.3 Area of intervention: Create an ecosystem that encourages innovation in digital services and infrastructure development

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Allocate funding and grants to support research and development in digital services and infrastructure.	Ongoing initiative																				
Establish innovation hubs that offer resources and collaboration opportunities for startups and researchers	Ongoing initiative																				

7.1.4 Sub Pillar: Digital Public Goods (DPG)

7.1.4.1 Area of intervention: Support the development and use of open-source software and platforms for government and public services

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Develop and adopt a procurement policy that mandates the evaluation and preference for open-source software solutions in government procurement																					

7.1.4.2 Area of intervention: Develop sustainable models for the maintenance and scaling of digital public goods

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Develop and adopt a strategy to engage the community in the co-creation, adoption, and promotion of digital public goods and open-source software																					

7.1.5 Sub Pillar: Government Data Centers and Cloud Adoption

7.1.5.1 Area of intervention: Modernize government data centers to improve efficiency, security, and scalability

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Perform need assessment of the National Data Centre and develop a plan to enhance the capabilities of National data center (including cloud enablement) along with the costing details																					
Develop a national disaster recovery plan with the costing details																					
Upgrade of national data center and setting up disaster recovery center																					

7.1.5.2 Area of intervention: Adopt a cloud-first policy to accelerate the migration of government services to secure cloud platforms

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Draft a Government Cloud strategy, policy, and implementation roadmap																					
Evaluate and certify cloud service providers to ensure they meet government performance and security standards.	Ongoing initiative																				

7.1.5.3 Area of intervention: Promote the use of green technology in data centers to reduce the environmental impact of digital infrastructure

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Assessment of energy needs to power data centers																					
Perform a baseline of carbon footprint of data center operations																					
Installation of renewable energy sources for National Data Centers	A long-term strategic initiative, which requires considerable planning and investment.																				

7.2 Governance & Services

7.2.1 Sub Pillar: Government process digitization / automation of Government ICT systems

7.2.1.1 Area of intervention: Convert paper-based government processes to digital formats to streamline operations and reduce manual errors

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Draft a policy for the use and acceptance of electronic signatures across MACs.																					
Create online versions of all government forms and applications for public use																					
Complete a needs assessment for a digital archive management system																					
Develop a secure digital archive for all public records, ensuring long-term preservation and access.																					

7.2.1.2 Area of intervention: Implement automation tools to handle routine administrative tasks, freeing up human resources for more complex service needs

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Implement workflow automation in all government processes																					
Develop AI powered chatbots to handle routine inquiries and service requests																					

7.2.2 Sub Pillar: Integration of Government services and platforms

7.2.2.1 Area of intervention: Create a single online portal that provides access to all government services and information

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Complete the development of the e-Liberia portal																					

7.2.2.2 Area of intervention: Design government digital services with a focus on user experience, ensuring that they are intuitive, accessible, and meet the needs of all citizens, including those with disabilities

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Baseline research of user experience needs and preferences																					
Establish standards for all digital services																					
Establish a citizen feedback mechanism on the e-Liberia portal																					

7.2.2.3 Area of intervention: Foster partnerships with the private sector, civil society, and international organizations to leverage expertise, technology, and resources for the development of integrated government services

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Establish programs with technology companies and international organizations to transfer knowledge and technology.	Ongoing																				
Develop initiatives with civil society and international partners to train government staff in the latest digital service delivery methods.	Ongoing																				

7.2.3 Sub Pillar: Electronic delivery of Government services

7.2.3.1 Area of intervention: Expand the range of government services available online, ensuring they are user-friendly and accessible on multiple devices

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Document and prioritize all government services to be digitized and made available online.																					

7.2.3.2 Area of intervention: Launch initiatives to ensure that all segments of the population, including those with limited access to technology, can benefit from e-services

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Establish public access points with internet and computer facilities in community centers, libraries, and other public spaces.	The setting up of public access points over a period of 3 years - targeting at least 100 access points across Liberia																				

7.2.3.3 Area of intervention: Implement a robust monitoring and evaluation system to track the usage, effectiveness, and impact of e-services

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Carry out periodic impact assessment studies to evaluate the socio-economic benefits of e-services on the population.																					

7.3 Digital Empowerment of Citizens and Businesses

7.3.1 Sub Pillar: Digital literacy & skills

7.3.1.1 Area of intervention: Launch nationwide campaigns to raise awareness about the importance of digital literacy and provide basic digital education to all citizens, targeting various demographic groups including the elderly, rural communities, and marginalized populations

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Develop and disseminate multimedia campaigns across television, radio, and online platforms to highlight the benefits of digital literacy for all citizens.	This initiative can start on a pilot basis and subsequently be expanded in reach.																				
Establish training centers in rural and underserved urban areas to provide hands-on digital literacy courses.	Physical training centers may be established with the requisite planning and post mapping of areas where such trainings centers may be most impactful																				
Create specialized digital literacy programs for the elderly, people with disabilities, and other marginalized groups.	An ongoing initiative																				
Collaborate with NGOs, educational institutions, and private sector partners to extend the reach and resources of digital literacy programs.	An ongoing initiative																				

7.3.1.2 Area of intervention: Develop and implement comprehensive digital skills training programs that cater to different skill levels and professional needs, from basic computer use to advanced digital technologies relevant to various industries

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Create a standardized curriculum for basic digital skills that includes computer literacy, internet navigation, and fundamental software use.																					
Establish partnerships with educational institutions and industry bodies to offer certification programs to validate the digital skills of individuals at various levels.	Ongoing initiative																				
Establish and conduct train the trainer programs to train local educators and community leaders to deliver digital skills training within their communities.	Ongoing initiative																				

7.3.1.3 Area of intervention: Establish a system of certification and accreditation for digital skills that is recognized by employers and educational institutions, providing a clear pathway for career advancement and further education

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Conduct a national digital skills assessment to understand industry requirements																					
Develop a digital skills certification framework aligned with industry needs and educational standards.																					
Establish an independent accreditation body to oversee digital skills certification																					

7.3.2 Sub Pillar: Digital businesses

7.3.2.1 Area of intervention: Promote the development and use of e-commerce platforms to enable businesses to reach wider markets and facilitate online transactions

Initiatives	Notes	2025				2026				2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Develop training programs for businesses on digital business operations and digital marketing.																					
Facilitate the adoption of secure digital payment solutions to integrate with e-commerce platforms																					

8 Governance Framework

Digital transformation is both a national priority and a crucial driver of development for Liberia. The success of Liberia's digital transformation agenda depends on a strong governance structure with leadership and oversight at the highest levels of government. Achieving a Whole-of-Government transformation requires a robust strategic governance framework that facilitates seamless coordination and collaboration across government entities while ensuring the sustained continuity of digital initiatives.

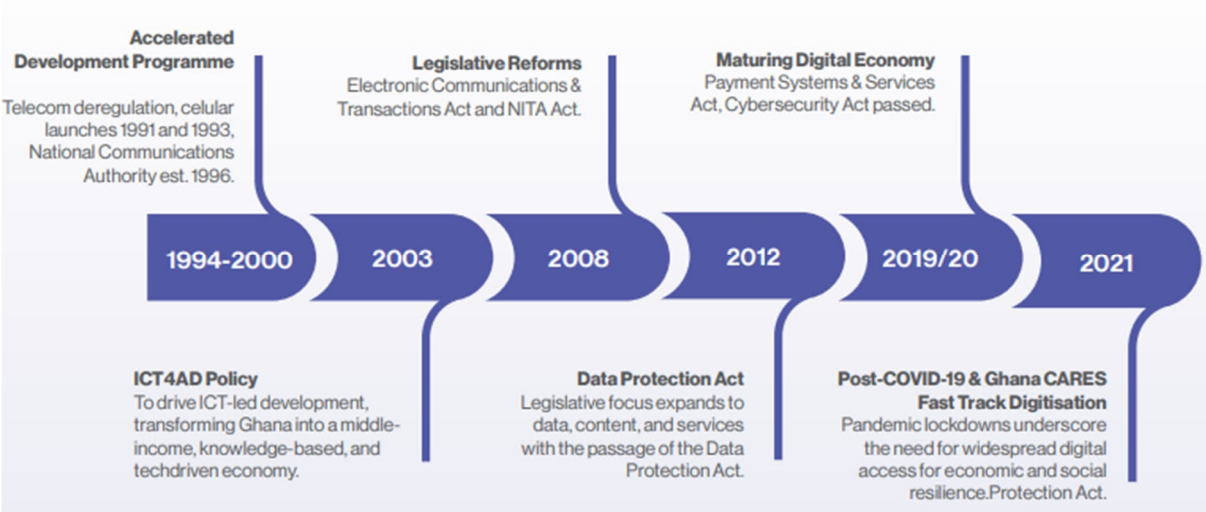
The importance of a dedicated institutional mechanism for driving digital transformation is further established by the study of the governance models adopted by countries that are at the forefront of digital innovation, such as India, Bahrain, South Africa, and Ghana. These countries have recognized that a centralized, legislatively established agency is critical to ensuring strategic direction, inter-agency coordination, and sustained implementation of digital transformation. Each of them have established such bodies through formal legal mandates or executive orders to lead and manage their national digital transformation efforts.

Bahrain established eGovernment Authority[5] (eGA) renamed as Information & eGovernment Authority (IGA) vide Decree No. (69) for the year 2007 on establishing and organizing the eGovernment Authority and later Decree No. (69) for the year 2015 on establishing the Information & eGovernment Authority for driving the initiative under eGovernment Strategy.

South Africa's digital transformation strategy, spearheaded by the State Information Technology Agency[6] (SITA), focuses on leveraging technology to improve public service delivery, enhance government efficiency, and drive economic growth. SITA was established in terms of the SITA Act, 1998 (Act 88 of 1998), as amended, and its mandate is informed by, among others, the recommendations of the Presidential Review Commission of 1998. Since its inception SITA has been legislatively positioned to improve service delivery, through the provision of ICT and related solutions at a cost-effective rate to government and within a secured environment to boost public trust.

Ghana, showing a remarkable growth digital transformation in the West African region has established National Information Technology Agency[7] (NITA) to drive an ICT-led socio-economic transformation, aiming to make Ghana a middle-income, information-rich, knowledge-based, and technology-driven society. NITA was established through legislative reforms in 2008, with key legislation like the Electronic Communications Act, Electronic Transactions Act, and National Information Technology Agency (NITA) Act being passed. The evolution of Ghana’s ICT journey is illustrated below.

