



Development of an Inclusive Data Economy

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FOREWORD

Data is a driving force in modern economies. It fuels innovation in both private and public sectors. The fact that governments, ministries, state agencies, and businesses were able to share vital data quickly, efficiently, and ethically during the pandemic not only saved countless lives, but also enabled the citizens and residents of Sierra Leone to keep the economy running and stay connected. As a government, it is vital that we make the most of what we have learnt out of data as we enter into recovery.

This National Data Strategy (the Strategy) is country's first data strategy and aims to provide a roadmap for our data economy. This builds on the National Digital Development Policy of 2021 and National Digital Development Strategy of 2022 to improve data use in government and the private sector. This Strategy seeks to maintain the high watermark of data use set during the pandemic, and to free up private sector and non-governmental organizations to keep using data to innovate, experiment, and drive a new era of growth that is a key characteristic of a progressive digital economy.

The Strategy seeks to harness the power of data to boost productivity, create new jobs, improve public services, and position Sierra Leone at the forefront of the next wave of data and digital innovation. Under this Strategy, data and data use are seen as opportunities to be embraced, rather than threats against which to be guarded. The country's first data strategy therefore aims to set a regulatory regime that is not overly burdensome for smaller businesses, but rather one that supports responsible innovation.

The Strategy is a central part of the government's wider ambition for a thriving, fast-growing digital economy. It is underpinned

by public trust, and it lays out the opportunities that the country wants to realize.

It identifies the pillars that are core to unlocking the power of data for governments and the private sector, and the missions that must be prioritized to harness this power. It drives a radical transformation of how the government understands and unlocks the value of its own data to improve a range of public services and inform strategic decisions at scale, through a concerted whole-of-government approach which may be centrally coordinated.

This means not only taking the risks of increased data use seriously, but also positioning Sierra Leone as a champion country of data use that encourages the international flow of data across borders. Further, recognizing that Sierra Leone has not fully unlocked the country's data and analytics potential, this Strategy will guide through a long-term transformation so that everyone, everywhere nurtures data as a strategic asset for insights and impact to better deliver on country's socio-economic and political aspirations. Whilst our tag line 'Development of an Inclusive Data Economy' supports our mission to maximize the value of data responsibly, it also mandates us to work with those that this Strategy seeks to serve.

Finally, in publishing this Strategy, the Government of Sierra Leone reaffirms its unwavering commitment to promote an open and pro-citizen policy formulation process. The Strategy ensures that necessary guard rails are put in place to effectively promote the interests of Sierra Leone and her nationals in its data ecosystem.

HON. MOHAMED RAHMAN SWARAY
Minister of Information and Communications

PREFACE

Data is a valuable national asset in Sierra Leone, and when leveraged effectively, it can bring transformative benefits to the digital economy. The Government of Sierra Leone has proven this in its response to Ebola and more recently, the COVID-19 pandemic, where it leveraged private and public data to respond to the health and economic effects of the virus.

Non-governmental organizations and the private sector have a long history of using data to benefit clients through better and more tailored services. Enshrining the effective and ethical secure use of data as a foundational tool in both public and private sectors, this Strategy aims to support the Government's quest to leverage digital technologies to advance socio-economic aspirations and human capital development. This vision is also included in the Medium-Term National Development Plan 2019-2023 and serves as guidance for the Information and Communication Technology (ICT) sector development.

Specifically, the Strategy's key objectives are:

- To create and maintain robust, reliable, and relevant data and digital infrastructure for an inclusive data economy.
- To create and implement the necessary data governance and regulation to advance a trusted, protected, and access-friendly data ecosystem.
- To ensure there is an institutional framework that supports all the stakeholders and facilitates cooperation in data governance for an enhanced impact, and
- To enable the creation and use of data to advance social, political, and economic concerns.

Thus, the Strategy considers public sector data in the broader economy. It is supported by Strategic Priorities, which outline tangible measures the Government will take to implement and improve our data use across the economy.

The Priorities will be regularly reviewed to ensure they are evolving to meet changing Government policies while continuously raising the bar to encourage Sierra Leone to meet the goal of being a leading data economy and society.

While this Strategy does not introduce new regulations, it aligns with a range of existing legislation, strategies, and policies that regulate data. These include the National Digital Development Policy of 2021, the National Digital Development Strategy of 2022, and the Cybersecurity and Cyber Crimes Act of 2021. These diverse elements set out the current and forward-looking data strategy and confirms the Government of Sierra Leone's intent to leverage data for tangible benefits to its citizens and residents. This unlocks data as the lifeblood of the country's digital economy.

This Strategy, developed with the support of Digital Impact Alliance of the United Nations Foundation, represents a product of the close collaboration of the Ministries, Government Agencies, and Focal Points of private and non-governmental bodies across society, culminated into a holistic approach to building a management approach and the foundation of data capabilities and assets. To sustain meaningful progress, a follow-on implementation plan outlines ownership and responsibilities for monitoring, reporting, and evaluation of the execution of this Strategy.

TAMBA JUANA
Permanent Secretary,
Ministry of Information and Communications

EXECUTIVE SUMMARY

The Government of Sierra Leone has embarked on a digital transformation journey to advance progress across the economic sectors. This is envisaged in the Medium-Term National Development Plan 2019-2023 as well as the National Digital Development Policy of 2021. It is envisaged that a sound data economy will lay the foundation for a sound digital economy. Considering digitalisation is expanding rapidly across the value chains of private- and public-sector services and processes, it is essential that strategies that centre data as a foundation for meaningful decision-making be implemented. Sierra Leone's emerging data governance framework needs to be directed toward contributing to the country's development objectives, while simultaneously mitigating against inherent and manufactured data risks. The intent of a national data strategy is to move from specifying the role of policy in establishing the frames for obligations and rights, to outlining plans for the implementation of policies that advance political, economic, and social goals. These development goals, considered in the digital context, are described in the Medium-Term National Development Plan 2019-2023:

- To empower citizens with the skills to benefit from digital services and allow for increased inclusion.
- To increase the efficiency and transparency of the government administration and service delivery.
- To enhance the competitiveness and diversification of the economy with tech-driven innovation.

The data economy must be responsive to the interests of a broad array of data actors. Thus, through identification of priority objectives, the National Data Strategy aims to contribute to an inclusive, trusted, accessible, and context-appropriate data economy that may be actioned in priority sectors. The features of the National Data Strategy are aligned to the overarching National Digital Development Policy of 2021 and National Digital Development Strategy of 2022, as well as an assessment of the current data use and data governance landscape of 2022 (hereafter referred to as the Assessment).

Understanding Data

Fully realising the value of data for a transformed digital economy and the broader economy of Sierra Leone requires forefronting the nature of data. Data is heterogenous and diverse, but it can also be understood as non-rivalrous. It is infinitely usable without detracting from other actors' ability to use it. It is non-excludable, and thus no natural barriers exist for simultaneous use of the same data. This means that in terms of traditional economic theory, it is closer in nature to a public good than a private good. This nature is important, as it implicates how sharing and duplication need not detract from the inherent value of the same data being held elsewhere. And appreciating the nature of data means appreciating its differences from other economic assets that might be the subject of regulation, particularly given that—as a value of production—the capacity to generate, store, and extract meaning and relevance from data is a more important ambition for seeking to extract value than, say, focusing on mere possession. Importantly, too, for understanding Sierra Leone's National Data Strategy is appreciating that the ability to extract economic value must be considered in conjunction with an appreciation of the social and political value of the data, as well as its centrality to the pursuit of the country's Sustainable Development Goals (SDGs). Data does not just create economic value for firms, it can create efficiencies and provide insights that have direct positive social benefits through improving service delivery, policy development, participation, and even oversight and monitoring. A data governance framework can align with Sierra Leone's good governance frameworks.

