



Sierra Leone

National Innovation & Digital Strategy

2019 - 2029

Digitization for all: Identity, Economy, and
Governance



**DIRECTORATE OF SCIENCE
TECHNOLOGY & INNOVATION**

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INTRODUCTION

Sierra Leone, like many African countries, has a very young population coming of age during the Fourth Industrial Revolution: an era both defined by rapidly emerging new digital media and by complex global challenges, including climate change, migration and widening economic inequities. Advances in science, technology and innovation are shaping the world faster than many industries and governments can or know how to react. Artificial Intelligence (AI), Internet of Things (IoT), Blockchain, Quantum Computing, Biotechnology, Bioinformatics, and 3D Printing are some of the emerging technologies transforming the global economy, security and governance. These technologies, coupled with rapid automation, will create entirely new jobs while eliminating or significantly modifying many existing traditional sectors. This means all countries and governments must be prepared to be digital, and should create platforms for citizens to participate in this global economy. This transition to being digital led by Government and its partners, must be agile, well-directed, abundantly resourced, and critically secure. It should be accompanied by a vision that is developed with and for the people who will benefit from it.

The Government of Sierra Leone (GoSL), under the leadership of His Excellency President Julius Maada Bio, has developed a 10-year **National Innovation and Digital Strategy (NIDS) (2019-2029)** aimed at guiding Sierra Leone's investments, policies, and governance frameworks for the country's present and future development. NIDS situates Sierra Leone among regional and global leaders in the field of digital agile governance by focusing on effective service delivery, citizen engagement, and the digital economy driven by innovation and entrepreneurship. Such a transformation will reduce the cost of governance and reduce corruption while increasing national productivity.

While there are concerns about the security, privacy, and widening inequality driven by rapid advances in technology, GoSL believes these technologies will significantly enhance our humanity – enabling humans to focus more on the things that make us human. These advances will help public service leaders make effective data-driven decisions and help them to better connect with their constituents. Today, Sierra Leone remains close to the bottom of many global development indices with high levels of under-five and maternal mortality, high illiteracy and unemployment rates, and low human capital productivity. These metrics served as the impetus for GoSL to prioritize **human capital development** in its medium-term National Development Plan. More



specifically, the Bio Administration has identified **food security** (Sustainable Development Goal 2), **education** (Sustainable Development Goal 3), and **health** (Sustainable Development Goal 4) as the Government's priority sectors. To deliver on the National Development Plan, and to make Sierra Leone a prosperous nation requires new and radical thinking, coupled with detailed implementation, monitoring and evaluation plans. The small size of the country's economy and its recent socio-political history mean that for Sierra Leone to compete globally, it must innovate. The local creative and entrepreneurial economy must be bootstrapped through digitization. This is the path to social and economic independence and freedom.

Over the last two decades, several countries and regional institutions in Africa have developed policies for information, communication and technology (ICT), e-governance and digitization. These policies, from the African Union, the Economic Community of West African States, the Mano River Union, and other forward-thinking institutions informed the development of this current strategy. Locally, the first Sierra Leone National Telecommunications Act was developed in 2006. This Act provided the mandate for establishing the institutions to implement the ICT transformation of Sierra Leone under the supervision of the Ministry of Information and Communication. The 2006 Telecommunications Act was followed by an ICT Policy developed in 2009. A 2017 update to that Policy added to it Cybersecurity and e-Government frameworks.

In 2018, President Bio established the Directorate of Science, Technology and Innovation (DSTI) in the Office of the President and appointed Sierra Leone's first-ever Chief Innovation Officer to lead it. DSTI's vision is simple: to use science, technology and innovation to help the government deliver on its Medium Term National Development Plan (MTNDP) and to establish Sierra Leone as an '*Innovation Nation*' – a nation where agile, exploratory and research-driven start-ups and initiatives led by people of all ages can problem solve at the appropriate scale, and within the right economic, policy and regulatory frameworks.