[5] https://www.iga.gov.bh/en/category/decrees
[6] https://www.sita.co.za/sites/default/files/Strategic%20Plan%202020-2024.pdf
[7] https://nita.gov.gh/theevooc/2024/12/Ghana-Digital-Economy-Policy-Strategy-Document.pdf



This section describes the governance framework that should be established to facilitate the Whole-of-Government digital transformation. Key factors considered to design the governance framework to address gaps identified in the existing governance structures including:

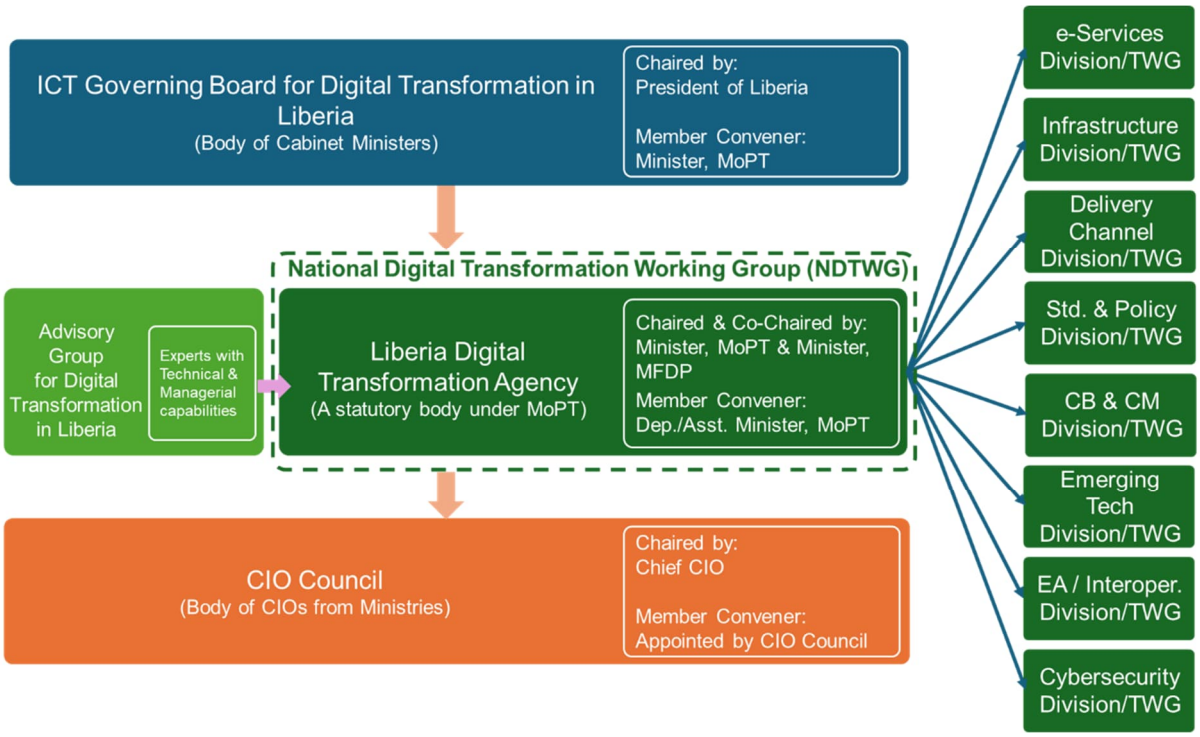
- Ownership and accountability for the implementation of digital transformation initiatives.
- Institutional arrangements, roles and responsibilities needed to enable cross-agency and cross-sector collaboration.
- Streamline coordination to limit siloed initiative implementations.
- Effective program management to sustain the implementation of digital initiatives across the government.

8.1 Establishing/restructuring of National ICT Governing Board

Digital transformation spans across all ministries, agencies, sectors, and domains within a country. Ensuring coordination and securing stakeholder buy-in are critical to its success. Effective coordination and adherence should be led from the highest executive level, with representation from key stakeholders.

The ICT Policy 2019-24 outlines the “National ICT Governing Board” as a body to ensure such coordination. It is recommended that this board should be restructured to include Cabinet Ministers as members, with the President of Liberia serving as its head. The Minister, MoPT should be assigned the role of member convenor to drive the agenda for the ICT Governing Board. Additionally, representatives from the ‘Advisory Group’ and head of CIO Council should be members of this board.

The below illustration provides an overall view for the restructuring of the “National ICT Governing Board”, its interdependencies and supporting bodies for driving the digital transformation agenda in Liberia.



8.1.1 Functions of the National ICT Governing Board

- The ICT Governing Board shall be the apex body for providing leadership for the implementation of the ICT policy and National Digital Strategy (NDS),
- It shall be responsible for the strategic direction of ICT and digital in Liberia, provide approvals for initiatives, prescribe deliverables and milestones.
- The Governing Board shall periodically monitor the progress of the implementation of digital transformation in Liberia

8.2 Establishment of Liberia Digital Transformation Agency (LDTA)

To accelerate the Whole of Government digital transformation in Liberia, it is crucial to establish a dedicated body to drive the mandates of the ICT Governing Board towards implementing the National ICT policy and "Whole of Government" National Digital Strategy (NDS). As the digital landscape in Liberia matures, it is recommended that a body viz. 'Liberia Digital Transformation Agency (LDTA)' by means of necessary legislative or executive orders for driving the agenda under ICT policy is established.

The LDTA shall primarily be the secretariat to the National ICT Governing Board and shall establish the necessary coordination among MACs for executing digital initiatives and facilitate the development of interoperable and shared systems. The proposed body can be created through structure reforms under the MoPT and shall be independent and accountable for managing and providing managerial and technical oversight for the implementation of the National ICT policy and "Whole of Government" National Digital Strategy (NDS).

In the interim, the 'National Digital Transformation Working Group (NDTWG)' proposed by the MoPT can execute this mandate. It is suggested that NDTWG be transitioned to a

permanent institution rather than a working group in the medium to long-term. The below section describes the functions of the NDTWG and LDTA.

8.2.1 Functions of the NDTWG/LDTA

The functions of the NDTWG/LDTA should include:

- Advise the government on all matters related to Information and Communication Technologies (ICT).
- Advise on the optimum use of Information and Communication Technologies and investment in infrastructure and services and thereby promote use of open-standards, open-source based technologies for driving ICT interventions
- Identify and promote the introduction of new technologies and digital delivery mechanisms, such as cloud technology and acceptance of electronic signatures.
- Implement and monitor the national digital government strategy and the national information communications technology policy.
- Establish a repository of national ICT-related standards, policies, and regulations for government service delivery channels including hardware equipment and software.
- Approve the implementation of ICT-related projects of the government and individual MACs.
- Monitor and assess all ICT-related projects undertaken by the government for compliance with the approved ICT-related strategies and policies, including this strategy.
- Collaborate with the ministries to plan, coordinate, promote education and awareness of digital services and technologies in Liberia.
- Develop a digital skills certification framework for professionals in both the public and private sector.
- Perform the functions of the certifying agency for digital skills.
- Promote and facilitate capacity building and entrepreneurship in the ICT sector.
- Rationalize and streamline the information technology functions of the government as well as manage government ICT employees.
- Operate and manage the utilization of the resources and infrastructure of the national data center facilities for critical systems through the provision of specialized technical skills.
- Oversee the setup, management of the Computer Emergency Response Team and related activities and implement effective national cyber security measures.
- Manage and resolve all issues relating to the top level .lr domain and all other domain names associated with Liberia.
- Guide the participation of local Information Technology businesses in the provision of ICT goods and services to enable maximum participation.

8.2.2 Structure of the NDTWG/LDTA

As stated, the NDTWG/LDTA should be established under MoPT and headed by the Minister, MoPT and as stated in NDTWG terms of reference may be co-chaired by the Ministry of Finance and Development Planning (MFDP). A Deputy Minister or an Assistant Minister of

the MoPT should be the member convenor. It may have a secretariat to manage the administrative tasks. An Advisory Board should be established to serve as a technical and managerial directorate of NDTWG/LDTA.

The Advisory Board may include experts from industry with notable technical and management capabilities in domains like project management, health, tax, capacity building & change management (CB & CM), e-Governance BPR, customs, cloud, enterprise architecture, etc. The Advisory Board shall monitor projects delivery, maintain dashboards for the progress of the implementation of NDS, manage vendor relationships, procurement processes, ensure compliance with policies, standards, Enterprise Architecture (EA), interoperability, audit projects at hand over, knowledge management and sharing for areas related to project management. The indicative functions of the Advisory Board are as under.

- Provide technical advice, updates and recommendations to ensure that appropriate methods, tools, products and applications, framework policies for digital transformation that cover the planning, development and maintenance of information systems and technology, are consistently communicated across, adopted and used effectively across MACs.
- Develop business cases for new technologies required to enhance or maintained the level of performance, thereby assessing the financial impact and requirement.
- Provide e-Services solutions, options and alternatives to MACs exploring e-services delivery to the end-users.
- Conduct requirements gathering and business analysis to translate MACs user business needs into technical requirements.
- Coordinate the communication exchange between MACs (inter and intra) on e-services projects and developments
- Engage project sponsors and stakeholders and facilitate project processes such as change management, business process re-engineering
- Manage the content and advice the MACs on content management on the e-Government Portal.
- Encourage the adoption of government-wide shared services and promote the benefits of sharing information across the MACs.

In addition, the NDTWG/LDTA should have various divisions or Technical Working Groups (TWG) for effectively discharging its functions. The indicative divisions are described below.

1. **e-Services Division/TWG:** The e-Services division shall develop guidelines for Business Process Reengineering (BPR) and standard operating procedures for services promoting interoperability and monitor for compliance by MACs.
2. **Infrastructure Division/TWG** (Mobile, Broadband, Hardware, etc.)**:** Provide support to the LDTA to coordinate and monitor the implementation of initiatives/activities related to ICT infrastructure, connectivity, etc. in NDS. It shall advise LTA and MACs regarding the infrastructure needs ensuring alignment with the government enterprise architecture and manage the operations of the National Data Center, development of regional cloud.

3. **Delivery Channel Division/TWG:** This division shall provide oversight for promoting e-Service delivery channels like mobile, County Service Centers (CSCs), Toll-free call center.
4. **Standards & Policy Division/TWG** – This division shall enable the standardization of processes the government by developing guidelines and model tools and templates, for adoption by MACs. This division will provide guidance for the procurement of shared systems, emerging technologies, cybersecurity and other areas.
5. **Capacity Building & Change Management (CB & CM) Division/TWG**: The CB & CM Division shall address the skill gaps in the current system and people. Capacity building in the context of this NDS, refers to the need to adjust policies and regulations, to strengthen institutions, to modify working procedures and coordination mechanisms, to increase the skills and qualifications of people, to change value systems and attitudes in a way that meets the demands and prerequisites of implementing the NDS.
6. **Emerging Technology Division/TWG** – Identify, promote and guide the use of emerging technologies in Liberia through the development of related guidelines and regulations.
7. **Enterprise Architecture (EA) / Interoperability Division/TWG** – This division shall develop the EA for realizing the Whole-of-Government (WoG) approach and an interoperability framework for data sharing. It will ensure that MACs follow the EA and interoperability standards while implementing digital transformation initiatives.
8. **Cybersecurity Division/TWG** – Develop the cybersecurity measures, including strategy, policy, standards, and regulations, to be adhered to by MACs and other local and international stakeholders. The division will oversee the activities of the Computer Emergency Response Team.

It is recommended that during initial years, the experts of the Advisory Board may perform the envisaged functioning of the divisions. In the future i.e. from Year3 onwards, MoPT may initiate to take over the functioning of the divisions with resources within the government/local industry.

8.3 Chief Information Officer and CIO Council

8.3.1 Chief Information Officer (CIO)

The role and responsibilities of the CIO has been defined adequately in the National ICT Policy 2019 – 2024, to be supported by the CIO Council. As part of the responsibilities, the Chief CIO, should drive the digital transformation agenda as per NDS and provide institutional oversight for digital transformation in Liberia.

8.3.2 CIO Council

The CIO Council was established as a technical committee for the e-Government Strategy 2014 – 2018 implementation, made up of CIOs from the various MACs strategically positioned to serve as a bridge for seamless coordination among MACs for the implementation of the digital transformation agenda in the MACs.

The CIO Council is necessary to ensure effective collaboration and coordination between the MACs, monitor the implementation of various ICT projects and facilitate sustaining implemented initiatives. To ensure the effectiveness of nominated CIOs in the CIO Council, a review of the appointment level of the CIO in the MACs is required to empower the position and also attract top talent to deliver the results.