Contextualising data's value also means contextualising data's risks and harms. The notion that data is a value of production may conceal that data subjects who bear the risks of say, privacy and security violations, often bear those risks as other agents extract economic value. This also has a macroeconomic implication: Global firms can extract and derive value from the data of Sierra Leone citizens without economic benefit for the country itself.

Established Policy Priorities

The National Digital Development Policy of 2021 and the National Digital Development Strategy of 2022 are key tools for advancing Sierra Leone's Medium-Term National Development Plan 2019-2023. The National Digital Development Policy of 2021 encompasses several priorities that, while reflective of the broader digital ecosystem, are more expansive than can be considered for an effective National Data Strategy (Table 1). Thus, they are used to refine the National Data Strategy objectives, in accordance with the criticality of an adequate digital environment for an efficient data ecosystem.

TABLE 1: Priorities of the National Digital Development Strategy 2022

Governance, Coordination, and Partnership

- Develop and implement an institutional framework to reflect emerging trends
- Enhance coordination between stakeholders with an agenda for digital development
- Develop mechanisms for donor coordination
- Support the development and implementation of harmonised digital transformation policies and strategies
- Foster transparent, predictable, investment-enabling, and innovation-friendly regulatory frameworks
- Optimise the use of scarce resources for larger investments and competition

Digital Infrastructure

- Develop and implement a national master plan for robust and Access reliable digital infrastructure
- Ensure predictable, investment-enabling regulation with a clear execution strategy
- Improve the universal access to digital services, focusing on areas unserved and underserved by digital services
- Promote measures that increase the affordability of devices and services
- Reduce the environmental impact of digital development

Digital Skills and Human Capital Development

- Ensure an enabling infrastructure for digital learning (connectivity and equipment)
- Foster capacity building and coordination in the education sector
- Mainstream the learning of information and communication technology (ICT) content across all education levels
- Promote inclusive digital learning, focusing on women and other disadvantaged groups
- Increase the digital skills of the current workforce
- Develop a pool of ICT professionals
- Promote ICT knowledge dissemination and engagement through informal channels
- Leverage ICT channels to improve access and quality of education (E-learning)
- Promote research and development (R&D) on ICT at higher education levels

¹African Union, "AU Data Policy Framework," 2022, <https://au.int/en/documents/20220728/au-data-policy-framework>; Charles Jones and Christopher Tonetti, "Nonrivalry and the Economics of Data," *The American Economic Review* 110, no. 9 (2020): 2819-58, <https://doi.org/10.1257/aer.20191330>.
Elinor Ostrom and Vincent Ostrom, "Public Goods and Public Choices," in *Alternatives for Delivering Public Services: Towards Improved Performance* (Boulder: Westview Press, 1977).
Jones and Tonetti, "Nonrivalry and the Economics of Data"; African Union, "AU Data Policy Framework."
Arthur Gwagwa and Ansgar Koene, "Minimizing Algorithmic Bias and Discrimination in the Digital Economy," African Academic Network on Internet Policy, 10 December 2018, <https://aanoip.org/minimizing-algorithmic-bias-and-discrimination-in-the-digital-economy/>.

Digital Government

- Develop and implement harmonised ICT strategies and standards
- Standardise the government's digital infrastructure
- Develop the building blocks for a harmonised digital ID system
- Implement new digital government services across sectors
- Improve efficiency and transparency in public administration with ICT
- Develop the digital health sector (E-health)
- Develop the digital agriculture sector (E-agriculture, AgriTech)
- Enhance the postal service to become a platform for E-services
- Enhance the ICT culture of actors in the private and public sectors

E-commerce and Digital Financial Services (DFS)

- Streamline the enabling regulation for DFS
- Ensure an interoperable and secure financial infrastructure
- Encourage DFS competition, user protection, and adoption
- Create the building blocks for the development of E-commerce

Emerging Technologies, Innovation, and Digital Entrepreneurship

- Enhance dialogue and institutional collaboration in the entrepreneurship ecosystem
- Develop and improve policies for digital innovation and entrepreneurship
- Enhance the access to capital for digital ventures and the ease of doing tech-business
- Untap digital innovation and support the scaling-up of tech solutions
- Assemble a group of growth entrepreneurs and help build their digital capabilities
- Support the demand and uptake of innovative digital solutions
- Build a local ICT industry and digitalise traditional sectors
- Support the local internet and cloud infrastructure ecosystem

Data Governance and Cybersecurity

- Further develop legal and regulatory frameworks on cybersecurity and data protection
- Support institutional leadership and coordination for cybersecurity response and strengthen cooperation at national, regional, and international levels
- Build human capacity, increase awareness, and gain exposure to cybersecurity
- Protect vulnerable assets with response readiness and risk assessment to prevent cyberattacks
- Protect personal data in digital transactions and communications
- Facilitate the use of ICT for national security
- Enhance the openness and exploitation of data

Data Assessment

The Data Assessment, which preceded the drafting of the National Data Strategy, used data derived by various stakeholders to outline the country's data use and governance landscape. The Assessment was informed using the following framework:

Data flow dynamics	Data	Data Infrastructure	Data Environment	Digital Environment
Supply Side	<ul style="list-style-type: none"> ➤ Data Standards ➤ Data Sources 	<ul style="list-style-type: none"> ➤ Public sector capacities and needs ➤ Provision of data infrastructure cloud, ICT 	<ul style="list-style-type: none"> ➤ Access to information, open data policy 	<ul style="list-style-type: none"> ➤ Trade
Systems and Pipes	<ul style="list-style-type: none"> ➤ Data Pipelines ➤ Interoperability 	<ul style="list-style-type: none"> ➤ Interoperability 	<ul style="list-style-type: none"> ➤ Cybersecurity, data processing, and governance Data flows ➤ Data portability 	<ul style="list-style-type: none"> ➤ Digital taxation ➤ Competition
Demand Side	<ul style="list-style-type: none"> ➤ Access (open data and APIs) Data needs 	<ul style="list-style-type: none"> ➤ Demand side access to infrastructure ➤ Private sector capacities and needs 	<ul style="list-style-type: none"> ➤ Data localization 	<ul style="list-style-type: none"> ➤ Innovation
Institutional Arrangements	<ul style="list-style-type: none"> ➤ Institutional Arrangements 	<ul style="list-style-type: none"> ➤ Institutional Arrangements 	<ul style="list-style-type: none"> ➤ Institutional Arrangements 	<ul style="list-style-type: none"> ➤ Institutional Arrangements

The framework defines the data landscape as consisting of four key elements for assessment: Data, Data Infrastructure, Data Environment, and Digital Environment. Within each element, there is a “data pipeline” consisting of a supply side, a demand side, and flow/transmission/storage of data between the two (“systems and pipes”). The framework prioritises the role and significance of the institutional arrangements premised on the fact that formal government organisations formulating and implementing policy influence the conditions of each element of any national data landscape.

The Assessment provided the following high-level insights on gaps and deficiencies in the data landscape. This is elaborated on in the fuller Assessment Report, which also highlights efficiencies and opportunities.