The Sierra Leone National Innovation and Digital Strategy (NIDS) is a living document developed by the citizens and the Government of Sierra Leone as primary stakeholders, and in collaboration with relevant policy, technology and research institutions in the public and private sectors. While it is a ten-year vision, NIDS will be updated every 3-5 years as the technology landscape, and cycle evolves, and the activities described in the document are accomplished. This vision will be complemented by a clear strategic set of activities, targets and work plans across the country.



This is a National Innovation and Digital Strategy of the citizens, by the citizens and for the citizens of Sierra Leone.



PHILOSOPHY & PRINCIPLES

Philosophy: Digitization for All

The National Innovation and Digital Strategy is driven by one core philosophy- **Digitization for All: digital identity; digital economy; and digital governance.**

“Digitization for All” goes beyond just communications slogan. Rather, it embodies the realization that technology and scientific advances will fail to deliver national development and good governance for every citizen if digitization is not inclusive and available for all: the literate and illiterate, urban and rural dwellers, young and old, men and women, companies and individuals, public and private sector.

To drive this core philosophy, GoSL will focus on digitizing **identity** (individuals, assets, institutions, entities, etc.), the **economy** (financial inclusion, entrepreneurship, process optimization for government, businesses and industries, etc.), and **governance** (service delivery between government and citizens). This massive effort powered by robust digital data collection and analyses relies on Government and its partners to extend reliable and accessible connectivity for voice, text and data across the country. Coupled with the affordability of services and devices, this will make for ground-breaking distributed innovation at unprecedented scales across the country and in every sector.

1. Digital Identity

Identity is a right, and is vital for cultural, political and socio-economic participation for every citizen, regardless of who or where they are. In our rapidly digitizing world, it is essential that citizens are able to identify themselves securely and instantly within national borders and internationally. A unified digital identity to be used by governments and businesses will enhance service delivery and ensure the dignity of citizens who often are challenged to prove who they are. Digital identity also serves to improve security and reduce corruption. In Estonia, for example, nearly all 1.3 million citizens have state-issued digital identification which provides digital access to all of Estonia’s secure e-services. India’s AADHAR program is the world’s most extensive biometric identification system bringing digital identification to over 1 billion people. In Sierra Leone, the National Civil Registration Act 2016 gives the authority to the National Civil Registration Authority to perform integrated civil registration. This national registry will



serve as a platform for a national digital identification roll out in Sierra Leone for all citizens. Entities and assets including businesses, vehicles, land, and more will be digitized and linked to the digital identities of individuals and organizations in a systematic and secure manner allowing for a well integrated civic, cultural and economic wellbeing.

2. Digital Economy

Paper-based cash as an invention changed the world for centuries. However, in the 21st century, physical cash transactions are rapidly reducing around the world with China and many African countries leading in mobile money transfers. The Kenyan Central Bank's data show that close to half of Kenya's GDP was transferred via mobile money in 2018. Digital payment platforms, including payment gateways and aggregators, are advancing the development of financial technology (FinTech) infrastructure that brings secure transactions directly to citizens. In West Africa, the Bank of Sierra Leone (BSL) is a leader in seeding FinTechs and financial services. In the 2017/2018 financial year, BSL established a regulatory sandbox that enabled small scale, testing and deployment of innovative FinTech products, services, and solutions in a live controlled environment. The sandbox, which is in its second year, facilitates BSL's understanding of emerging technologies which are supervised by the regulators within specified parameters and timeframes. This serves as a springboard for digitizing the Sierra Leonean economy helping citizens build wealth in both the formal and informal sectors.

3. Digital Governance

In an increasingly digital world, governments need to evolve in their responsibilities and engagement with citizens. Governance (the bi-directional interaction between State and citizen) must become digital in service delivery and citizen engagement. For example, Mexico City engaged its 8 million inhabitants to crowdsource input into the city's constitution in 2017 using digital platforms and media that enabled citizens to contribute to the document.