The Chief CIO should be appointed as Chairperson, and a secretary member appointed to be responsible for convening the CIO Council and coordinating its operations. Meetings of the CIO Council should be instated on a regular basis; to deliberate on the digital transformation activities. It is further recommended that CIOs may augment their capacity by attaching experts with the MACs similar to the function defined for each division under LDTA.

The indicative functions of the CIO Council are described as under:

- Spearhead ICT-enabled public sector collaborations and partnerships.
- Collaborate with the digital transformation statutory body in the development of policies and procedures.
- Oversee enforcement of the Government of Liberia standards and policies incorporated, including the Interoperability Framework.
- Determination and ongoing monitoring and adjustments of digital transformation strategic direction.
- Analyze e-Government and digital project alternatives and risks.
- Identify opportunities to consolidate siloed systems and infrastructure.
- Influence the development of ICT infrastructure and service standards to accelerate the joining-up of public services at national level.
- Work collaboratively to remove barriers in effectively exploiting technology to increase service quality and improve service efficiency.
- Assess the applicability of emerging technologies in government operations.

9 Monitoring and Evaluation Framework

To uphold accountability and ensure transparency, this strategy will incorporate robust monitoring and evaluation mechanisms. A Logical Framework Matrix will serve as the foundation for assessing project progress, encompassing the utilization of resources, attainment of targets, and measurement of outcome indicators.

The Ministry of Posts and Telecommunications (MoPT), with the support of relevant stakeholders and implementing partners, will bear the primary responsibility for overseeing strategy implementation, monitoring, and quarterly reporting. The ministry will orchestrate the monitoring process, meticulously reviewing, consolidating, and compiling contributions from all implementing partners. Representatives from these partners will evaluate the progress of the strategy's implementation on a quarterly basis, identify challenges encountered, and propose actionable solutions to address them.

9.1 Digital Infrastructure & Cyber Security

9.1.1 Sub Pillar: Mobile and Broadband

9.1.1.1 Area of intervention: Physical expansion of mobile and broadband infrastructure to increase coverage, especially in rural and underserved areas

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Install cell towers across Liberia for good 4G coverage with a provision to upgrade to 5G. Further map existing and planned towers for better management and planning.	● Geographic area coverage as of 2022: 2G – 63%, 3G - 55%, 4G – 39% ● A field assessment mission by LTA concluded in October 2024	● LTA	● Number of cell towers installed in a given quarter ● Number of areas/ regions (districts) covered for mapping existing and planned cell towers each year ● 4G coverage across Liberia	● Feasibility study on Starlink country-wide rollout and rollout accordingly by 2026 ● Roadmap for scaling up internet connectivity by leveraging mix of 4G, 5G, Starlink as per the pros, cons mentioned in Appendix D & E ● 4G coverage for at least 75% of the population by 2029 ● Complete 5G testing by Q3 2027
2	Utilize the Universal Access Fund (UAF) to implement 4G services in rural and underserved areas	● Currently subsidized the erection of low-cost towers that implement 2G	● LTA ● UAF	● Percent utilization of UAF for installation of 4G services in rural and underserved areas	● 45% of funds distributed for installation of 4G infrastructure
3	Publish all project disbursements and financial reports for the public for the UAF	● Last report published on the UAF website was as of 2021	● LTA ● UAF	● Percentage of financial reports published and made publicly accessible within 30 days of preparation.	● 100% compliance by publishing all financial reports within 30 days of preparation by the end Q3 2026 and maintain

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
					transparency through quarterly updates.
4	Install Wi-Fi hotspots in public areas to provide free or affordable internet access	● No free/ affordable public wi-fi installed	● LTA ● LTC	● Number of Wi-Fi hotspots installed in public areas in each duration	● Public Wi-Fi deployed in all 15 County Service Centers by end of 2029. ● 100 public Wi-Fi hotspots established across Liberia

9.1.1.2 Area of intervention: Encourage the adoption of advanced technologies such as 5G and fiber optics to enhance network capacity and speed

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Encourage R&D in field of 5G technology and channel funds for the same	● No government funding allocated for R&D of 5G technology.	● LTA ● MoPT	● Number of institutions funded for development of 5G technology in each time frame	● By the Q2 2026, establish a national 5G task force comprising key stakeholders from government, academia, and industry to guide R&D priorities. ● Provide seed funding to at least two universities or research institutions by 2028 to explore 5G use cases tailored to Liberia's needs (e.g., agriculture, healthcare, and smart cities). ● Secure funding partnerships with at least one international organization or technology partner by 2028 to support 5G research initiatives.

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
					● Conduct pilot 5G trials in key urban areas (e.g., Monrovia, Buchanan) by Q4 2028 to assess viability before broader deployment.
2	Establish a tax incentive scheme and other benefits to support infrastructure upgrade projects by telecommunication service providers	● No tax incentives have currently been given to telecommunications providers	● LTA ● LRA ● MoPT	● Number of infrastructure projects supported through tax incentives	● Develop and launch a tax incentive framework managed by Liberia Revenue Authority (LRA) by the end of 2026 to encourage private sector investment in telecom infrastructure. ● Approved tax breaks and/or reduced fees for major infrastructure projects such as fiber optics, towers and rural connectivity by the end of 2026. ● 30% increase in private sector participation in rural and underserved areas through tax incentives by 2029. ● At least 50% of new telecom investments leverage tax incentives by 2029, contributing to improved connectivity across all 15 counties. ● Facilitate annual public-private engagements to assess and

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
					adjust incentives to align with market demands.

9.1.1.3 Area of intervention: Make connectivity services more affordable for citizens and businesses

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Government to invest in backhaul infrastructure which then can be leveraged by private players to provide services at an affordable cost	● Microwave backhaul is primarily used in Liberia. ● Limited fiber optic backhaul has been deployed across the country with the deployment focused in Montserrado County	● LTC ● LTA	N/A	● Established government-backed fiber optic backhaul infrastructure in all 15 counties by 2029
2	Implement regulatory interventions to ensure that pricing by private players does not exhibit monopolistic practices	● LTA has implemented price floors to help manage competition among service providers ● LTA in 2016 designated Lonestar Cell/MTN as a Significant Market Player (SMP)	● LTA	N/A	● Annual review of licensee operations to assess SMP status
3	Provide tax breaks or incentives to telecom companies that offer affordable services or invest in expanding access.	● Challenges with high taxes limiting expansion of infrastructure across Liberia	● LTA ● LRA	N/A	● Develop and launch a tax incentive framework in collaboration with the Liberia Revenue Authority (LRA) by the end of 2026 to encourage private sector investment in telecom infrastructure.

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
					● Offer tax breaks or reduced fees for major infrastructure projects such as fiber optics, towers and rural connectivity by Q4 2026. ● 30% increase in private sector participation in rural and underserved areas through tax incentives by 2029.

9.1.2 Sub Pillar: National ID

9.1.2.1 Area of intervention: Integrate the National Digital ID with various government and private sector services to streamline processes and enhance security

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Provide national id to all citizens	● 15% of the population have been issued the national id card as of December 2024 ● The GREAT project is funding mass registration and issuance of national id cards for up to 2 million Liberian nationals and residents	● NIR	● Percentage of population registered and onboarded on National ID	● 75% of the eligible population issued National ID by Q1 2028 through various interventions such as: - Enforcement of the regulation requiring all SIM card owners to link national ids to their SIM cards - Development of mechanisms to link access to social safety net programs with the national id card.

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
					● 95% of the population issued National ID by Q4 2029
2	Establish a framework for integration of the National ID with other government services	● No holistic framework developed to guide the integration with other government services. ● Integration with LRA completed.	● NIR	● Integration framework for National ID system developed	● Approved National ID Integration Framework by Q3 2026, outlining phased integration plans. ● Full integration across 80% of government services by 2029, to facilitate seamless service delivery.

9.1.2.2 Area of intervention: Utilize a secure and scalable technology framework that can adapt to future advancements and increased demand

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Complete an infrastructure assessment to handle load from integrations	● Comprehensive assessment of infrastructure needs, to support future integrations. ● Disaster recovery infrastructure yet to be set up	● NIR	● Infrastructure assessment report for National ID system	● Completed infrastructure assessment and recommendations by Q4 2026. ● 100% system readiness for nationwide service integration by the end of 2028

9.1.3 Sub Pillar: National Information Infrastructure

9.1.3.1 Area of intervention: Implement comprehensive cybersecurity measures to protect national information infrastructure from cyber threats

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Adopt the National Cybersecurity Strategy (2025-2029).	• The National Cybersecurity Strategy has been approved by the MoPT, and is yet to be nationally adopted.	• MoS • MoPT	• Approved National Cybersecurity Strategy • Number of implemented actions	• Approved National Cybersecurity Strategy by Q3 2025 • Implementation of all approved National Cybersecurity Strategy actions by Q4 2029.
2	Fully establish the Digital Forensic Laboratory including operational CERT and framework to respond to and mitigate cybersecurity incidents.	• Work ongoing to complete the Digital Forensic Lab facility.	• MoPT	• Operational Digital Forensic Laboratory and CERT	• Established operational Forensic Laboratory and CERT with 24/7 incident response by Q4 2026. • Annual report of cybersecurity incidents, including mitigation measures.
3	Mandate regular security audits for all government and critical infrastructure systems	• General Auditing Commission (GAC) conducts security audits as part of the IT audit. Not all MACs are audited by GAC in the period. Many MACs also do not conduct independent security audits	• GAC	• Security audits conducted on all MACs	• IT audit report (including security findings) for all MACs published annually, within 3 months of completion.

9.1.3.2 Area of intervention: Establish a regulatory framework that supports the growth of digital services while ensuring data protection and privacy

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Adopt ICT policy 2025 - 2030	• Validation of the draft ICT policy ongoing	• MoPT	• Approved National ICT Policy 2025 - 2030	• Approved ICT Policy 2025 – 2030 by Q4 2025 • Annual review report of initiative implementation
2	Adopt data protection legislation	• Validation of the draft Data Protection Act ongoing	• MoPT	• Enacted Data Protection Act	• Enacted Data Protection Act by Q2 2026
3	Create a governance body to enforce data protection laws and regulate digital service providers	• No independent data protection governance body established • Establishment a Data Protection Agency proposed in the Data Protection Act	• MoPT	• Established data protection body	• Established governance body by Q1 2027 for enforcement and supervision of data protection laws and policies.
4	Develop a certification program for organizations that comply with data protection standards	• No national data protection standards and certification program developed	• Data Protection Agency/ FIC	• Established data protection certification program	• National data protection guidelines and certification framework defined by Q3 2027. • 80% compliance across government institutions by 2029.