Digital Environment: Lagging policy and legal environment; access to and affordability of digital infrastructure remains a challenge; enhancements in digital infrastructure within government are necessary to truly benefit from digitalised services; low level of digital literacy and a significant digital divide.

There is, therefore, a need for a clear and directional regulatory environment that advances a vibrant data and digital economy while establishing trust and maintaining high data protection standards.

Data Infrastructure: Inadequate data infrastructure; unreliable ancillary infrastructure and high internet costs impact data collection and the quality of data sharing.

There is a need to build requisite connectivity and power supply infrastructure. Furthermore, there is a need to balance anticipated increased demand for real-time data with a need for a robust offline capacity. Also, there is a need for data infrastructure that is resilient and reliable while enabling efficient and cost-effective data sharing. Therefore, projects that focus on connectivity or enhancements of the same are necessary.

Data Environment: Development of policies and laws, including Data Protection Bill, Data Sharing Framework, Open Data Policy, and Cybersecurity Act are underway.

However, it is clear that the data governance regime needs to be reinforced and buttressed by forwardthinking data practices, policies, and solutions. Clear, harmonised data laws should be developed to support a trusted data regime. The process of developing regulatory frameworks should take into consideration the country’s socio-political and economic concerns.

Data Element: Limited digitised government data; restricted cross-sector or departmental data sharing, and lack of uniform data standards.

Indeed, interdepartmental data sharing should be prioritised. Country data needs extend along the data pipeline—from data generation to collection, processing, storage, and analysis. There is a need to pay attention to and balance data risks, opportunities, and needs that are aligned with the specificities of Sierra Leone’s context. There is a need to address uneven distribution of data development funding, partnerships, and other resources across agencies. The quality of data generation should be enhanced and underpinned by an understanding of sectoral needs. There is a need to foster data and innovation communities for driving data demand and to enhance usefulness of data, including adoption of opensource data systems.

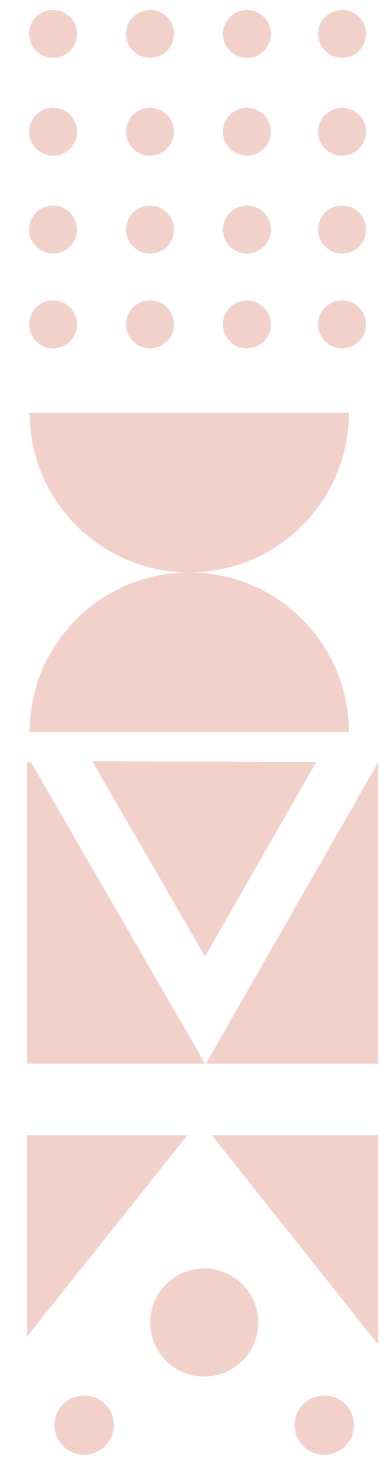
Institutional Frameworks: There is no policy that fosters data collaboration across government; however, stakeholders that have a critical role to play in data strategy include the Ministry of Information and Communications, the National Digital Development Council, the Digital Development Agency, the National Civil Registration Authority, and the Data Protection Authority.

There is a need for an institutional framework that supports data collaboration and facilitates cooperation in data governance for enhancing a positive and inclusive impact.

Human Capacity: Development of relevant data management is key to enhancing the required data practices, and this needs to be enhanced in the public sector.

In the long term, the Ministry of Education has a role to play in capacity-building and human capital development. In the short term, however, collaborations across the various institutions needs to be encouraged. Furthermore, steps need to be taken to ensure that schools and tertiary institutions have programmes in advanced science and technology so that the skills of citizens can be built in preparation for the new digital age.

Data User Personas: Strategic priorities are centered around different types of data users and data use cases. Based on the data and evidence gathered during stakeholder engagement for the Assessment Framework, data user personas were developed to represent a range of data user types in Sierra Leone. Instructive in the drafting process, these personas are included in the Appendix and are used to inform the Implementation Plan.





01 INTRODUCTION

The overarching goal of the National Data Strategy is to drive a cohesive and collaborative nationwide approach to data generation, management, and use that advances Sierra Leone's development outcomes and promotes good governance. The Assessment distilled specific components, namely the Digital Environment, Data Environment, Data Infrastructure, and Data. These form the objectives of the Strategy:



Each of the objectives is broken down into subobjectives to reflect development priorities and considerations, as well as specific targets, as in the Implementation Plan.



02

DATA INFRASTRUCTURE

OBJECTIVE 1 : To create and maintain robust, reliable, and relevant data and digital infrastructure for an inclusive data capacity (*Data Infrastructure*)

2.1 Context of Country's Data Infrastructure

To lay the foundations for data and digital economies, Sierra Leone requires making direct investment. But to do this, expenditure must be prioritised in line with strategic priorities. Containing this expense also needs to be done in the context of determining what is relevant infrastructure. The need for data and digital infrastructure has been acknowledged in country, however, this acknowledgement does not mitigate against the realities of insufficient data infrastructure, such as large-scale local data servers and centres. This has been made more vulnerable by low rates of internet penetration, limited broadband, and unreliable power supply.

2.2 Strategic Priorities

The following strategies should guide attainment of the strategic targets and priorities:

2.2.1 To implement digital strategies that enhance infrastructure development

Existing policy priorities have been developed in the National Digital Development Policy of 2021 and the National Digital Development Strategy of 2022. They provide priorities for digital infrastructure, but while data infrastructure often relies on digital infrastructure, the former will need to strongly centre interoperability as a priority. While public investment can drive data infrastructure development, significant amounts of investment are likely to be private. This means coordination between infrastructure development across stakeholders will be needed, implicating the stakeholder engagement mechanisms (see Objective 2). To determine the relevance of infrastructure development, data use requirements will need to be explored in significant detail to inform investment priorities.

2.2.2 To create financially and environmentally sustainable infrastructure

Data infrastructure should be developed with environmental sustainability in mind. This is required to place the emerging data economy within a sustainable development framework. Creating guidelines for such development must be done in conjunction with both technical and environmental experts from the region to balance these guidelines against the objectives of encouraging local, private data infrastructure development alongside public-sector development. In addition, significant investments in government infrastructure must consider investment sustainability. The quality and tier of data centres are a consideration for the likelihood of their uptake. However, the current limitations in data infrastructure mean obliging the localised use of public domestic

servers would be out of step with the likely implementation of the data strategy. This does not extend to potential mandates in relation to very specific types of data, which might be better considered under Objective 2. Private-sector, local data centres will require the implementation of the National Data Strategy.