Any citizen who interacts with government via a digital platform must do so through secure, private, effective, efficient and near real-time services. Access to education, health, voter registration, and other services must be seamless between citizens and their government. Digitization is also essential for supporting and expanding a core function of government: public financial management, and in the process also reducing corruption and increasing transparency and accountability. A fundamental goal in



digitizing governance in Sierra Leone is to facilitate and deliver on Sierra Leone's motto: Unity, Freedom and Justice.

Principles

To achieve the vision "Digitization for All," the National Innovation and Digital Strategy is driven by three fundamental principles. The principles are universal and are developed so that they can be adapted and adopted for implementation by local and international partners, including other countries. In Sierra Leone, these principles will be used to direct and align how the Government and its partners work; guide resource mobilization and investments into policy implementation, and drive support for research and development priorities across Government, academia and the private sector.

1. Mobile-First

Today, there are more connected devices – including mobile phones, IoT sensors and actuators – than there are people. This is true globally and in Sierra Leone. According to the GSMA Mobile Economy 2019 report, half of the African population will subscribe to mobile services by 2025. Sierra Leone has a mobile penetration of approximately 50% with a 24% mobile internet subscription rate (GSMA 2019). More than half of Sierra Leone's population lives in rural areas and a similar proportion actively participates in the informal economy. The singular technology that connects all Sierra Leoneans is mobile technology. As such, at the heart of this strategy is the development and availability of services that are optimized for mobile devices both in the public and private sector. This includes how data are acquired, how identity is verified, and how economic transactions are made. Neither the availability of network technology (2G/3G/4G/5G/Lte) nor the socioeconomic status or education level of citizens should determine the ability of citizens to access, utilize and benefit from basic digital services. This means placing focus on developing and improving USSD, SMS, and Interactive Voice Response-based solutions for the public and private sector. Good user experience and user-centered design are required for the roll out of solutions and their ultimate impact across society. This comprehensive approach would be the driver for investments in start-ups and government-led entrepreneurship initiatives. GoSL will further seek to support policies that promote investments in mobile.



2. Country-as-AI-Lab

The Country-as-AI-Lab model that Sierra Leone is embracing is firstly based on the theory that to address clearly defined societal challenges; a country must use both quantitative and qualitative research methods within the existing social context of that country. Secondly, the answers to those research questions are often best solved for and optimized at nation-scale. Sierra Leone will provide the platform for AI and data science research and prototype development to seed, scale and translate innovations for positively impacting citizens. To drive this focus on AI requires that Sierra Leone is home to applied academic and private sector research that spurs local creativity. The Government will support human capital development and state-of-the-art research advancement. Within this paradigm, GoSL has identified three sub-sectors: Applied Data Science for Governance; Evidence-based Policy Framework; and Citizen Centered Design.

i. Applied Data Science for Governance

Civic leaders are trusted by citizens to make informed decisions on their behalf. However, in this dynamic and complex world, there is often either incomplete, too much or misrepresented data. Within this complexity, and coupled with the erratic flow of information, it is increasingly difficult for leaders to make optimal decisions in the required time. Data science, and in particular AI, has transformed decision making in the private sector in the last ten years. However, its applications in national governance are still rare. Countries like Estonia and China have taken leadership in the development and deployment of AI-based solutions for governance. Around the world, the applications of effective AI solutions have been tested in several sectors, including healthcare diagnostics, precision agriculture and financial risk management. Sierra Leone recently began applying data science and AI methods to support decision making in the education sector to optimize learning outcomes for schools. The Office of the President routinely uses tangible data (3D printed representations of data) coupled with interactive and exploratory data platforms to support decision making. Government will continue to explore the use of these applications to support its functions for increased efficiency, transparency and broader impact on society.