9.1.3.3 Area of intervention: Create an ecosystem that encourages innovation in digital services and infrastructure development

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Allocate funding and grants to support research and	• GoL has established the Liberia Innovative Fund for Entrepreneurs	• MOCI	• Number of projects funded annually	• At least 10 programs funded annually by 2029

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
	development in digital services and infrastructure.			• Value of allocations in a year	
2	Establish innovation hubs that offer resources and collaboration opportunities for startups and researchers	• UniPod project has been established in UoL • Private sector driven innovation hubs have been established. • Government funded innovation hubs lacking.	• MOCI	N/A	• At least one government-funded or PPP innovation hub established in the each county to support startups and researchers by Q4 2028

9.1.4 Sub Pillar: Digital Public Goods (DPGs)

9.1.4.1 Area of intervention: Support the development and use of open-source software and platforms for government and public services

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Develop and adopt a procurement policy that mandates the evaluation and preference for open-source software solutions in government procurement	• The PPCC procedural manual or PPCC Act does not include considerations for the procurement of open-source solutions	• PPCC • MoPT	• Approved national procurement policy including open-source considerations	• Approved national procurement policy and updated institutional ICT policies to prioritize and give preference to open-source based technology by Q4 2026

9.1.4.2 Area of intervention: Develop sustainable models for the maintenance and scaling of digital public goods

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Develop and adopt a strategy to engage the community in the co-	• No strategy or regulatory framework promoting the use of	• MoPT	• Define strategy, framework and roadmap for	• Developed strategy, framework and roadmap for the development of DPGs at

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
	creation, adoption, and promotion of digital public goods and open-source software	open-source technology.		development or adoption of DPGs at national level on open-source technologies	national level on open-source technologies by Q1 2027 ● Development and adoption of DPGs or open-source technology in at least 40% of government ICT initiatives by 2029

9.1.5 Sub Pillar: Government Data Centers and Cloud Adoption

9.1.5.1 Area of intervention: Modernize government data centers to improve efficiency, security, and scalability

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Perform need assessment of the National Data Centre and develop a plan to enhance the capabilities of National data center (including cloud enablement) along with the costing details	● National Data Center is underutilized and operates outdated infrastructure ● Limited cloud capacity ● Limited investment in capacity building of personnel	● LTC ● MoPT	● National Data Center needs assessment report and action plan	● Completed needs assessment, documenting infrastructure and capacity gaps by Q4 2025 ● Implemented identified National Data Center enhancements by Q4 2027 ● At least 80% of MACs using National Data Center by 2029
2	Develop a national disaster recovery plan with the costing details	● No up-to-date national disaster recovery plan developed. ● No backup data centers are utilized by some MACs to enable business continuity.	● MoPT ● LTA ● LTC	● Approved national disaster recovery plan	● Approved national disaster recovery plan by Q3 2026 ● Annual testing of national disaster recovery plan
3	Upgrade national data center and setting up of disaster recovery center	● National Data Center operates outdated infrastructure.	● LTC	● Established national disaster	● Implemented identified National Data Center enhancements by Q4 2027

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
		● Alternate backup power sources installed. ● No corresponding national disaster recovery center set up. ● Funding available through the GREAT project		recovery data center	● Established national disaster recovery data center by Q4 2027 ● At least 75% of MACs using national disaster recovery site by 2029

9.1.5.2 Area of intervention: Adopt a cloud-first policy to accelerate the migration of government services to secure cloud platforms

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Draft a Government Cloud strategy, policy, and implementation roadmap	● No approved national cloud strategy or policies. ● Some MACs (e.g. NIR) have deployed systems on the cloud	● MoPT	● Approved government cloud strategy	● Approved government cloud strategy by Q4 2026 ● Implementation of all short-term initiatives by 2029 ● At least 30% of government services hosted in the cloud enabled data centers by 2029
2	Evaluate and certify cloud service providers to ensure they meet government security and performance standards.	● No national guidance to select cloud service providers or certified cloud service providers for government services	● MoPT	● Number of cloud service providers certified in a given time frame	● Developed cloud service provider evaluation guidelines by Q2 2027 ● Certification of at least 2 government cloud service providers by Q1 2028

9.1.5.3 Area of intervention: Promote the use of green technology in data centers to reduce the environmental impact of digital infrastructure

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Assessment of energy needs to power data centers	● Significant electricity availability challenges faced across Liberia. ● Siloed data centers established across MACs	● MACs	● Energy resource assessment report	● Completed energy resource assessment report ● Implementation of assessment recommendations
2	Perform a baseline of carbon footprint of data center operations	● National Climate Committee for Climate and Carbon has been appointed for carbon and climate related matters.	● EPA ● MACs	● Baseline assessment report	● Carbon footprint assessment completed. ● 25% emission cuts by implementing carbon reduction initiatives achieving by 2029
3	Installation of renewable energy sources for National Data Centers	● Alternate backup power sources installed at the National Data Center. ● No renewable energy sources installed at National Data Center.	● LTC	● Percentage of energy source mix	● At least 30% renewable energy source installed at National Data Centers by 2029

9.2 Governance & Services

9.2.1 Sub Pillar: Government process digitization / automation of Government ICT systems

9.2.1.1 Area of intervention: Convert paper-based government processes to digital formats to streamline operations and reduce manual errors

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Draft a policy for the use and acceptance of electronic signatures across MACs, onboard consultant to study as-is state, perform BPR and upgrade requirements for development / enhancement of G2C, G2B, G2G services from digitization perspective	• The Electronic Transactions Law enables the use of electronic signatures, however there is limited adoption by MACs. • The LRA Modernized Customs Code (2018) legally recognizes electronic records and electronic signatures as part of customs processes.	• MoPT • MoJ	• Approval of policy on usage and implementation of electronic signature • BPR study for digitization of new services and enhancements to existing services	• Approved electronic signatures policy by Q4 2026 • Implementation roadmap for adoption electronic signatures across MACs by Q2 2027 • 75% adoption of electronic signatures across MACs by 2029
2	Digitize all government forms and applications for public use, digitization (new development, enhancement of existing services) identified in above exercise	• Limited progress on project identified in the e-Government Strategy (2014 – 2018) • The e-Procurement platform managed by the PPCC has been launched. • A few other government services at various levels of	• MoPT	• Percentage of government forms that have been digitized compared to total number of government forms. (Digitization of the forms could be done sector wise, while also tracking the adoption rate of digitized forms and citizen satisfaction)	• Complete business process re-engineering of public services to improve service delivery by Q2 2027 • 60% of government forms digitized by Q4 2028 • 100% of public services available online by 2029

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
		digitization including applications for alien work permit, passport, drivers' license, birth certificate, and NGO registration.		• Percentage of services made online through new service development or enhancement of existing services • Improvement in overall service delivery like reduction in processing time, number of steps, number of fields in forms, digital payment, etc.	
3	Complete a needs assessment for a digital archive management system	• Archive management system does not enable effective archiving of public records. The infrastructure supporting the system is not fit for purpose.	• CNDRA	• Completed needs assessment report including implementation plan	• Completed needs assessment report including implementation plan by Q4 2026
4	Develop a secure digital archive management system for all public records		• CNDRA	• Percentage of historical and current public records digitized and securely stored	• Fully functional digital archive management system implemented by Q4 2028

9.2.1.2 Area of intervention: Implement automation tools to handle routine administrative tasks, freeing up human resources for more complex service needs

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Implement workflow automation in government processes	• Limited workflow automation has been implemented in digitized government services and processes.	• MACs	• Percentage of government processes where automation is	• 100% of digitized government processes implementing

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
				implemented in a given duration	workflow automation by Q4 2029
2	Develop AI powered chatbots to handle routine inquiries and service requests	● The use of chatbots particularly AI based for inquiries and service requests is yet to be adopted and implemented. ● No national AI strategy, policy, or regulation has been developed to guide the adoption and implementation of AI in the government and the country.	● MACs	● Percentage of departments where AI-powered chatbots capable of handling routine inquiries and service requests are deployed ● Percentage of tickets resolved by AI chatbots	● Development and approval AI strategy by Q1 2027 ● AI bots managing 50% of routine inquiries across public facing services by Q4 2028 ● 70% of tickets raised resolved by AI chatbots by Q2 2029

9.2.2 Sub Pillar: Integration of Government services and platforms

9.2.2.1 Area of intervention: Create a single online portal that provides access to all government services and information

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Complete the development of the e-Liberia portal	● A consultancy project is to be undertaken to develop the requirements to revamp the e-Liberia portal ● Mobile app to be developed as part of the project ● Revamp of e-Liberia portal is funded by the GREAT project	● MoPT	● Percentage of government services integrated with the portal	● Revamped e-Liberia portal by Q4 2026 ● 100% of prioritized digitized government services accessible through the portal by 2029

9.2.2.2 Area of intervention: Design government digital services with a focus on user experience, ensuring that they are intuitive, accessible, and meet the needs of all citizens, including those with disabilities

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Baseline research of user experience (UX) needs and preferences	● No documented country-wide assessment of user experience needs and preferences	● MoPT	N/A	● Completed nationwide assessment of UX needs
2	Establish standards for all digital services	● E-GIF technical standards were developed in 2014 and have not been recently updated to reflect modern trends.	● MoPT	● Approved digital services standards ● Percentage of digital services aligned to standards	● Approved digital services standards by end of 2026 ● 75% of digital services implementing approved standards
3	Establish a citizen feedback mechanism on the e-Liberia portal	● A citizen feedback mechanism platform was launched to capture feedback from citizens on public service delivery. However, it is currently unavailable. ● There is no citizen feedback functionality on the e-Liberia portal	● MoPT ● MIA ● MoS	● Deployed citizen feedback functionality on the e-Liberia portal	● Deploy citizen feedback mechanism by end of 2026 ● Target to onboard 20% of MACs ● Target to reach out to 20%+ citizens to seek feedback on the e-Liberia portal

9.2.2.3 Area of intervention: Foster partnerships with the private sector, civil society, and international organizations to leverage expertise, technology, and resources for the development of integrated government services

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Establish programs with technology companies and international organizations to	● Various MACs have signed MOUs with diverse organizations and countries to transfer	● MACs	● Number of MoUs/ agreements signed with agencies from academia, national/	● Identify gaps for knowledge and technology transfer by Q4 2026

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
	transfer knowledge and technology.	knowledge and technology. The implementation of the agreed programs is yet to fully materialize.		international OEMs/vendors and/or private organizations etc., each including a defined knowledge or technology transfer plan ● Number of workshops conducted with such institutions	● At least one agreement established per identified focus areas, such as cybersecurity, artificial intelligence, software development etc., annually ● At least one workshop conducted bi-annually with partner institutions
2	Develop initiatives with civil society and international partners to train government staff in the latest digital service delivery methods.	● Wholistic national initiatives have not been established, MACs develop and deliver siloed initiatives.	● MACs	● Number of training/capacity building programs held with government institutions ● Number of partnerships with organizations for training and capacity building	● At least one partnership established annually for training and capacity building ● At least one whole of government training/ capacity building program held bi-annually on digital service delivery methods ● Train at least 3000 government staff on digital service delivery methods by 2029

9.2.3 Sub Pillar: Electronic delivery of Government services

9.2.3.1 Area of intervention: Expand the range of government services available online, ensuring they are user-friendly and accessible on multiple devices

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Document and prioritize all government services to be digitized and made available online.	● Limited implementation of identified e-Government Strategy (2014 – 2018) initiatives. ● A consultancy project is to be undertaken to develop the requirements to revamp the e-Liberia portal, including prioritized services. ● Digitalization of 16 transactional-level public services to be funded by the GREAT project	● MoPT	● Number of additional government services digitized and launched online, targeting at least 10 new services within the first year	● Identify and prioritize at least 50 key government services for digitization by Q3 2026 through stakeholder consultations and citizen feedback ● Digitize and launch at least 10 new government services annually, achieving 100% digitization of priority services by 2029 ● Integrate all digitized services with the e-Liberia portal by 2029, ensuring seamless access for citizens

9.2.3.2 Area of intervention: Launch initiatives to ensure that all segments of the population, including those with limited access to technology, can benefit from e-services

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Establish public access points with internet and computer facilities in community centers,	● County Service Centers have been established in all 15 counties; however, they are under resourced.	● MIA ● MoPT ● LTA ● LTC	● Number of new public access points (community centers,	● 20 new public access points by Q3 2027

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
	libraries, and other public spaces.	● No free/ affordable public access points have been established.		libraries, etc.) established	● At least 100 new public access points by Q2 2029