2.2.3 To develop procurement strategies that enhance efficiency and accountability

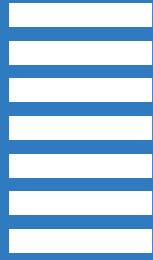
Data technologies such as data services and data infrastructure such as cloud services are likely to continue to be outsourced to the private sector. While in the long term the objective is to capacitate the public service (see Objective 3), it is necessary to establish procurement guidelines and practices that actively advance the country's socio-economic and political objectives. This should consider preferential procurement guidelines on local capacity, which can in turn buttress local innovation and data communities. Especially in the context of having no domestic competition regulation, considering how to combat overreliance on external data service providers and "big tech" actors will be a question for practice. Procurement practices can also be an opportunity to reinforce personal data practices that enhance protection for data subjects. If consideration of data infrastructure is extended to essential data technologies, then a further procurement recommendation is that there should be a preference for open-source technologies to facilitate public data needs to avoid vendor lock-in. Local and regional capacities can then be encouraged to maintain such data technology purchases.

2.2.4 To consider investing in data priorities and structural data legacies

The development of data infrastructure such as data centres and the ancillary investments must be understood within a central data need reality. This is because the demand for data infrastructure to access real-time data is a key data need that will grow over time. Yet, the key data needs in the public service continue to be the digitisation of existing records to generate data and the need for accurately identifying the data. This means that investments into data infrastructure like data centres must be balanced with the need to invest directly in data collection and document digitisation, which can help drive the inclusion and representation of citizens within government decision-making and within its service delivery remit.

2.2.5 To invest in a manner that reduces data and digital inequalities

Data infrastructure budgets must be designed around sustainability and maintenance. The maintenance of infrastructure must be considered under the digital capacities required. Such maintenance should include continual monitoring to ensure that the infrastructure is meeting the key needs of Sierra Leone's public- and private-sector data users.



03

GOVERNANCE

OBJECTIVE 2 : To create and implement the necessary data governance and regulation to advance a trusted, protected, and access-friendly data ecosystem (*Data and Digital Environments*)

3.1 Context of Country's Data Governance

Trust is necessary for a vibrant domestic data economy in Sierra Leone. This trust needs to exist between the citizen, private sector, and the Government of Sierra Leone. Although chiefly understood in relation to personal data protection, broader data protection and security must be ensured if a trusted environment for business investment in the data economy is to be assured. The challenge for data governance and regulation is ensuring sufficient data specificity to avoid unintended consequences, but also being responsive to emerging technologies and their novel risks. Therefore, governance interventions should extend to what is necessary to advance a trusted, protected, and access-friendly data landscape in the country.

3.2 Strategic Priorities

The following strategies should guide attainment of the strategic targets and priorities:

3.2.1 To establish clear and harmonised laws and policies

3.2.1.1 To develop a secure national cyberspace

Data economy requires a sound, secure cyberspace to prosper. When we understand data as chiefly nonstagnant and as gaining value through transmission in vertical and horizontal chains, cyberspace as a medium becomes important. The National Digital Development Strategy notes that "cybercrime poses a direct threat to the storage, modification, and exchange of data via networked systems and its supporting critical information infrastructures." The Assessment found that there have been no significant data breaches, but security contributes to trust, and the reality is that cyber threats are increasing nationally, regionally, and globally.

There are certain data infrastructure that will need to constitute critical infrastructure for security regulation. Maintaining cybersecurity standards in the public service will also have personal data protection ramifications. In addition, public-sector data processes will need to incorporate cybersecurity considerations into permission levels.

Further, fighting cyberattacks requires cross-border coordination. While this is a regional or global effort, Sierra Leone will need to ensure a base level of cybersecurity readiness to proactively engage in regional structures. Sierra Leone already has a Cybersecurity and Cybercrimes Law, 2021 that identifies a

broad array of cybercrimes, many of which have direct implications on data interception and "publication of information." These broad crimes will need to be interpreted in a way that does not stifle the lawful processing of data. This will require coordination between agencies that enforce the law and protect the data. Laws and regulations to secure cyberspace must be limited. Normative standards for considering interference with internet access (or content restrictions) in particular should be sourced from international human rights. Considerations such as proportionality and necessity could be used to guide the actions of possible legal or policy interventions, all under preconditions of lawfulness being established. Necessity means that any restriction of internet access must be limited to measures that are strictly and demonstrably necessary to achieve a legitimate aim. It should be demonstrated that no other measure would achieve similar effects with more efficiency and less collateral damage. Any restriction of internet access must also be proportional. It should be remembered that facilitating legal certainty requires public education and awareness strategies.

3.2.1.2 To promote accessibility and transparency in the ecosystem

Sierra Leone has a Right to Access Information Law, 2013, and an Open Data Portal. The law can be seen to create a presumption of openness for public records. Additional forms of access rights for personal data, such as data portability and data subject rights, also appear in the Draft Data Protection Bill, 2020. Access to information requests is a mechanism for accessing information and underlying data. However, proactive access to open data is necessary to derive the benefit. Accessibility is about proactive sharing and not merely reactive imparting. From the public to the private, this requires open government data, but also an enabling data sharing infrastructure in the public sector. This means creating data according to standards, preferably open data standards, with requisite permission and security protocols to control release. Such systems will facilitate access between ministries, departments, and agencies (MDAs). In strengthening these access frameworks alongside the control frameworks, it is necessary to consider how existing records management and archival rules and practices might fit within the Sierra Leone data landscape. Further, from the private to the public sectors, agreements should be explored that facilitate such access within the bounds of the law.

3.2.1.3 To facilitate protection and control of personal data

Ensuring and realising data privacy is a vital aspect of fostering public trust in the data economy. The Draft Data Protection Bill of 2020 will be the main mechanism for ensuring the protection of personal data. However, protection of data held by the public service will require that the public sector be able to exert sufficient control of the data it holds. This implicates both sufficient data infrastructure (see Objective Area I) and capacities (Objective Area IV). It will also be necessary to harmonise personal data protection within the contexts of the country's consumer protections guidelines.

The Draft Data Protection Bill should, if passed, provide clear obligations to protect a citizen's personal information. Good practice in data protection globally is to extend responsibilities to all data processors, not just those engaged in commercial activities. Proactive obligations on data processors to conduct data risk impact assessments provide an important mechanism for preventing personal data abuses. To foster privacy, accountability mechanisms must be assured. The establishment of a Data Protection Agency (DPA) will be a vital avenue for data subjects to exert their own control over their data through assured recourse.

Further, data flows vertically and horizontally within companies, between companies, and across borders. Cross-border data flows, particularly with cloud services, are a reality for the data economy and need to be recognised. Many of the potential dividends of a good data economy are sourced from the globalised and interconnected nature of the internet, underpinned by the cross-border intermission of data. Coordination between domestic and regional jurisdictions is required not just as a component of data regulation and broader digital economy imperatives, but also to facilitate intraregional trade. When that data is personal data, cross-border transfer will be guided by data protection provisions of Sierra Leone but will require adequate levels of protections between jurisdictions. To ensure these types of obligations do not unnecessarily interfere with Sierra Leone's data economy, participation in regional and international data governance becomes important.