In data science applications for social-justice and equity-based decision making there are ethical, trust and fairness questions to be asked of the algorithms and the systems. In these applications, there is a need for a “human in the loop” (HTL), where a human makes the final or critical decisions during the analyses. In countries where there are



extended historical digital and integrated data, HTL systems are often put in place as risk mitigation. For example, AI trained on data that are biased because of historical, social contexts like institutional racism, segregation or deep economic inequalities will need HTL systems as part of a broader deployment strategy. This is also true in countries and contexts where data volumes and quality are low. In Sierra Leone, the deployment of AI in Governance for effective decision making is centered on an HTL approach for an important reason: the human component brings in the value of our culture, context, history and identity while at the same time correcting for the social inequality and justice.

ii. Evidence-based Policy Framework

A challenge with rapid innovation and digitization is that the legal environment is often slow to catch up with the technology. The Government of Sierra Leone, through the Ministry of Justice, will work closely with all sectors including Ministry of Information and Communication, Ministry of Internal Affairs, Ministry of Planning and Economic Development, the Parliament, civil society, and development partners to develop the policy frameworks needed to protect the citizen and the State, and promote transparency. These legal frameworks include cyber security, data protection and the ethics around data sharing. Data are already a great resource for countries. How data are managed, linked, pre-processed and shared have direct impacts on national security, the economy, and good governance for both the private sector and the livelihood of citizens. These regulatory frameworks will work within government-established secure sandboxes that bring together the regulators and innovators, allowing the technology to grow while protecting citizens.

iii. Citizen-Centered Design

The mission of Government is to engage with and deliver efficient and effective services for all citizens. The Government also seeks to provide a safe and secure environment to enable citizens themselves to create value for society. Functional service delivery and effective citizen engagement must be driven by the contexts, perspectives and use cases of diverse citizens. GoSL will introduce standards, including data models, for the development of its electronic services, digital platforms and media, which would be optimized for the population of Sierra Leone. We believe that the cognitive, mental, literacy or physical ability of an individual should not exclude them from accessing digital services. Furthermore, a citizen-centered philosophy ensures that the local ecosystem is supported and strengthened. Government's engagement with the



public; finding digital champions; and supporting community participation will facilitate the ultimate uptake of these technologies.

3. Hybrid Technology Systems

Society often expects clear binary solutions: 'yes or no', 'on or off', 'public or private'. However, modern technology has blurred these lines through the development of state-of-the-art hybrid systems and algorithms. Today, there is almost no line between grid and battery energy systems; online and offline applications; or distributed cloud-based and local server solutions. The future will be increasingly hybrid, which means more need for system-wide solutions that are optimized to reach all citizens in and outside of conventional market segments. Sierra Leone seeks to take global leadership in the design and implementation of these hybrid systems using state-of-the-art technologies (virtual instances, computation on the edge, mixed reality, quantum computing, etc.) in collaboration with both established global companies and regional start-ups.



SHORT TERM STRATEGIC ACTIVITIES

The ultimate goal of a National Innovation and Digital Strategy is to guide national transformation through science, technology and innovation; research; and capacity development over the medium to long term. For the country to take advantage of these ideas and concepts, some practical initial activities must be prioritized. Several institutions of the Government have already identified and initiated some of these prioritized activities to be completed within 2-3 years. Successful implementation will require collaboration between government, the private sector, and development partners to facilitate Sierra Leone's digital transformation.

1. National Digital Identities

Disparate institutions in Sierra Leone collect personal data of citizens with and without a legal mandate. This is compounded by manual and paper-based data collection systems which are not integrated. These data are often collected, stored and used by each government entity disparately. Data standards are individually set. Where there are changes in the citizens' data, citizens have the onus to update their records in each database. Where this fails, it is difficult for both the government and the citizen to function efficiently. The financial burden, not to mention the time for citizens due to this inefficiency, is significant. A consortium of national institutions will set the standards for digital identities including data formats, data access and exchange working closely with existing government instruments.

This consortium will include the Office of the President, National Civil Registration Authority, Ministry of Justice, Ministry of Planning and Economic Development, Ministry of Information and Communication, Ministry of Internal Affairs, Ministry of Finance, Ministry of Lands, Housing and Environment, Right to Access Information Commission, Human Rights Commission, Office of the Registrar General, Sierra Leone Immigration Department, Sierra Leone Roads and Safety Authority, National Revenue Authority, National Social Security and Insurance Trust, National Commission for Social Action, National Electoral Commission, Public Service Commission, Directorate of Science, Technology and Innovation, Sierra Leone Police, Bank of Sierra Leone, and Statistics Sierra Leone.