9.2.3.3 Area of intervention: Implement a robust monitoring and evaluation system to track the usage, effectiveness, and impact of e-services

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Carry out periodic impact assessment studies to evaluate the socio-economic benefits of e-services on the population.	● Limited implementation of e-services across MACs and at County Service Centers; periodic assessments of deployed services are not frequent	● MIA ● GAS	● Number of impact assessment studies carried out timely	● Conduct the first national impact assessment study by Q4 2026, covering socio-economic benefits in at least 5 counties, expanding to all 15 counties by 2028 ● Carry out annual impact assessments ● 30% improvement in efficiency and user experience of public services by 2029

9.3 Digital Empowerment of Citizens and Businesses

9.3.1 Sub Pillar: Digital literacy & skills

9.3.1.1 Area of intervention: Launch nationwide campaigns to raise awareness about the importance of digital literacy and provide basic digital education to all citizens, targeting various demographic groups including the elderly, rural communities, and marginalized populations

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Develop and disseminate multimedia campaigns across television, radio, and online platforms to highlight the	● No multimedia campaigns have been developed	● MoPT ● LBS	● Number of multimedia campaign in a given duration	● At least 1 campaign quarterly

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
	benefits of digital literacy for all citizens.				
2	Establish training centers in rural and underserved urban areas to provide hands-on digital literacy courses.	● Limited private sector training centers have been established in rural and underserved areas mainly targeting females.	● MIA ● MoPT	● Number of training centers established in rural and underserved areas	● 30 training centers established by 2029, ensuring geographic coverage across all 15 counties
3	Create specialized digital literacy programs for the elderly, people with disabilities, and other marginalized groups.	● No specialized digital literacy programs have been developed	● MoE ● MoPT	● Number of specialized digital literacy programs for identified groups ● Number of participants from targeted groups (elderly, people with disabilities, marginalized populations) who complete the specialized program.	● Develop and launch specialized programs for the elderly and disabled by Q4 2026. ● At least 10,000 marginalized individuals trained by end of 2027
4	Collaborate with NGOs, educational institutions, and private sector partners to extend the reach and resources of digital literacy programs.	● Limited private sector digital skills training centers have been established in rural and underserved areas mainly targeting females.	● MoE ● MoPT	● Number of NGOs / educational institutions and private sector partners which could be reached ● Number of additional citizens reached through collaborative efforts with NGOs and private sector partners.	● Establish partnerships with at least 5 NGOs and private sector players by end of 2027. ● Expand digital literacy programs to reach an additional 50,000 citizens by 2029

9.3.1.2 Area of intervention: Develop and implement comprehensive digital skills training programs that cater to different skill levels and professional needs, from basic computer use to advanced digital technologies relevant to various industries

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Create a standardized curriculum for basic digital skills that includes computer literacy, internet navigation, and fundamental software use.	● The IRISE project amongst other objectives seeks to provide opportunities for the acquisition of digital skills and competencies in secondary schools	● MoE ● MoPT	● Number of standardized programs developed for basic digital skills in a given time frame. ● Percentage of training participants achieving proficiency in basic digital skills as per standardized post-training assessments.	● Develop and approve a national digital skills curriculum by Q4 2026. ● Roll out curriculum in 50% of educational institutions by 2027. ● Achieve 70% proficiency rates among participants by 2029
2	Establish partnerships with educational institutions and industry bodies to offer certification programs to validate the digital skills of individuals at various levels.	● A national digital skills certification framework has not been developed.	● MoE ● MoPT	● Number of partnerships for certification programs in a given time frame. ● Number of individuals receiving industry-recognized digital skills certifications annually.	● Develop and approve a national digital skills curriculum by Q4 2026. ● Establish partnerships with educational institutions and industry bodies by 2027
3	Establish and conduct train the trainer programs to train local educators and community leaders to deliver digital skills training within their communities.	● TVET teacher training programs have been conducted to strengthen the TVET sector, including a STEM component in 2022.	● MoE ● MoPT	● Number of trainings conducted for trainers in a given duration. ● Number of certified educators and community leaders trained to deliver digital skills programs.	● At least one training bi-annually for master trainers ● Train a minimum of 200 certified educators and community leaders in digital skills annually

9.3.1.3 Area of intervention: Establish a system of certification and accreditation for digital skills that is recognized by employers and educational institutions, providing a clear pathway for career advancement and further education

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Conduct national digital skills assessment to understand industry needs	• National digital skills assessment is yet to be undertaken	• MoL • MoE • MoPT • LTA	• Completed assessment report	• Completed comprehensive digital skills assessment by Q3 2026, identifying gaps and opportunities
2	Develop a digital skills certification framework aligned with industry needs and educational standards.	• A national digital skills certification framework has not been developed	• MoL • MoE • MoPT • LTA	• Approved digital skills certification framework	• Approved digital skills certification framework by Q2 2027
3	Establish an independent accreditation body to oversee digital skills certification	• An institutional body has not been established to oversee digital skills development and certification in Liberia	• MoE • MoPT • LTA • CSA	• Operational accreditation body	• Establish and operationalize the accreditation body by Q4 2027

9.3.2 Sub Pillar: Digital businesses

9.3.2.1 Area of intervention: Promote the development and use of e-commerce platforms to enable businesses to reach wider markets and facilitate online transactions

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
1	Develop training programs for businesses on digital business operations and digital marketing.	• The Liberia Digital Transformation Project has been undertaken to provide digital skills training and seed	• MOCI • MOPT	• Number of such training programs prepared in a given duration	• Develop and launch training programs for businesses by Q3 2026, focusing on SMEs and startups

#	Initiatives	As-Is	Responsibility	KPIs for monitoring	Targets (till 2029)
		funding to Liberians. It included courses in general digital skills, e-commerce, digital marketing, and GIS and digital surveys.		● Number of businesses provided with training programs. ● Percentage of participating businesses that successfully establish and operate an e-commerce platform within six months of training completion.	● Train 50 businesses annually on digital business operations and digital marketing
2	Facilitate the adoption of secure digital payment solutions to integrate with e-commerce platforms	● The number of registered institutions for mobile money grew by 80.9% in 2023. ● There are plans to implement a new National Electronic Payment Switch to facilitate retail payments. ● PAPSS has been implemented to enhance cross border transactions.	● CBL ● MOCI ● MoPT	● Number of businesses adopting secure digital payment solutions that are integrated with e-commerce platforms in a given timeframe.	● Implement the National Electronic Payment Switch by 2027 to streamline digital transactions ● 60% of e-commerce businesses adopt secure digital payment solutions by 2027 ● Bi-annual nationwide awareness campaigns on digital payment security

10 Critical Success Factors and Risks

The success of the digital strategy in transforming the digital landscape on a "Whole of Government" level in Liberia, largely depends on the cooperation and integration between government institutions. This section highlights key critical success factors and risks associated with enhancing digital in a "Whole of Government" approach.

10.1 Critical Success Factors

Critical Success Factor	Impact	Comments
Buy-in by government entities	High	Engagement of political leadership to support digital initiatives promoting digital transformation in each of the government entities.
Adoption of legal, regulatory and policy frameworks to support the digital strategy	High	A comprehensive legal, regulatory and policy framework underpinning Liberia's digital transformation is necessary to promote security and public trust of digital services.
Effective capacity and skills of GoL staff	High	Training and capacity building of technical staff to develop and support digital initiatives should be prioritized.
Availability of financial resources to deliver digital initiatives	High	The financial commitment to digital initiatives by Government of Liberia is fundamental to the long-term success of the digital strategy.
Availability and affordability of internet connectivity across Liberia.	High	The availability of affordable internet across Liberia is required for all citizens to access digital government services.
Effective coordination and collaboration between government entities	High	To achieve "Whole of Government" digitalization, effective collaboration between government entities is needed to deliver integrated digital services. The CIO Council should spearhead the coordination and collaboration between government entities.
Effective assessment and appropriate design of initiatives to be implemented	High	To ensure alignment of implemented initiatives (especially for systems) to the needs of Liberia, in-depth assessments should be conducted prior to the design for implementation.

10.2 Potential Risks and Mitigation Strategies

Given the extent of the "Whole of Government" digital strategy, risks to be considered have been identified and corresponding mitigation measures defined.

Risk	Probability	Impact	Mitigation
Budgetary constraints	High	High	• The use of open-source solutions where available and practical should be implemented. • Prudent utilization of allocated financial budgets should be monitored. • Strategic partnerships and PPP arrangements can be used to reduce the financial burden on government.
Under-skilled and/or under-resourced staff within GoL institutions	High	High	• Targeted technical training programs to upskill GoL staff. • Incentivize staff with relevant skills to improve retention. • Develop digital skills framework to guide staff development across government entities.
Legacy systems may not support interoperability	Medium	High	• Identify legacy systems and engage vendors to implement interoperability mechanisms. • Define interoperability standards and require all new systems conform to the standards.
Limited usage of digital government services by citizens	High	Medium	• Implement digital skills training to citizens • Conduct sensitization programs to promote digital services • Develop digital services in line with citizen needs
Suboptimal infrastructure deployed	High	High	• Assess optimal infrastructure (hardware, network, electricity, etc.) needs for upgrade or replacement.

11 Appendix

11.1.1 Appendix A: Strategy session participants

Working Sessions

3rd December 2024

Name	Institution	Designation	Sector
Hon. Nicholas N Johnson	MoPT	Acting Deputy Minister for Technical Services	Government
D. Nalon Kaine	MoPT	PMO Manager	Government
Sheikh Seriff	MoPT	CIO	Government
Sarah W. Gongloe	MoPT	CIO Office	Government
Boakai Kamara	MoPT	Assistant System Administrator	Government
Mohammed V. Kamara	MoPT		Government
Courage JFT Chilaagbe	MoPT	CSIO	Government
Jim-ngormoh A. Kamara	MFDP - GREAT	Project Team Lead	Government
Lamine Kamara	MFDP - GREAT	Public Administration and Modernization	Government
Jarvik Tarpeh	MFDP	Director Information Technology	Government
Edwin McGee Taylor	MoL	Assistant Statistician	Government
Hawa W. Yamah	LISGIS	IT Officer	Government
Charles T. Bropleh	MOE	Coordinator, Math & Eng. Division of STEM	Government
Emmanuel D. Nyemah	MIA	Assistant Director ICT	Government
Daniel D. Boakai	LACC	Head of ICT	Government
Momo Kparteh	LBR	IT Officer	Government
Winston White	LTC	Director of Engineering	Government
Francis Sorsor	LTC	Manager of Planning	Government
Mesheal D. Somah	NIR	IT Coordinator	Government
Joseph Deema	NIR	Director of Enrolment Services	Government
Gerald Clark	GAC	IT Manager	Government
C. Foday Emeh	MTN	Corp. Communications Manager	Private
Christopher Targbe	Orange	IT Manager	Private
Prince Dagbe	Orange	CISO	Private
Sekou M. Kamara	LITSU	President	Civil Society
Prince N. Wonnawon	MoJ	Director of Planning & Research, Policy	Government
Kadallah K. Karneh	MoPT	PMO	Government
Feona I. Arman	MoPT	PMO	Government
Emmanuel D. Gbah	MoPT	PMO	Government
Freddie T. Tomah	National Archive	Director Digital Security	Government
Jerome Beh	MPW	Director Information Technology	Government
T-Herbert Johnson	PPCC	Director of Information Technology	Government
Sekou Dolley	Senate	Administrative Assistant	Government