It is worth considering further how the law can facilitate protection of nonpersonal data held by the public service for advancing cybersecurity. Such legal mechanisms for securing sensitive public information must be lawfully, clearly, and minimally prescribed. Any such provisions should not interfere with the strong need for facilitating data sharing among MDAs.

3.2.2 To create laws guided by data value and data specificity

An important context for the drafting of laws and regulations is ensuring data specificity to avoid unforeseen limitations on Sierra Leone's data economy. Frequently, restrictive attitudes to the protection of personal data unwittingly lead to unnecessary constraints on broader data types. Specificity is an important component of laws or rules that provide restrictions and limitations. For instance, any forms of exerted data sovereignty, such as data localisation, should always be well prescribed to data types considering sectoral limitations for achieving very specific ends. Clear classifications for data also need to be established in response to this specificity, but also in considerations of real data risks. These classifications should then be used consistently across regulation and policy.

3.2.3 To co-create regulations that are sector sensitive

Regulations need to be transparent, predictable, and investment- and innovation-friendly. Regulations should be guided by social, economic, and political interests—in other words, not economic considerations alone. For instance, regulations issued by a DPA should be done with sufficient multistakeholder engagement to ensure sector-specific considerations. These can further be strengthened using codes of conduct.

Collaboration across public-sector regulators and the private sector is needed to unlock stalled Open Data Policy and related regulatory frameworks.



04

INSTITUTIONAL FRAMEWORKS

OBJECTIVE 3: To ensure there is an institutional framework that supports all the stakeholders and facilitates cooperation in data governance for enhanced impact
(Data and Digital Environments)

4.1 Context of Country's Data Governance

Although there is no policy in Sierra Leone that fosters data collaboration across government, several data stakeholders exist in both the private and public sectors. Considering stakeholders play a critical role in the data economy, public-sector agencies need to ensure there is adequate mechanism to foster cross-sectoral collaboration. Key institutions and agencies of the government in the data space include the Ministry of Information and Communications, the proposed National Digital Development Council, the Digital Development Agency, the National Civil Registration Authority, and the proposed Data Protection Authority.

4.2 Strategic Priorities

The following strategies should guide attainment of the strategic targets and priorities:

4.2.1 To establish a Data Protection Agency (DPA) to address personal data concerns

An independent, accessible, and well-resourced DPA is required. The DPA is important in helping achieve a balance between flexible rulemaking and accountable oversight—a feature of the broader African data protection regulatory environment that has often been absent or underfunded. In Sierra Leone, this should be capacitated as soon as feasible, and a strong focus on coordination is required and should be key in drafting a robust Data Protection Bill. Independence is important, given its role in seeking to regulate private and public data practices for advancing the data landscape.

Vitality, in order to advance a trusted and secure data environment and to support data subjects with mechanisms for exerting control over their data, the agency must have a strong emphasis on pursuing accountability and remaining accessible to the public. This will mean providing simple avenues for accessing the agency when it provides its regulations. It will be strategic for the agency to prescribe simple processes with offline and online options that can realise rights in the context of digital equality. This must also be buttressed by public education. Sierra Leone's Draft Data Protection Bill strongly emphasises accountability, and it should remain a key focus for data governance to foster a trusted environment.

Engagement on regulations and data approaches will need to focus on inclusivity, which should include outreach to communities often excluded from data engagements, such as

disconnected rural communities and vulnerable populations like refugees and children who are often incorporated into data and identity projects with few avenues for exerting agency and control over data use. Sierra Leone's experience in broad public outreach in health can be leveraged.

The role of the DPA in cross-border data flows and helping to ease these flows while being cognisant of limitations on personal data requires cross-border cooperation (in furtherance of the ECOWAS Supplementary Act on Personal Data Protection 2010). This will require coordination with other regional and even global data protection agencies on data issues that may be in part outside Sierra Leone's borders, especially as the Draft Data Protection Bill implies extra-territorial application.

To develop the Sierra Leone data economy, the DPA will need requisite capacities, including cybersecurity competencies to properly investigate and consider extents of potential breaches in data processing, and to proffer mitigation measures.

4.2.2 To leverage data in advancing digital government

Political coordination is required across government ministries and departments to advance the data economy. The Ministry of Information and Communications and the National Civil Registration Authority have central data processing roles given their functions and mandates. The proposed Digital Development Agency will have a significant leadership role to play in the digital development sector, particularly in relation to ensuring the requisite data and digital infrastructure are in place. There is a need to adopt a "whole-of-government" approach to these to drive interoperability of systems across government. Further, the DPA, Ministry of Justice, and the attorney general need to work in consonance. Yet outside these environmental role players, it will be important to use sectoral departments, particularly Education, Health, Land, Transportation, and Agriculture, to drive sectoral data priorities—both helping to guide data practices and to drive specific data initiatives to contribute to their sectors more broadly. The foundation of sound open government data practices is the provision of quality and relevant data, which requires the guidance of national ministries. Therefore, advancing Sierra Leone's data economy means advancing the data focus and competencies of the MDAs themselves as a priority.

4.2.3 To facilitate cooperation amongst regulatory entities and interventions

The DPA will be of key importance in driving the data regulatory environment in Sierra Leone. Given the need to prioritise both protection and access, collaboration between the DPA and the Right to Access Information Commission will be vital for balancing data priorities for Sierra Leone's data economy. In addition, regulatory authorities such as the National Telecommunications Commission and the Bank of Sierra Leone will have important contributions for co-creating a cohesive regulatory environment.

4.2.4 To drive a "whole-of-government" approach to advance data economy

Coordination on data governance should be both vertical and horizontal. The chief mechanisms for advancing data governance across the public sector are data standards and policies. While government ministries and agencies are currently driving ad-hoc approaches, consolidating approaches to data governance—guided by the principles of trust, protection, and access—will facilitate data sharing across the sector, in order to drive the Government's own data economy. As policy, there is a need to guide administrators on good data behaviors. Data should be understood as a tool for the public service—a tool that cannot be sufficiently used without consistency. Central data policies can entrench this consistency through data standards. They should facilitate the standards for data collection as well to encourage data collection through local government at source. It is also worthwhile providing clarity on the different ministries and departments that should lead on the verification of certain types of data that may be shared across government. Particularly when considering standards, the policy or policies need to reference developments happening in relation to the enterprise architecture. It will also be necessary to align this with regional laws, policies, and frameworks.

4.2.5 To participate in regional and global data governance initiatives

The emergence of the African Free Trade Area has highlighted the importance of facilitating regional data flows in the context of trade. Facilitating these flows also helps facilitate the development of the private sector, enable collaboration with other regional organisations, and serve other forms of foreign clients. The African Union Commission has already begun trying to centre a regional data approach through the AU Data Policy Framework for Africa.

Participation in multilateral entities with data relevance is important. This ensures regional interests can be driven. The understanding of the "data-relevant" landscape, however, must be understood more broadly than personal data governance; it extends to other aspects of data governance like accessibility, cybersecurity, and the necessary intersections with internet governance.