Nearly 75% of the Sierra Leonean population has a verified digital and biometric record with the National Civil Registration Authority (NCRA). Over the next 3 to 5 years, GoSL is



targeting to maintain digital identities for 90% of all its youth and adult citizens. Each citizen will be registered and issued a unique National Identification Number (NIN) with digital biometric signatures through a simple, robust, secure and digital recruitment and verification process. These data will be linked to other datasets within government for integrated and effective service delivery across property and business management, tax and revenue generation, access to social services and benefits, public transportation, immigration and more. The datasets will be used as national assets for academic training, research and development, investment fund development, and entrepreneurial ecosystem strengthening in the goal of making Sierra Leone a leading digital nation in the region and around the world. These datasets will also be used as a seed for creating and using other digital solutions for citizens including blockchain-enabled digital wallets.

2. Applied AI for Governance

There are three focus areas in the Applied AI for Governance activity. The Government of Sierra Leone seeks to prepare and enable its citizens to participate in the Fourth Industrial Revolution and the global AI economy by building capacity in local universities. It will also enable start-ups and companies to translate advanced technology in Sierra Leone. Sierra Leone will be a platform for implementing nationwide AI systems for solving development and humanity challenges, particularly related to the achievement of the Sustainable Development Goals and the National Development Plan.

Listed below are some example use cases for development and application by government and partners.

Education

- Use of AI to understand the effect of school, student and teacher attributes on learning outcomes to inform prioritization of education interventions at all levels

Planning and Development

- Using AI and remote sensing technologies to monitor the status and impact of social and environmental interventions to better manage natural resources that contribute to national wealth



- Use machine learning and data visualization to understand the relationship between societal impact of projects, cost and their implementation plans

Healthcare

- Application of data science methods (including AI) to diagnostic images, genomics, mobility, environmental and other data analytical methods for automated disease diagnostics, predicting disease outbreaks, disease prevention, and identifying high risk groups for planning and resource allocation

- Use of AI to support junior-level and expert-level healthcare practitioners to make better healthcare decisions related to treatments and referrals in quicker time and for more people

- Use of an integrated community and technology approach to significantly reduce maternal and child mortality

Justice

- Use of AI to recommend and push social services to citizens and facilitate demand and access to justice for citizens living in the last mile

- Use of AI to lower or prevent corruption and criminal incidents through anomaly detection, natural language processing and data science

3. Infrastructure

Digital: Access to connectivity

Sierra Leone is a member of the Africa Coast to Europe Cable which delivers 83GB capacity to the country. Sierra Leone Cable Ltd (SALCAB) reports that internet penetration is around 13% of the population: 2% broadband and 11% mobile internet. It is estimated that only about 80% of the population, mostly urban, have access to basic (2G) mobile connectivity. As part of SALCAB's priority and mandate, it seeks to have resilient and redundant digital connectivity to citizens across the country, starting with schools and health facilities. For last mile connections, the National Telecommunications Commission, the Universal Access Development Fund and other



institutions are actively working to improving access to basic mobile connectivity to all Sierra Leoneans. GoSL supports public and private sector partners to implement affordable, reliable and accessible connectivity to drive the country's digital revolution. There are many other critical partners to this initiative including the telecommunications, transportation and energy sector. To support digital access, academia and the local start-up ecosystem will be essential for the development of digital solutions that drive and run on the infrastructure. Furthermore, a strategy and a framework for accessible and distributed energy are necessary for full connectivity.