4th December 2024

Name	Institution	Designation	Sector
Hon. Nicholas N Johnson	MoPT	Acting Deputy Minister for Technical Services	Government
D. Nalon Kaine	MoPT	PMO Manager	Government
Sheikh Seriff	MoPT	CIO	Government
Sarah W. Gongloe	MoPT	CIO Office	Government
Boakai Kamara	MoPT	Assistant System Administrator	Government

Mohammed V. Kamara	MoPT		Government
Courage JFT Chilaagbe	MoPT	CSIO	Government
Mohammed Sheriff	MoPT	CIO Office	Government
Nathan S. Bearagar	MoPT	PRO	Government
Edwin McGee Taylor	MoL	Assistant Statistician	Government
Jim-ngormoh A. Kamara	MFDP - GREAT	Project Team Lead	Government
Lamine Kamara	MFDP - GREAT	Public Administration and modernization	Government
Matthew D. Wantoe	LISGIS	ICT Director	Government
Hawa W. Yamah	LISGIS	IT Officer	Government
Charles T. Bropleh	MOE	Coordinator, Math & Eng. Division of STEM	Government
Emmanuel D. Nyemah	MIA	Assistant Director ICT	Government
Daniel D. Boakai	LACC	Head of ICT	Government
Momo Kparteh	LBR	IT Officer	Government
Emmanuel D. Chrisper	LTC	CIO: president	Government
Francis Sorsor	LTC	Manager of Planning	Government
Mesheal D. Somah	NIR	IT Coordinator	Government
Gerald Clark	GAC	IT Manager	Government
C. Foday Emeh	MTN	Corp. Communications Manager	Private
Christopher Targbe	Orange	IT Manager	Private
Prince Dagbe	Orange	CISO	Private
Sekou M. Kamara	LITSU	President	Civil Society
Larocier K. Smith	MoJ	ICT Director	Government
Prince N. Wonnawon	MoJ	Director of Planning & Research, Policy	Government
Kadallah K. Karneh	MoPT	PMO	Government
Feona I. Arman	MoPT	PMO	Government
Freddie T. Tomah	National Archive	Director Digital Security	Government
Jerome Beh	MPW	Director Information Technology	Government
Sekou Dolley	Senate	Administrative Assistant	Government
Makessa Bility	HTL	Program Coordinator	Private
Willie B. Tingba	World Bank	Consultant	Public
Prince A. Newland	UL	System Administrator	Public

Validation Session

11 December 2024

Name	**Institution**	**Designation**	**Sector**
Hon. Nicholas N Johnson	MoPT	Acting Deputy Minister for Technical Services	Government
Sheikh Seriff	MoPT	CIO	Government
Boakai Kamara	MoPT	Assistant System Administrator	Government
Courage JFT Chilaagbe	MoPT	CSIO	Government
Lamine Kamara	MFDP - GREAT	Public Administration and Modernization	Government
Daniel D. Boakai	LACC	Head of ICT	Government
T-Herbert Johnson	PPCC	Director of Information Technology	Government
Matthew D. Wantoe	LISGIS	ICT Director	Government
Sekou M. Kamara	LITSU	President	Civil Society
Freddie T. Tomah	National Archive	Director Digital Security	Government
Jerome Beh	MPW	Director Information Technology	Government
Frederick G. Suah	MCC		Government

11.1.2 Appendix B: Questionnaire shared with participant for inputs on strategy

In addition to engagements with stakeholders and the working sessions, a questionnaire was created to assist gather additional insights to develop this “whole of government” national digital strategy.

Liberia NDS Questionnaire.xlsx

11.1.3 Appendix C: Status of initiatives from National ICT Policy (2019–2024) and E-Governance Strategy (2014-2018)

A review of the initiatives documented in the National ICT Policy (2019 – 2024) and the e-Governance Strategy (2014-2018) was conducted to assess the progress made in achieving. Below is a summary of the status of and comments on the planned initiatives.

National ICT Policy (2019 – 2024) initiatives

No	Measurable Target	Planned Timeline	Status	Comments
Improving Policy/Regulatory Framework				
1	Complete review of existing policies and laws with a plan for harmonization where necessary	Year 1 (2020)	Partially Met	• A complete review of existing policies and laws has not been finalized.
2	Enact harmonization of existing policies/laws	Year 1 (2020)	Partially Met	• Harmonization of existing policies/laws in progress.
3	Update existing and draft new policies and laws as required (e.g., digital financial services, electronic transactions, protection of children etc. and others as needed)	Year 2 (2021)	Met	• New laws were drafted, such as the Cybercrime Act 2021 and Data Protection law.
Cyber Security				
4	Establish a national cyber-security advisory committee	Year 1 (2020)	Not Met	• The establishment of the committee has made limited progress.
5	Draft cybersecurity policy	Year 2 (2021)	Not Met	• There is no national cybersecurity policy. Some MACs, such as GAC and MFDP, have developed institutional

No	Measurable Target	Planned Timeline	Status	Comments
				cybersecurity policies, however there is a need to structure periodic reviews.
6	Adopt cybersecurity legislation	Year 3 (2022)	Partially Met	• Liberia has a Cybercrime Bill for ratification by the Legislature to provide a framework to manage cybercrime in Liberia. The Act also includes clauses around critical national information infrastructure. A draft data protection law is pending legislative approval.
Digital Financial Services				
7	Draft a national policy on interoperability of telecom networks for digital financial services	Year 4 (2023)	Not Met	• LTA and CBL have signed an MOU with the objective of enhancing cooperation to promote financial inclusion, facilitating efficient telecom networks access and security, and ensuring financial services providers comply with relevant laws and regulations.
Consumer Protection				
8	Draft consumer and child protection policy	Year 2 (2021)	Not Met	• There is no national consumer protection policy or child protection policy. Individual institutions, such as CBL, have established consumer protection regulations for the respective sector. A draft data protection law is pending legislative approval.
Expanding and improving ICT infrastructure				
9	Map existing and planned fiber and passive utility infrastructure - backbones, road, rail, towers, pipelines, etc.	Year 1 (2020)	Partially Met	• Liberia has 350-km fiber backbone deployed from the CSquared-USAID partnership, in an effort to improve broadband access particularly to remote areas. Mapping of infrastructure is ongoing.

No	Measurable Target	Planned Timeline	Status	Comments
10	Adopt a "dig once" regulation	Year 1 (2020)	Not Met	• No national “dig once” regulation established to support fiber optic infrastructure deployment, promoting efficient broadband expansion through infrastructure sharing and collaboration.
11	Adopt infrastructure sharing guidelines for all ISPs and mobile network operators to allow for colocation of equipment	Year 2 (2021)	Partially Met	• The Interconnection Regulation (LTA-REG-003) includes co-location clauses. Guidelines for the development of the telecommunication infrastructure is pending.
12	Ensure rights of way (ROW) access over public land infrastructure	Year 1 (2020)	Not Met	• Standards, codes and reporting requirements for ROW are yet to be established and be easily accessible.
13	Complete the implementation of key infrastructure programs	Year 5 (2024)	Partially Met	• Significant progress has been made on the ICT sector priority programs over the period. Some programs, such as the National Fiber Terrestrial Backbone, faces implementation challenges, particularly in rural areas.
14	Establish effective national management of the .lr ccTLD	Year 1 (2020)	Not Met	• The ".lr" ccTLD for Liberia is managed by a privately-owned company not nationally owned.
Broadband Access and Use – Initial Targets				
15	Adopt affordability target of 1GB of mobile prepaid data priced at less than 2% of average monthly per capita income (“1 for 2” target)	Year 1 (2020)	Not Met	• Based on 2023 figures from ITU, mobile voice and data costs approximately 8.8% of Liberia’s Gross National Income (GNI)
16	Achieve “1 for 2” target for mobile broadband affordability	Year 5 (2024)	Not Met	• Based on 2023 data from ITU, mobile voice and data costs approximately 8.8% of Liberia’s Gross National Income (GNI)

No	Measurable Target	Planned Timeline	Status	Comments
17	15% of Liberians regularly access and use mobile broadband services (3G and higher)	Year 1 (2020)	Met	• From 2022 data provided by the LTA, 42% of mobile subscribers access the internet using 3G & 4G
18	35% of Liberians regularly access and use mobile broadband services (3G and higher)	Year 5 (2024)	Met	• From 2022 data provided by the LTA, 42% of mobile subscribers access the internet using 3G & 4G
19	10% of Liberians access and use fixed broadband services	Year 5 (2024)	Not Met	• As of 2022, 13,000 fixed broadband internet connections (penetration rate of 0.25%) established
20	Speed of fixed and mobile services to public institutions, the private sector and the public should be sufficient to meet their needs for efficient and timely data transfer	Year 5 (2024)	Partially Met	• High-speed fixed and mobile services are primarily limited to urban areas, particularly Monrovia. The bandwidth available to MACs have been capped at 25MB due to government budgetary challenges, this impacts the effective operations of some MACs due to the small capacity.
Spectrum Management				
21	Update 5-year spectrum management plan	Year 2 (2021)	Not Met	• The spectrum management plan has not been finalized.
Universal Access and Universal Access Fund				
22	Implement the USF	Year 1 (2020)	Met	• The Universal Service Fund (USF) in Liberia has been established and funds rural telephony and other connectivity projects to expand access in underserved areas.

No	Measurable Target	Planned Timeline	Status	Comments
23	All project disbursements and financial reports published and easily accessible to the public	At least annually after start of operations	Not Met	• The last financial reports update on the USF website was as of 2021.
24	All Liberians have local access to affordable voice services	Year 5 (2024)	Not Met	• As of 2022, 2G mobile technology had 92% population coverage and 63% geographic area coverage.
Gender and Women and ICT				
25	Baselines research on national access and use of ICT including among women, girls, and other marginalized groups	Year 1 (2020)	Not Met	• Baseline research, if conducted, is not publicly available
26	National plan to improve gender equity in access and use	Year 2 (2021)	Partially Met	• Liberia's Digital Transformation Project aims to equip youth, including women with ICT skills.
Education				
27	Complete an inventory of internet access of all schools and at levels	Year 1 (2020)	Partially Met	• The Education Sector Plan (2022/23 – 2026/27) in indicates the need to enhance internet access across all educational levels.
28	Improve internet access in schools by 20% over current level	Year 5 (2024)	Not Met	• The Government of Liberia is working toward improving digital technology in an initial 156 secondary schools, but procurement delays have impacted the deployment
29	Establish an information system to identify and list the skills (ICT) that are required for different jobs to be used by	Year 1 (2020)	Not Met	• An information system is yet to be established to identify and document ICT skills requirements for different job roles to be used in designing educational programs

No	Measurable Target	Planned Timeline	Status	Comments
	the Ministry of Education in the design of its training courses			
30	All secondary schools offer at least 1 ICT related course or program	Year 5 (2024)	Not Met	• Most secondary schools currently do not offer standardized ICT courses. • The Education Sector Plan (2022/23 – 2026/27) highlights the unavailability of competent STEM teachers.
31	Tertiary education institutes to offer ICT certification	Year 4 (2023)	Met	• University of Liberia offers a bachelor's degree in computing science. Private tertiary institutions also offer bachelor's degree in information technology.
32	Proportion of teachers trained to teach subjects using ICT increase by 50% over current level	Year 4 (2023)	Not Met	• The Government of Liberia is working toward improving digital technology in an initial 156 secondary schools, but procurement delays have impacted the deployment. 312 teachers are to be trained to use the digital technology.
Innovation and Research				
33	Complete map of key public, private and other sponsored activities that support for targeted innovation and research	Year 1 (2020)	Met	• The Liberia Project Dashboard publishes information about development activities in Liberia.
34	Develop public + private investment and support plan for a National Research and Education Network (NREN), and support for targeted innovation activities and spaces	Year 2 (2021)	Met	• The Liberia Research and Education Network (LRREN) has been established