4.2.6 To facilitate public-private partnerships

Collaboration between public-sector agencies and the private sector to advance the data economy will need to occur on a variety of intersections. This may also have implications for procurement practices that may need to be aligned. In terms of investment—both donor and private—into data capacities for the public sector, consideration should be given to the patchy development of such capacities between different MDAs, as well as across the vertical sphere. Finalising these arrangements must have consideration for advancing Sierra Leone's capacity. Additionally, there must be room made for establishing mechanisms to facilitate data sharing for the public good. Centralised, proactive data provision can be facilitated through instruments like data banks and data portals. Emerging in narratives is also the idea of "data altruism," which enables individuals and organisations that collect data purely for reasons of public interest to donate their data, thus extending responsibilities

for sound data sharing across stakeholder groups. Data partnerships like this are strongly focused on sectoral data types and might be considered in health and research, for example. These become immensely relevant in the context of artificial intelligence and machine learning (and its reliance on big data), and the need to foster local innovation in these fields through collaborative and considered data sharing initiatives. The possibility of alternative mechanisms for data protection might also be considered, such as through the utilisation of data stewardships or data trusts to protect data, which is especially relevant in mass data collection exercises like those undertaken by the public sector. Foreseeably, the DPA would have a role to play in helping to securely construct the storage and sharing mechanisms here described.





05

SOCIO-POLITICS AND ECONOMICS

OBJECTIVE 5: To create and implement the necessary data governance and regulation to advance a trusted, protected, and access-friendly data ecosystem (*Data and Digital Environments*)

5.1 Context of Country's Socio-Politics and Economics

This vision in the Medium-Term National Development Plan 2019-2023 and the National Digital Development Policy of 2021 serves to position digital technologies as a critical enabler for sociopolitical and economic progress. Digital technologies, with which many nations in the region and globally are experimenting, can position Sierra Leone to take advantage of the fourth industrial revolution (4IR). This has the potential to enhance the competitiveness and diversification of the economy with tech-driven innovation.

5.2 Strategic Priorities

The following strategies should guide attainment of the strategic targets and priorities:

5.2.1 To facilitate sector-specific generation of quality data

Data is heterogeneous and at its most productive for parties when it is relevant and fit for purpose. This means that in seeking the collection of quality data, an understanding of the use case must be well defined even prior to data collection. Therefore, for sectoral projects to work well, a sector specialist needs to be involved throughout the data pipeline. Quality of data should be defined in terms of its accuracy, completeness, relevance, reliability, and timeliness—keeping in mind how the concept of timeliness is being impacted by the growing need for real-time data. Further, accuracy and verification as components of quality are important reasons why policy should consider empowering the entities charged with verification of differing forms of data. Data collection projects need to be initiated with an understanding of contexts with low internet penetration and connectivity challenges. Any technology adopted for data collection must have offline functionalities and ideally be mobile-responsive given challenges in device costs for many entities. The need for data collection should also be driven collaboratively, leveraging the significant experience of a statistics agency, namely, Statistics Sierra Leone. Ideally, such experience can be leveraged to capacitate “at-source” data collection through local government agencies. A flagship data collection initiative should vest focus and resources into the National Civil Registration Authority’s identity activities as an extension of the Digitalisation for All programme, but with the specific emphasis of generating quality data in a trusted environment.

5.2.2 To improve data skills and capacities in the public and private sectors

While digital skills are increasingly a focus of skills programmes, it is worth noting that data skills, such as processing, cleaning, and analysis, are their own skills area and require considered focus for allocation under the Skills Development Fund. In comparison to other African countries, Sierra Leone has a significant budget for digital skills education. In the public sector, skills pools can be well driven through the Ministry of Information and Communications’ IT officers, but it is advisable to have data corps within the cadres. It is exceptionally important that public-sector capacities to collect, process, and use data be a strong focus—in terms of specific regulatory capacities in competition and international law, as well as cybersecurity and data skills. One of the opportunities in the broader data skills environment for Sierra Leone is that the existing skills aren’t advanced in data science. For instance, data collection, capturing, and cleaning functions can be entry-level positions in both firms and the public service. Skills will also need to be focused not just on data use, but also on the establishment and maintenance of essential data infrastructure. Skills need to be advanced for creating the necessary trusted, secure, and accessible context needed. Educational programmes focused on data protection, cybersecurity, and accessibility should be pursued across disciplines, extending even to judicial officers to create the necessary recourse environment for challenging harms. Public awareness education should focus on data literacy and extend to data rights.

In the long term, this implicates educational policy in Sierra Leone. Digital skills must incorporate data skills and should inform education at the primary, secondary, and tertiary levels to develop the data natives for a robust data economy. Outside of public capacity-building and formal education, an additional skills-building priority is for focused initiatives to create data skills support for Sierra Leone’s small and medium-sized enterprises (SMEs) in order to help create a broader base for innovation and data skills (see Object Area 4.4).

5.2.3 To produce quality and relevant open government data

Sierra Leone's government has a vital role to play in the generation and release of quality open government data. The utilisation of open data standards is an important precursor to a considered open data strategy. The refinement and full implementation of the Open Data Policy should be reaffirmed as a priority, and that project should be reinstated and brought to fruition. The creation of relevant data can be done in collaboration with specific data communities, which allow for targeted data collection and processing.

5.2.4 To foster data innovation communities in the public sector

Driving public-sector capacity needs to be supported by creating structures that support public-sector innovation cultures. These innovation cultures need not be "high tech," especially given the digital inequalities experienced by the communities the public service seeks to serve. Rather, they should prioritise innovation process and thinking in a manner that centres data and data analysis as a core function for the public service. A significant part of the innovation process is, after all, designing in response to the needs of the community you seek to serve, rather than in response to the design preferences of imported technologies. Government ministries and departments like Lands and Country Planning, as well as Agriculture and Forestry, are already demonstrating forms of data innovation.

5.2.5 To foster data and innovation communities for driving data demand

A vibrant data economy requires both data supply and data demand. While ensuring sufficient capacities contribute to the necessary demand, additional mechanisms are required. Data communities are contained within innovation communities, thus mechanisms for fostering those communities contribute to the data environment. Fostering these innovation communities requires a supportive ecosystem. Specifically in relation to data, this requires mechanisms that facilitate creating space to innovate, such as the development of data protection regulatory sandboxes in conjunction with data protection agencies, leveraging lessons from the existing banking regulatory sandbox. Indeed, creating data spaces includes facilitating innovation hubs as sites of data-based innovation. It also necessarily includes creating vehicles for data stewardships or trusts that can facilitate data sharing for data development.

5.2.6 To drive and incentivise data communities

Sierra Leone is establishing its data priorities in the pursuit of specific social, political, and economic objectives. To this end, establishing data communities around case study areas provides several benefits. It creates priority areas for data collection but does so within communities that can provide sufficient content expertise to the data through a cross-section of skills, which makes its use more productive and considered. It embeds data projects within pre-existing communities, moving away from a technocentric approach toward one that is far more objective oriented. This also creates more room for monitoring the changes in the data economy to ensure the needed impact is achieved. In practice in Sierra Leone, driving of the data communities can be done through:

- Specific and focused data collection projects
- Sector-specific data processing codes of conduct
- Public-private data partnerships
- Civic-public partnerships for discrete data projects, particularly at the local level
- Public-private data banks overseen by data stewardships or advanced accountability mechanisms

The Assessment surfaced evidence from sectoral departments.

5.2.6.1 Education

While the role of education in the broader data economy is one of advancing and providing necessary skills, education itself can be advanced by improved data practices. The education sector is already a signatory to the Inclusive Data Charter, an undertaking in the education sector to provide timely, comprehensive, disaggregated data to better understand the situation of poor and marginalised populations. This was done in partnership with the Global Partnership for Sustainable Development Data. The focus of advancing inclusive education through a data-driven understanding of the environment should be used to drive skills needs, but also infrastructure and service needs for schools and educational institutions. Parents and learners have strong incentives for advancing educational facility conditions, and there is significant potential for at-site civic data collection projects done in partnership with the government.