Legal: A framework for innovation

In the spirit of innovation, technology cannot be regulated; only its use or applications can. In collaboration with citizens and experts, the Ministry of Justice will review and develop critical laws and regulations that protect citizen data, thereby promoting transparency between Government and citizens. While the most appropriate models that work for Sierra Leone and other similar African countries are still being researched, Sierra Leone's approach is to build a legal and regulatory framework much like technology itself: agile, end-to-end, and human-centered. This regulatory framework will consider open source regimes, sandboxes for live testing of technology and other innovative approaches that bring regulators, innovators and learners together.

Hybrid Systems: Designing for the edge

Sierra Leone, like many countries in the sub-region, has significant inequities in access to education, energy and digital services. This means that creating a digital economy that uses state-of-the-art solutions, it is essential to build hybrid systems that work for as many people in as many different contexts as possible. The country's approach to addressing this challenge is to focus on two research themes: 1) Virtual cloning, and 2) Low connectivity local networks (Zero G). In order to support these systems, essential elements include metadata, encryption and explicit regulatory frameworks that define data models and critical data for effective services for governance, private sector and citizen participation.



4. Security

Cyber Security and Quantum Computing

Data protection and privacy are two critical responsibilities of any government to its citizens. In any digital society, cyber security becomes incredibly important. State-of-the-art encryption methods are continually being researched and implemented. Sierra Leone wants to invite researchers and companies to implement quantum-safe networks on top of its national digital architecture in addition to the existing technologies. This is an area for active collaboration with the world's best academic institutions seeking to implement full-scale real-life quantum devices and networks.

Information Technology Standards

While IT standards are generally universal, they might need extensive tweaking in communities with low digital literacy compounded by low language literacy. The standards for IT development and implementation in our societies will require a different set of robustness to prevent and track cyber crimes and for optimal use and impact. In collaboration with other African countries, a set of regionally appropriate IT standards will be developed by public and private sector partners for citizen and business solutions using a continuous feedback mechanism of citizen engagement.

5. Entrepreneurship and Society

Incubators and Accelerators. Talk and Do

Ideas, prototypes, and demos need to be incubated and accelerated to promote start-up culture and for local technology industry development. Across universities, government spaces, and private institutions, a series of initiatives that promote youth innovation, small and medium enterprise support and product/solution translation will be enhanced. These include state-supported innovation challenges; idea and business pitch competitions; innovation sandboxes and more. Data, cash, and other kinds of support will be provided to participants as incentives. Resources to support these initiatives will primarily come from the Government and its partners. The Human Capital Development Incubator in the Office of the President and the UNDP Accelerator Labs are example initiatives already rolled out in Sierra Leone in 2019.



Research & Development and Academia

Academia and private sector R&D are critical for innovation. Higher technical and advanced institutions and companies across Sierra Leone will be supported to create the spaces for the best students in Sierra Leone and abroad to access the capacity, tools and resources to contribute to the ecosystem. Between 2018 and 2019, academic partnerships between institutions in Sierra Leone (including Njala University and University of Sierra Leone) and international institutions (such as Boston University, Harvard, MIT, Yale, and the University of Pretoria) saw the exchange of faculty, researchers and students.

In the Basic and Senior Secondary level, curriculum development that focuses on hands-on learning, computation and coding, comprehension and communication, and critical thinking will be enhanced. Teachers and educators will be given the support to explore new learning techniques that will enhance problem-solving in pupils. Furthermore, both Ministries of Education, that is, Basic and Secondary and Tertiary and Higher, will collaborate to develop a policy centered on Fourth Industrial Revolution technologies. These activities will seek to prepare Sierra Leonean students so that they can acquire the skills needed to compete globally in the 21st Century.

National Innovation Ideology: a Culture Shift

Citizens are the essential leaders who will drive Sierra Leone towards its goal of being an *Innovation Nation*. This is an ambitious agenda, and the Government does not have all the answers. As a country, we will learn, we will take action, and we will lead. It is time to transform our societies. The ideology to be shared across society is simple: We the citizens – the designers, scientists, artists, and civic leaders – are the problem-solvers who will transform Sierra Leone into a prosperous innovation nation. This cultural shift is necessary to capture all elements of the society– citizens, public sector employees and private sector – as actors in the national digitization effort. Everyone is relevant to achieving this national vision and we each have a role to play. National conversations about innovation and digital Transformation will capture and disseminate the aspirations, dreams, and commitments of our society (Government, Parliament, the Private Sector, Students/Academia, Civil Society Groups including churches and mosques).