No	Measurable Target	Planned Timeline	Status	Comments
Reform of ICT governance structure				
35	Ministry of Posts and Telecommunications to review existing legislation and complete feasibility plan for implementation of revised governance structure for the ICT sector	Year 1 (2020)	Partially Met	• The governance structures in the ICT Policy were implemented. However, the effectiveness of the governance structures needs to be improved.
36	Enact structural reforms	Year 1 (2020)	Partially Met	• The governance structures in the ICT Policy were implemented. The targets recommended in the policy have not been met.
Health and ICT				
37	50% of all clinics and hospitals have internet access	Year 3 (2022)	Unknown	•
38	100% of all clinics and hospitals have Internet access	Year 5 (2024)	Unknown	•
39	E-health strategy including a Health Information System	Year 2 (2021)	Partially Met	• Health Information System reporting and recording tools used by Ministry of Health
Local Government				
40	All County Service Centers have internet access	Year 1 (2020)	Not Met	• Not all county service centers in Liberia have reliable internet access as of stakeholder engagements in August 2024.
41	All Superintendent offices have internet access	Year 5 (2024)	Not Met	• Not all of the superintendent offices in Liberia are guaranteed to have internet access. Additionally, the Ministry of Internal Affairs has internet access challenges

No	Measurable Target	Planned Timeline	Status	Comments
42	IFMIS platform expanded to all counties with reliable internet access (broadband)	Year 5 (2024)	Not Met	• IFMIS has been rolled out to 84 spending entities with 23 yet to be onboarded. Internet access is also a challenge in remote counties.
Ministries, Agencies, and Commissions (MACs)				
43	All MACs in Monrovia have internet access	Year 1 (2020)	Not Met	• Most of the MACs in Monrovia have access to the internet, however some MACs do not have internet access due to outdated infrastructure.
44	All other MACs in counties have internet access	Year 5 (2024)	Not Met	• Not all MACs have reliable internet access.
45	The CIO put in place a common standard for website development for all MACS	Year 1 (2020)	Not Met	• A common website development standard has not been developed. Interoperability technical standards as part of the e-Governance Interoperability Framework was drafted in 2014
46	Ensure ICT architecture systems design enforces consistency across MACs to help ensure interoperability	Year 1 (2020)	Not Met	• Draft e-Governance Interoperability Framework was developed in 2014; however, the framework has not been reviewed and updated with any newer additions
47	Establish a redundancy plan and maintenance policy in all MAC information systems to ensure reliability in Ministry connections and server/applications	Year 1 (2020)	Not Met	• All MACs have not established redundancy plans and maintenance policies for their information systems. There is no national disaster recovery center available to provide redundancy
48	All MACs should have enhanced web presence on all online platforms	Year 4 (2023)	Not Met	• Not all MACs in Liberia have an enhanced web presence across all online platforms.

e-Governance Strategy (2014 – 2018) initiatives

No	Project	Status	Comment
1	e-Government Portal	Implemented	The E-Liberia portal provides a single website for stakeholder find public services. A consultancy project is to be undertaken to enhance the functionality of the e-Liberia portal.
2	Call Center	Not Implemented	Liberia does not have a national call center operating as the first point of contact for the public. However, some MACs have set up call centers to improve citizen engagement and access to services. Some of these initiatives are as follows: • National Public Health Institute of Liberia (NPHIL) • Ministry of Gender, Children and Social Protection
3	Mobile Gateway	Implemented	The Central Bank of Liberia (CBL) manages the IRIS Enterprise Switch which supports mobile money and electronic fund transfers.
4	e-Agriculture	Not Implemented	The Ministry of Agriculture plans, as part of the National Agriculture Development Plan (2024 - 2030), to deploy ICT solutions in the agriculture value chain to deliver information and services to stakeholders.
5	e-Transport	Implemented	The Ministry of Transport has developed a web based online Driving License and Vehicle Registration System.
6	e-Land	Not Implemented	A digital Property and Land management system has not been deployed in Liberia. • Currently, the land documents are stored at Centre for National Documents and Records Agency • Liberian Land Authority (LLA) is responsible land governance, administration and management functions
7	e-Health	Implemented	A Health Information System reporting and recording tool has been deployed by the Ministry of Health.
8	e-Labor	Partially Implemented	A fully functional website for the Ministry of Labor is yet to be developed. The Ministry of Labor has deployed a work permit application system for foreigners in Liberia.

9	e-Trade	Implemented	Liberia uses Asycuda World to manage Customs activities. The system has been partially integrated with LITAS. Electronic payments through mobile money are enabled.
10	e-Justice	Not started	As of 2024, the Judiciary has committed to enhance access to justice and improve the efficiency of court processes through a five-year strategic plan. This plan focuses on areas such as quality infrastructure, professional development, and efficient case management. However, the development of e-justice systems has not been initiated yet.
11	e-Education	Implemented	Liberia has started making progress in digital education through initiatives such as the Liberia Education Advancement Program (LEAP) and its Education Sector Plan (2022-2026). • LEAP, launched in 2016, has worked to improve education quality by integrating technology and better management practices in schools, especially in underserved regions. • USAID Digital Liberia program partnered with university to provide internet connectivity for four university campuses in Liberia. • During the Covid-19 pandemic an e-learning platform UL-Online was established.
12	e-Passport & Visa	Implemented	Liberia has introduced an e-passport and e-visa system. The e-visa portal was launched by the Ministry of Foreign Affairs, allowing travelers to apply for short-term visas online without needing to visit an embassy or consular office. • Online visa application has been enabled • Online passport application is available through https://www.liberianpassport.com
13	Centralized Email System	Not Implemented	Liberia has not fully implemented a central email system across MACs to streamline communication and improve the efficiency of public administration.
14	Human Resource Management Information System	Implemented	The Civil Service Agency maintains a Human Resource Management Information System, including civil servant employee management, payroll, and biometric identification system.

15	National e-Payment System	Not Implemented	The Central Bank of Liberia is in the process of engaging a consultant to develop a National Electronic Payment Switch enhance its financial infrastructure and promote financial inclusion.
16	e-County	Not Implemented	Liberia currently lacks a dedicated e-County system specifically designed for localized digital governance at the county level.
17	Business Portal	Not Implemented	The Liberia Business Registry is developing a new business registration system to facilitate business operations in Liberia.
18	ICT Business Incubator	Ongoing	The Liberia Digital Transformation Project provided seed capital for 20 start-up tech businesses.
19	e-Procurement	Implemented	The Public Procurement and Concessions Commission (PPCC) has launched an Electronic Government Procurement (e-GP) system, to streamline and digitize the public procurement processes.
20	National Broadband Network	Partially Implemented	350+km of fiber optic infrastructure has been installed in Monrovia to provide high-speed broadband infrastructure. The National Fiber Backbone is yet to be expanded across Liberia.
21	Government Wide Area Network (GovNet)	Partially Implemented	GovNet has been established with 52 MACs connected directly to the fiber network. The other MACs in counties without fiber infrastructure are connected though other internet service providers.
22	Government Shared Service Center	Not started	Many government agencies operate independent IT and administrative systems. A National Data Center has been established at LTC Mobile, however its services underutilized by other MACs. Additionally, the National Disaster Recovery Site has not been set up.
23	Community Computer Centers	Implemented	County Service Centers have been established in all 15 counties; the effectiveness of these centers is limited due to budgetary and operational issues.
24	IFMIS	Partially Implemented	The Integrated Financial Management Information System (IFMIS) is currently managed by the Ministry of Finance and Development Planning, with 87 spending entities using the system. Enhancements to IFMIS for interoperability are planned.

11.1.4 Appendix D: Cost estimation breakdown for installing a mobile tower in Liberia

The below analysis provides a detailed cost breakdown for installing a mobile tower in Liberia with a provision of upgrade to 5G technology. The breakdown includes cost components, sources, and justifications and other factors.

Cost Component	Description	Estimated Cost (USD)	Source
Tower Construction	Materials, labor, and structural installation	$70,000 – $100,000	A4AI (https://a4ai.org/wp-content/uploads/2015/06/Liberia-Broadband-Technical-Assessment-NetHope.pdf) How Much Does it Cost to Build a Cell Tower? - Dgtl Infra
Land Acquisition & Site Preparation	Purchase/lease of land, site clearing, road access, fencing	$25,000 – $50,000	A4AI (https://a4ai.org/wp-content/uploads/2015/06/Liberia-Broadband-Technical-Assessment-NetHope.pdf)
Equipment Installation	Antennas, transceivers, cabling, and system integration	$40,000 – $70,000	Industry Estimates
Regulatory & Permitting Fees	Licenses, environmental impact assessments, approvals	$10,000 – $20,000	LTA (https://www.trade.gov/country-commercial-guides/liberia-telecommunication)
Power System	Diesel generator, hybrid power setup, or solar panels	$30,000 – $50,000	Industry Estimates
Security & Maintenance	Security guards, fencing, ongoing upkeep	$10,000 – $20,000/year	Trade.gov (https://www.trade.gov/country-commercial-guides/liberia-telecommunication)
Fuel & Utilities	Diesel fuel, electricity, or alternative energy costs	$5,000 – $10,000/year	Trade.gov (https://www.trade.gov/country-commercial-guides/liberia-telecommunication)

Total Estimated Cost Per Tower:

Expense Type	Estimated Cost (USD)
Capital Expenditure (CapEx)	$150,000 – $300,000
Annual Operating Expenditure (OpEx)	$15,000 – $30,000

Other Factors affecting costing

- Broader Range for Equipment & Tower Types: The cost varies based on height (20m–50m) and type (lattice, monopole, or guyed towers).
- Location-Based Cost Variations: Rural areas require higher logistics and power costs, while urban sites are lower due to existing infrastructure.
- Power System Costs: Increased reliance on solar or hybrid energy solutions raises upfront investment but lowers long-term operational costs.
- Regulatory Differences: Varies based on government fees, local policies, and land lease costs.

11.1.5 Appendix E: Comparison of Satellite-Based Internet Technologies vs. 4G/5G-Based Internet Technologies

A brief comparison between satellite-based internet technologies and 4G/5G-based internet technologies, covering their pros, cons, and key performance metrics based on the study of secondary sources.

1. Pros & Cons of Satellite-Based Internet Technologies

Pros

Advantage	Description
Global Coverage	Works in remote, rural, and offshore areas where terrestrial networks are unavailable.
Quick Deployment	Requires minimal on-ground infrastructure, ideal for disaster recovery and emergency response.
Independent of Local Infrastructure	Resilient to ground-based infrastructure failures.
Scalability	Provides service in dispersed locations without costly tower installations.
Disaster Recovery & Military Use	Effective for emergency communications, military applications, and rural connectivity.

Cons

Disadvantage	Description
High Latency (Traditional Satellites)	GEO satellites have latency of 600+ ms, making real-time applications difficult.
Expensive Equipment & Subscription	Requires a satellite dish and modem; monthly fees range from $100–$500.
Weather Sensitivity	Signal degradation occurs in bad weather (rain fade, storms).
Limited Bandwidth	Lower total bandwidth than fiber or cellular networks.
Space Debris Concerns	Large satellite constellations raise sustainability concerns.