Big data becomes a significant ambition for the research activities of educational institutions at higher levels. For our educational facilities to be developing the forms of knowledge that can advance domestic ambitions, it will be necessary to ensure the infrastructure necessary to facilitate big data and machine learning.

5.2.6.2 Health

Data plays a central role in managing health crises and ensuring sufficient services. The Ministry of Health and Sanitation uses a web-based software called District Health Information System 2 (DHIS2) to collect, manage, visualise, and analyse health data on Sierra Leone. DHIS2 is an open-source software developed by the University of Oslo and piloted in Sierra Leone. This system has the potential to provide an integrated solution that could be used across multiple departments, allowing the departments to collate individual data points from multiple sources and programmes in one integrated system, and preventing government departments from working in silos. The implementation of the system should be strongly facilitated and monitored, as a demonstration of the strong role open-source software can play in the advancement of Sierra Leone's data future.

5.2.6.3 Land

The Ministry of Lands and Country Planning generates data such as cadastral mapping. Land and planning require a strong focus on geo-spatial data and systems, with planning requiring strong demographic and other distributive data that can help to advance planning. Strong coalitions between the Department of Land and Planning and the Statistics Agency can lay the foundations for this from the government side. Land ownership and asset registration is an important aspect of the land environment. Central to the Sierra Leone Land Administration project will be the need for data collection and processing. Uncertainty in this area can lead to exclusion, particularly for women, and generating data that can be preserved and maintained is essential. The role of blockchain or other data governance solutions in this area should be explored.

5.2.6.4 Agriculture

Agriculture provides a rich site for the productive sharing of data between government and privatesector actors for the advancement of social and economic good. The Ministry of Agriculture and Forestry provides a case study on health and agriculture, having garnered lessons from the outbreak of Ebola. The health crisis negatively impacted the agricultural sector, leading to a food security crisis. During the COVID-19 pandemic, the Ministry of Information and Communications decided to develop an information system that farmers could interact with. This led to the development of the e-extension advisory system, which is also known as the interactive voice response system (IVRS). The IVRS is an extension of basic services for the Ministry of Agriculture targeted at both literate and illiterate farmers. The system is designed to bridge the gap between literate and illiterate farmers, bringing everybody together. If one is illiterate, one will have access to certain agricultural data as well as advice on how to deal with common challenges while farming. The IVRS is also available in all local languages, advancing inclusivity. Disseminating information based on collated and analysed data will be an essential service from the IVRS.

The Sierra Leone Agro-Processing Competitiveness Project will be a key collaborative data project for ministries, departments, and agencies, though the integrated system has not yet been launched.

06

IMPLEMENTATION PLAN

The implementation activities represent targets for achieving the objectives in the National Data Strategy. There is a need for sufficient resource allocation if these are to be achieved. Therefore, resource allocation must be considered in refinements of the Implementation Plan.

EXPECTED TIMEFRAME	SPECIFIC ACTION	CUSTODIAN	STAKEHOLDERS
SHORT TERM (6 MONTHS – 1 YEAR)	Public awareness campaign on emerging data rights	Ministry of Information and Communications Proposed Data Protection Agency	Civil society Ministry of Information and Communications
	Establish a Monitoring and Evaluation Plan for Data Strategy	Ministry of Information and Communications	Proposed National Digital Development Council National Civil Registration Authority Statistics Sierra Leone
MEDIUM TERM (1-3 YEARS)	Develop a Data Sharing Policy to guide government ministries, departments, and agencies on horizontal and vertical data sharing to promote interoperability of data systems	Ministry of Information and Communications	Proposed Data Protection Agency Proposed National Digital Development Council National Civil Registration Authority Statistics Sierra Leone

OBJECTIVE 1: To create and maintain robust, reliable, and relevant data and digital infrastructure for an inclusive data capacity (*Data Infrastructure*)

EXPECTED TIMEFRAME	SPECIFIC ACTION	CUSTODIAN	STAKEHOLDERS
SHORT TERM (6 MONTHS – 1 YEAR)	Create environmental guidelines for data centres	Ministry of Information and Communications	Civil society Business community Technology service providers
			National Telecommunications Commission Ministry of Environment
MEDIUM TERM (1-3 YEARS)	Implement National Digital Development Policy and National Digital Development Strategy	Ministry of Information and Communications	Government ministries, departments, and agencies Business community
			Host a roundtable to develop Procurement Guidelines on Data Technologies
LONG TERM (3-5 YEARS)	Build Tier 3 Government Data Centre	Ministry of Information and Communications	Development partners Directorate of Science, Technology and Innovation
			Harmonisation of data governance instruments

OBJECTIVE 2: To create and implement the necessary data governance and regulation to advance a trusted, protected, and access-friendly data ecosystem (*Data and Digital Environments*)

EXPECTED TIMEFRAME	SPECIFIC ACTION	CUSTODIAN	STAKEHOLDERS
SHORT TERM (6 MONTHS – 1 YEAR)	Sensitise stakeholders on data protection	Ministry of Justice	Civil society
	Enact data protection law	House of Parliament Presidency	Civil society Ministry of Justice Ministry of Information and Communications
	Develop Open Data Policy	Ministry of Information and Communications	Civil society
	Implement the National Cybersecurity Strategy 2017-2022	National Cybersecurity Coordinating Centre	Ministry of Justice Ministry of Foreign and International Affairs National Cybersecurity Council
	Capacitate the implementation of the Cybersecurity and Cybercrimes Act, 2021 Data Protection Law	Ministry of Finance	Ministry of Information and Communications
	Develop operational regulations to Open Data Policy and Data Protection Law	Ministry of Information and Communications Proposed Data Protection Agency	Civil society Business community
MEDIUM TERM (1-3 YEARS)	Map relevant, multilateral processes to data governance, such as the Open Government Partnership and Internet Governance Forums	Ministry of Justice Proposed Data Protection Agency	Ministry of Foreign and International Affairs
	Data Protection Agency to develop and implement necessary regulations to facilitate data communities	Ministry of Information and Communications Proposed Data Protection Agency	Civil society Business community
LONG TERM (3-5 YEARS)	Facilitate the participation of Sierra Leone in regional and international data governance programmes	Ministry of Information and Communications Proposed Data Protection Agency Ministry of Finance	Civil society Business community
			Ministry of Foreign and International Affairs

OBJECTIVE 3: To ensure there is an institutional framework that supports all the stakeholders and facilitates cooperation in data governance for enhanced impact (*Data and Digital Environments*)

EXPECTED TIMEFRAME	SPECIFIC ACTION	CUSTODIAN	STAKEHOLDERS
SHORT TERM (6 MONTHS – 1 YEAR)	Domesticate the AU Convention on Cybersecurity and Personal Data (Sierra Leone is signatory)	Ministry of Information and Communications Ministry of Foreign and International Affairs Ministry of Justice	Civil society House of Parliament
	Resource the proposed Data Protection Agency	Proposed Data Protection Agency	Ministry of Information and Communications Ministry of Finance Ministry of Justice
MEDIUM TERM (1-3 YEARS)	Promote cross-border data flows in the region (ECOWAS) and across the globe	Ministry of Foreign Affairs and International Affairs	Ministries, departments, and agencies
	Review existing data sharing frameworks and ensure they are privacy compliant	Proposed Data Protection Agency	Ministries, departments, and agencies
LONG TERM (3-5 YEARS)	Develop application programming interfaces (APIs) for key government data systems	Ministry of Information and Communications	Ministries, departments, and agencies