6. Organizational Architecture

Sierra Leone has many of the existing legal and organizational frameworks to support its national digitization vision already. Some of those institutions will however need to evolve, and others merged and reformed. New ones will be created to support the national digitization process. As the country's efforts and needs change, so too will the organizations and institutions. Ultimately, these structures must be flexible and expanded to include and interface with others within the Mano River Union to promote cross border collaboration.

Information System Authority

A national authority instituted by law must be established for guiding the digital transformation of Sierra Leone: regulating public sector data models and their access; developing and managing government data exchange infrastructure; coordinating the development and administration of government information systems, technology and services; establishing data and security standards for digital systems and a mandate to upgrading systems across the public sector.

Data Protection

A body, either standalone or embedded within an existing authority, will be established to independently mediate digital data engagements including disputes and legal action between citizens or companies and the State. The entity will work as an extension of what is done by other entities like the Right to Access Information Commission. The overall objective is to increase transparency so that all citizens would know at all times who, when, why was their personal data accessed.



MEDIUM AND LONG TERM ACTIVITIES

Sierra Leone's NIDS is intentionally high-level- specific and more in-depth implementation plans will be developed for particular sectors over the medium and long term. NIDS will be updated as global technologies and their applications evolve related to data accessibility and protection; strengthening policy and the legal ecosystems for innovation; and service delivery for citizens. Below, are some target activities and dates for guiding public and private investments over the next 3-5 years.

- Ecosystem Mapping and Strengthening:
 - Engage and align stakeholders across government and the private sector to understand national capacity (policy, dataset and institutions) for innovation and entrepreneurship (2021)
 - Develop and prioritize appropriate policies, legislation and national institutions to support digital innovation within a thorough contextual and capacity review (2022)
 - Provide government subsidies and incentive structures for innovation and entrepreneurship at the individual and institution level (2023)
 - Support reskilling and upskilling programs in digital and advanced Science, Technology and Innovation fields in schools and beyond (2023)

- Data Systems
 - Establish standards for data collection, storing, and sharing (2023)
 - Develop metrics for evaluation of Sierra Leone's progress (innovation, entrepreneurship, R&D) in both urban and rural areas (2023)
 - Populate, validate, link and strengthen robust government digital registries (2025)
 - Establish digital tools and infrastructure for securely managing and sharing of confidential citizen data using state-of-the-art cybersecurity methods (2025)

- Service Delivery and Digital Solutions
 - Provide access to basic mobile and internet connectivity nationally by increasing mobile penetration rates and lowering costs for access (2025)
 - Develop interoperable and integrated e-Government solutions and services and enable online and mobile payment systems for digital and on-site services (2025)



CONCLUSION

The Sierra Leone National Innovation and Digital Strategy is an ambitious and feasible vision that charts how the Government, development partners and citizens can use science, technology and innovation to achieve the National Development Plan, the African Union's Agenda 2063, and the Sustainable Development Goals.

The Philosophy and Principles of NIDS are inclusive of all citizens, aspirational for Sierra Leone, and an invitation to Government and its partners to dream, explore and create practical solutions to accelerate human progress. Sierra Leone not only aspires to be a middle-income country with inclusive growth and a resilient economy, but it has a goal to do that through educated, empowered, and healthy citizens capable of realizing their fullest potential.

The levers for that national transformation are many and this Strategy offers the guidelines to drive collective action and accountability. Sierra Leone is a small, energetic and well-resourced nation historically known for being a center of excellence for education in the region. Today, it dreams of being a center of excellence for the development, application and use of state-of-the-art technology and innovation for the benefit of all Sierra Leoneans and mankind through the Philosophy of Digitization for all.



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