2. Pros & Cons of 4G/5G-Based Internet Technologies

Pros

Advantage	Description
Low Latency	4G latency is 30–50 ms, while 5G latency is 1–10 ms, ideal for real-time applications.
High Speeds	4G offers 50–100 Mbps; 5G can reach 1–10 Gbps, much faster than most satellite internet services.
Lower Cost for Users	4G/5G subscriptions range from $10–$100 per month, cheaper than satellite internet.
Better Network Capacity	5G supports high-density urban environments better than satellite-based solutions.
Reliable in Most Conditions	Less affected by weather than satellite internet.

Cons

Disadvantage	Description
Limited Rural Coverage	Requires tower infrastructure, making it costly for remote deployment.
High Deployment Costs	National 5G network requires billions in infrastructure investment.
Infrastructure Dependency	Relies on terrestrial infrastructure (fiber-optic backbone, cell towers).
Limited Mobility in Some Cases	Users must remain within network coverage; satellites provide global reach.

3. Key Comparison: Satellite Internet vs. 4G/5G

Feature	Satellite-Based Internet	4G/5G-Based Internet
Coverage	Global (urban, rural, offshore)	Limited to areas with towers
Latency	20–600 ms (LEO/GEO satellites)	4G: 30–50 ms, 5G: 1–10 ms
Speed	50 Mbps – 250 Mbps (Starlink)	4G: 50–100 Mbps, 5G: 1–10 Gbps
Cost	Expensive ($100 - $500/month)	More affordable ($10–$100/month)
Deployment	Quick, no ground network needed	Requires extensive infrastructure
Weather Sensitivity	Affected by storms, rain fade	More stable in most conditions
Best For	Remote locations, disaster recovery, military	High-speed urban connectivity, IoT, real-time apps

4. Outcome

- Satellite Internet is better for rural areas, maritime connectivity, emergency response, and global access.
- 4G/5G is better for high-speed, low-latency applications, urban users, and industries requiring high bandwidth.
- Hybrid Models: Future networks may combine satellite and 5G for seamless global connectivity.

5. Sources

- Starlink Latency & Speed - https://www.starlink.com
- 4G/5G Speed Benchmarks - https://www.speedtest.net/global-index
- Satellite vs 5G Performance Analysis - Exploring the Key Differences Between LEO Satellites and 5G - Blue Wireless
- Impact of Weather on Satellite Connectivity - https://www.satellitetoday.com/
- Mobile Connectivity Costs - https://www.statista.com/

11.1.6 Appendix F: Cost Analysis for Deploying 100 Wi-Fi Hotspots in Liberia

A detailed cost breakdown for installing and operating 100 Wi-Fi hotspots in Liberia, with an initial capital expenditure (CapEx) of $500,000 and operational expenditure (OpEx) over five years is illustrated below based on the study of secondary sources. The analysis includes key cost components, sources, and justifications.

1. Capital Expenditure (CapEx)

Component	Description	Unit Cost (US$)	Total Cost for 100 Units (US$)
Wi-Fi Access Points	High-quality access points for wide coverage	$1,000	$100,000
Network Switches	For connecting multiple access points	$200	$20,000
Antennas & Signal Boosters	Enhances signal strength	$250	$25,000
Cabling & Accessories	Ethernet cables, mounting kits, surge protectors	$200	$20,000
Backup Power (UPS/Solar)	Ensures continuous operation	$100	$10,000
Installation & Labor	Setup, site preparation, and configuration	$1,000	$100,000
Licensing & Software	Network management and security software	$500	$50,000
Contingency Fund	Unforeseen expenses	-	$75,000
		Total CapEx	$500,000

2. Operational Expenditure (OpEx) Over 5 Years

Component	Description	Annual Cost per Unit (US$)	Total 5-Year Cost for 100 Units (US$)
ISP Fees	Monthly internet connectivity	$600	$300,000
Maintenance & Support	Routine maintenance and technical support	$250	$125,000
Hardware Replacement	Upgrade/replacement of faulty parts	$100	$50,000
Software Updates & Licensing	License renewals and updates	$100	$50,000
Power Costs	Electricity consumption for operation	$150	$75,000
Insurance & Security	Protection against theft and damage	$100	$50,000
Administrative Expenses	Billing, management, and operational costs	$50	$25,000
		Total OpEx Over 5 Years	$675,000

3. Total Cost of Ownership (TCO) Over 5 Years

Capital Expenditure (CapEx)	$500,000
Operational Expenditure (OpEx)	$675,000
Total Cost of Ownership (TCO)	$1,175,000

4. Conclusion

The deployment of 100 Wi-Fi hotspots in Liberia requires an initial capital investment of $500,000, with an additional operational expenditure of $675,000 over five years, bringing the total cost of ownership to $1,175,000. This budget accounts for high-quality equipment, professional installation, and ongoing maintenance to ensure reliable and sustainable internet connectivity.

5. Sources

- Cisco Press - https://www.ciscopress.com/articles/article.asp?p=680821&seqNum=2
- Tanaza - https://www.tanaza.com/blog/cost-of-wireless-networks/
- Aviat Networks - https://aviatnetworks.com/network-migration/hidden-costs-wireless-equipment-deals/

11.1.7 Appendix G: Cost Analysis for Establishing 20 Computer Training Centers in Liberia

Detailed cost breakdown for establishing and operating 20 computer training centers in Liberia, each with a 20-seat capacity is illustrated below. The total capital expenditure (CapEx) is estimated at US$3.5 million, with an additional operational expenditure (OpEx) projected over a five-year period. The analysis includes key cost components, sources, and justifications.

1. Capital Expenditure (CapEx)

Component	Description	Unit Cost (US$)	Total Cost for 20 Centers (US$)
Building Construction	Facilities for training centers	$100,000	$2,000,000
Computer Equipment	20 computers per center at $1,000 each	$20,000	$400,000
Furniture & Fixtures	Desks, chairs, and essential furniture	$10,000	$200,000
Networking Equipment	Routers, switches, cabling, installation	$5,000	$100,000
Software Licenses	Operating systems, educational software	$5,000	$100,000
Power Supply Systems	Generators or solar power systems	$10,000	$200,000
Security Systems	Surveillance cameras, alarm systems	$5,000	$100,000
Initial Training & Staffing	Recruitment and initial training of staff	$10,000	$200,000
Miscellaneous	Contingencies and unforeseen expenses	$10,000	$200,000
		Total CapEx	$3,500,000

2. Operational Expenditure (OpEx) Over 5 Years

Component	Description	Annual Cost per Center (US$)	Total 5-Year Cost for 20 Centers (US$)
Staff Salaries	Instructors, administrators, support staff	$30,000	$3,000,000
Utilities	Electricity, water, internet	$5,000	$500,000
Maintenance	Upkeep of equipment and facilities	$5,000	$500,000
Software Renewals	Annual software license renewals	$2,000	$200,000
Training Materials	Books, manuals, digital resources	$3,000	$300,000
Security Personnel	Salaries for security staff	$5,000	$500,000
Insurance	Coverage for equipment and facilities	$2,000	$200,000
Miscellaneous	Unforeseen operational expenses	$3,000	$300,000
		Total OpEx Over 5 Years	$5,500,000

3. Total Cost Summary

Capital Expenditure (CapEx)	$3,500,000
Operational Expenditure (OpEx) Over 5 Years	$5,500,000
Total Cost Over 5 Years	$9,000,000

4. Conclusion

Establishing and maintaining 20 computer training centers in Liberia, each with a 20-seat capacity, requires an initial investment of $3.5 million and an additional $5.5 million in operational costs over five years, bringing the total cost of ownership to $9 million. This investment aims to enhance digital literacy and provide valuable skills to the Liberian population.

5. Sources

- GlobalGiving - Computer Training for New High School Graduates: https://www.globalgiving.org/projects/fcesfs/

11.1.8 Appendix H: Cost estimation for creating specialized digital literacy programs

Developing specialized digital literacy programs for the elderly, people with disabilities, and other marginalized groups in Liberia requires a comprehensive approach, encompassing both Capital Expenditures (CapEx) and Operational Expenditures (OpEx). This analysis includes considerations for Training Needs Assessment (TNA), Learning Management System (LMS) implementation, and other essential components.

1. Capital Expenditures (CapEx):

Component	Description	Estimated Cost (USD)	Source
Training Needs Assessment (TNA)	Conducting assessments to identify specific learning requirements of target groups.	$20,000	Transforming Training Needs Assessments into eLearning
Learning Management System (LMS) Implementation	Setting up an LMS tailored to the needs of marginalized groups, including customization and integration.	$25,000	A Comprehensive LMS Cost and Pricing Guide
Accessible Digital Devices	Procuring devices such as tablets or computers with assistive technologies.	$100,000	Digital literacy initiatives empowering marginalized communities
Content Development	Creating accessible and relevant digital literacy content.	$40,000	Sample Proposal on Digital Literacy for Seniors
Infrastructure Setup	Establishing internet connectivity and necessary infrastructure in training locations.	$60,000	Financing universal access to digital technologies and services
	Total Estimated CapEx	$245,000	

2. Operational Expenditures (OpEx) Over 5 Years:

Component	Description	Annual Cost (USD)	5-Year Total (USD)	Source
Program Management	Salaries for program coordinators and administrative staff.	$30,000	$150,000	Assessing costs of developing a digital program for training community health workers
Instructor Fees	Compensation for trainers specialized in digital literacy for marginalized groups.	$40,000	$200,000	Sample Proposal on Digital Literacy for Seniors
Maintenance of Digital Devices	Regular upkeep and replacement of digital devices.	$10,000	$50,000	Digital literacy initiatives empowering marginalized communities
LMS Maintenance and Updates	Ongoing support and updates for the Learning Management System.	$5,000	$25,000	Understanding LMS Pricing: How to Evaluate Costs and Value
Utilities and Internet Services	Costs for internet connectivity and utilities at training centers.	$15,000	$75,000	Financing universal access to digital technologies and services
Miscellaneous Expenses	Unforeseen costs and contingencies.	$10,000	$50,000	Assessing costs of developing a digital program for training community health workers
Total Estimated OpEx Over 5 Years			$550,000	

3. Total Cost Summary:

- Capital Expenditures (CapEx): $245,000
- Operational Expenditures (OpEx) Over 5 Years: $550,000
- Total Estimated Cost Over 5 Years: $665,000 - $795,000

4. Conclusion:

Implementing specialized digital literacy programs for marginalized groups in Liberia involves an initial capital investment of $245,000, with an additional operational expenditure of

approximately $550,000 over five years. This investment aims to empower these communities by enhancing their digital skills, thereby promoting social inclusion and economic development.

5. Sources:

- Transforming Training Needs Assessments into eLearning: https://www.playablo.com/CorporateLearning/Blog/training-needs-assessment/
- A Comprehensive LMS Cost and Pricing Guide: https://softwarefinder.com/resources/lms-pricing
- Digital literacy initiatives empowering marginalized communities: https://www.researchgate.net/publication/384050566_DIGITAL_LITERACY_INITIATIVES_EMPOWERING_MARGINALIZED_COMMUNITIES_THROUGH_TECHNOLOGY_INTEGRATION
- Sample Proposal on Digital Literacy for Seniors: https://www.fundsforngos.org/proposals/sample-proposal-on-digital-literacy-for-seniors-bridging-the-technology-gap/
- Financing universal access to digital technologies and services: https://digitalregulation.org/wp-content/uploads/Financing-universal-access-to-digital-technologies-and-services-2021-1.pdf
- Assessing costs of developing a digital program for training community health workers: [https://pmc.ncbi.nlm.nih.gov/articles/PMC8730743/](https://pm