OBJECTIVE 4: To enable the creation and use of data for an inclusive data economy that advances social, political, and economic concerns (*Data and Digital Environments*)

EXPECTED TIMEFRAME	SPECIFIC ACTION	CUSTODIAN	STAKEHOLDERS
SHORT TERM (6 MONTHS – 1 YEAR)	Recruit for the data-focused ICT cadres	Ministry of Information and Communications	Directorate of Science, Technology and Innovation
	Develop position paper on data regulatory sandboxes	Proposed Data Protection Agency	Ministry of Justice
MEDIUM TERM (1-3 YEARS)	Align educational policy to ensure it promotes the data skills necessary for the Sierra Leone National Data Strategy	Ministry of Education	Ministry of Information and Communications
	Implement an SME-focused data skills initiative	Directorate of Science, Technology and Innovation	Ministry of Information and Communications
	Create Innovation Fund to promote data-driven innovations in the public service and private sector	Directorate of Science, Technology and Innovation	Youths Business community Public
LONG TERM (3-5 YEARS)	Facilitate big data houses of excellence at key universities	Ministry of Education	Directorate of Science, Technology and Innovation Ministry of Information and Communications



07 APPENDIX

User Personas

Adapting user persona research for policy and strategy development is growing increasingly common as a method for design (Kim et al., 2019; Porter et al., n.d.; Purao & Wu, 2013). While this method is not meant to summarise all possible stakeholders for consideration under the data strategy, it provides a means to distil the complex features and context of data users into a few key descriptors. For the purposes of the National Data Strategy, the personas listed here serve a two-fold function: First, they highlight key kinds of data users in Sierra Leone to help guide the development of the National Data Strategy because key user needs can be highlighted simply. Second, they provide a more considered tool for evaluating impact as they enable assessment of the implementation of the strategy in relation to the established needs of users. Additionally, within the Assessment, the user personas will be used to consider the application of different objectives.



PUBLIC SECTOR

Public-sector data user who needs data to perform their job (largely administrative)

My data user story:	<p>I use sectoral data that is collected at source for improved service delivery, particularly at the local government level.</p> <p>I use results and monitoring data that we develop and collect from other ministries, departments, and agencies for improving departmental performance and helping with departmental planning.</p> <p>I use personal and biometric data for verification purposes in my job function. This is collected from credit reference bureaus with which we have agreements.</p>
My data skills:	<p>Data collection</p> <p>Digital skills</p> <p>Basic data and statistical analysis</p>
My data needs:	<p>Biometric</p> <p>Performance and planning</p> <p>Private-sector data (sector relevant)</p> <p>Data from other MDAs</p>
My data and digital environmental needs:	<p>Policy guidance to facilitate sharing, security, and access</p> <p>Inter-departmental data sharing and private-sector sharing</p> <p>Secure and trusted data environment for interfacing with the public</p>
My contribution to the data environment:	<p>Collecting and processing open government data</p> <p>Implementing policy</p> <p>Sharing data with other ministries and departments</p>



PUBLIC SECTOR

Public-sector data user who needs data to inform their job (largely political)

My data user story:	<p>I use data as evidence for policy design at the national level.</p> <p>I use data from consultations to inform local budget allocations.</p>
My data skills:	<p>Data collection</p> <p>Digital skills</p> <p>Basic data and statistical analysis</p>
My data needs:	<p>Performance and planning</p> <p>Private-sector data (sector relevant)</p> <p>Data from other ministries and departments</p> <p>Financial data including market data from across borders</p>
My data and digital environmental needs:	<p>Policy guidance to facilitate sharing, security, and access</p> <p>Interdepartmental data sharing and private-sector sharing</p>
My contribution to the data environment:	<p>Developing enabling policy and law</p> <p>Investing in public infrastructure</p> <p>Assigning budget priorities</p>



PRIVATE SECTOR

Private-sector user who uses data to advance their business

My data user story:	<p>My products generate data that is analysed to improve its performance and efficacy for meeting my client's needs, which is received and stored cross-border through my supply chain.</p> <p>I am a local innovator who uses open government data to develop social entrepreneurship applications.</p> <p>I use a variety of internally generated data to improve the functioning and overall performance of my business and for R&D.</p> <p>I use public and private data to verify identity and assess credit risk.</p> <p>I use public-sector data to improve my business performance, such as agricultural data for crop output</p>
My data skills:	<p>Data collection (product level)</p> <p>Complex analysis</p> <p>Digital and data-centered development skills</p>
My data needs:	<p>Real-time data</p> <p>Identity data, product data, market data, open government data</p>
My data and digital environmental needs:	<p>Infrastructure with significant uptime (real-time data)</p> <p>A trust environment for my clients and my investment</p> <p>Legal, regulatory, and policy clarity</p> <p>Avenues to participate in government data-related procurement</p>
My contribution to the data environment:	<p>Public participation in policy development</p> <p>Private investment in digital and data infrastructure</p> <p>Collection and organisation of significant datasets</p> <p>Data skills development</p>



PRIVATE SECTOR

Private-sector user who uses data for research

My data user story:	<p>I am an academic who uses public demographic data and research-generated data for advancing knowledge in my university.</p> <p>I am a development consultant who uses public- and privatesector data for generating development knowledge for use by the government.</p>
My data skills:	<p>Data collection</p> <p>Complex analysis</p>
My data needs:	<p>Demographic data</p> <p>Open government data</p> <p>Market data</p>
My data and digital environmental needs:	<p>Infrastructure with significant uptime (real-time data)</p> <p>Open government data</p> <p>R&D direct investment</p> <p>Avenues to participate in government data-related procurement</p>
My contribution to the data environment:	<p>Content expertise for interpretation, analysis, and visualisation</p> <p>Collection and organisation of significant datasets</p>



PRIVATE SECTOR

Private-sector user who uses data for monitoring and accountability for good governance

My data user story:	<p>I collect budget and expenditure data from the government to monitor national-level procurement.</p> <p>I coordinate community monitors who collect data on the implementation of infrastructure project</p>
My data skills:	<p>Data collection</p> <p>Complex analysis</p>
My data needs:	<p>Demographic data</p> <p>Open government data</p> <p>Service and performance data</p> <p>Finance data</p>
My data and digital environmental needs:	<p>Access laws and accountability structures</p> <p>Support in establishing and maintaining data security</p>
My contribution to the data environment:	<p>Active participant in policy engagement</p> <p>Content expertise for analysis and visualisation</p> <p>Participation in enhanced good governance</p>



PRIVATE SECTOR

Citizen who uses data and information to participate in government and their social and economic lives

My data user story:	<p>I exchange my personal data for access to government services.</p> <p>I allow my data to be collected for enhanced security in my community.</p>
My data skills:	Basic digital literacy
My data needs:	<p>Open government data</p> <p>Government services</p> <p>Process information</p>
My data and digital environmental needs:	<p>Cybersecurity of government services</p> <p>Avenues for personal data breach accountability</p> <p>Avenues for enhanced control of personal data</p>
My contribution to the data environment:	<p>Participant in policy engagement</p> <p>Potential participant in data communities</p> <p>Data Subject</p>

