

GOVERNMENT OF THE GAMBIA



Ministry of Communications and Digital Economy

National Digital Economy Master Plan 2024 - 2034

The Government of The Republic of The Gambia

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I. Introduction

The Gambia Digital Economy Master Plan 2023 - 2033 is a comprehensive and strategic countrywide plan of action with flagship projects to promote and guide the growth and development of the digital economy. It is a holistic plan of action for the short, medium and long term that resonates with the respective strategies of all sectors and seeks to mainstream digitalization and digital transformation in all sectors of development by leveraging on technology, digital solutions, and services to ensure digital inclusion by connecting the unconnected and under-connected, create jobs, modernize and digitally transform the public sector, digitalize the traditional economies, sustainably develop the economy and as well ensure unnecessary duplications of resources and efforts.

This Digital Economy Master Plan 2023 - 2033 is anchored on the following ten (10) strategic pillars:

- Digital infrastructure (including connectivity and systems)
- Digital government, services, data, and data management
- Digital financial services & inclusion
- Digital entrepreneurship & innovation
- Innovation and business ecosystems
- Digital literacy & skills
- Cybersecurity and Data Protection
- Digital policy, strategy, legal and regulatory matters
- Digital cooperation & partnership
- Digital advocacy & policy dialogue

The Gambia is transforming into a fully digital state characterized by notable information technology innovation and entrepreneurship advancement. However, to accelerate the progress of the digital economy, the government must collaborate with private sector partners to create synergies and implement decisive actions to address several key objectives and challenges. Therefore, adopting a comprehensive approach through this master plan to establishing a flourishing digital economy is crucial.

The Gambia Digital Economy Framework



2 Background

2.1 General overview of the ICT and digital economy landscape

The Gambia is a small country in West Africa. It is one of the smallest in Africa, spanning over ten thousand square kilometers, and has a population of 2.5 million. However, it is one of the most densely populated countries in Africa, with 57% of the population concentrated around urban areas. Tourism, agriculture, and construction are the main economic sectors with growing services and manufacturing industries. The Gambia is a Republican State with a Capitalist Economic System. The State has a multi-party system with The President being both head of the state and head of the government. The government is a democratic government that exercises executive power, while legislative power is vested in The Parliament. The Table I found below highlights some Statistical indicators about The Gambia table.

Indicator	Value
Population	approx. 2,5 million
Total area	10,689 square kilometres
Urban/peri-urban inhabitation	More than 50%
GDP per capita in 2021 ¹	835,6 USD
Annual growth of GDP per capita in 2021 ²	5,6%
Unemployment rate in 2021 ³	11,2%
Access to electricity (of the population) ⁴	62%
Use of the Internet (of the population) ⁵	37%
Individuals owning mobile phone (of the population) ⁶	81%
Literacy rate ⁷	51%
Active mobile subscribers in 2021 ⁸ (2020) ⁹	2,7 million (2,637,032)
Active Internet subscriptions in 2020 ¹⁰	1,833,452

Table 1: Statistical indicators about The Gambia

The Gambia has made significant progress in expanding access to mobile and internet services, with mobile phone mobile internet penetration rate at 66.5 percent as of 2022. The overall digital transformation of The Gambia is in the developing phase. Organizations implement digital governance activities based on the level of their internal capacities, and central coordination has just started. Over the last few years, The Gambia has

¹ World Bank Data Platform: <https://data.worldbank.org/country/gambia-the?view=chart>

² Word Bank Data Platform <https://data.worldbank.org/country/GM>

³ Word Bank Data Platform <https://data.worldbank.org/country/GM>

⁴ Word Bank Data Platform <https://data.worldbank.org/country/GM>

⁵ Word Bank Data Platform <https://data.worldbank.org/country/GM>

⁶ 2020-2021 The Gambia SDGs Monitoring Survey <https://www.gbosdata.org/downloads/the-202021-gambia-sdgs-survey>

⁷ GBOS' s Communication Statistics Annual Report <https://www.gbosdata.org/downloads-file/communication-statistics-summary-report-2021>

⁸ GBOS' s Communication Statistics Annual Report <https://www.gbosdata.org/downloads-file/communication-statistics-summary-report-2021>

⁹ PURA 2020 Annual Report and Financial Statement (<https://pura.gm/wp-content/uploads/2022/07/PURA-ANNUAL-REPORT-2020.pdf>)

¹⁰ PURA 2020 Annual Report and Financial Statement (<https://pura.gm/wp-content/uploads/2022/07/PURA-ANNUAL-REPORT-2020.pdf>)

developed several policy and strategy documents to support the development of its digital economy sector including the development of common standards and protocols for data governance, interoperability, security, and privacy across different jurisdictions and sectors.

Government institutions have been restructured to lead the digital transition more efficiently. Establishment and development of The Gambia ICT Agency (GICTA), and government foresight have been great examples of that. However, the **activities are still sporadic, and processes are usually reactive**. The government's operating and development model is based primarily on external funding and the use of local resources with a dominant project-based management approach mainly focuses on single projects. Such an approach prevents the systematic development of e-government structures, smart service owners, and customers, as described in the digital readiness assessment report and other national strategy documents.

The development and implementation of an Electronic Records Management System (EMRS) under the management of the National Records Service (NRS) in the Personnel Management Office (PMO) of The Gambia illustrates the situation quite well – the system is being used in several government institutions. However, it is not fully implemented, integrated, or mainstreamed, and document exchange is one-sided, meaning it can only be used for receiving and responding to documents received. There are also cases of regional and global information systems where such information systems are managed by regional or global bodies including ECOWAS, AUC, African Development Bank, World Trade Organization, and other regional entities because of regional or global initiatives, in which, The Gambian public institutions act as users of these systems.

A dynamic **digital entrepreneurship and innovation sector is emerging**, with several incubators, accelerators, hubs, and networks supporting digital innovation, skills development, and micros, small and medium size enterprise (MSME) growth in The Gambia. However, the ecosystem faces **several challenges, such as limited access to finance, markets, and talent and regulatory and policy barriers** that hinder the growth and scaling of digital businesses. There are several e-commerce, e-learning, and e-health services, however recognition and high-level adoption still remains a challenge. In addition, efforts are being made in the areas of interoperability, data protection, consumer protection, financial literacy, and overall digital literacy, still there is room for improvement.

The Gambian national ID card system was successfully launched across the country and is part of the biometric identity card program of The Economic Community of West African States (ECOWAS), which uses similar standards as several United Nations and the European Union countries. The card allows a positive outlook for cross-border use and recognition in future services. An interoperability platform, public key infrastructure (PKI), and its development are the ambition but still missing due to insufficient budget, which if available will enable a robust Digital ID Application and Services within the country. The physical IT infrastructure view of the national ID system is the most comprehensively managed, but not all prerequisites have been created yet. Investing in a second international subsea fiber optic cable with a high-end Tier3/Tier4 data center is being pursued to further enhance the digital infrastructure needs of the country including the Digital ID System, Application and Services.

The Gambia has a solid potential to leverage digital technologies to improve public service delivery and governance and enhance citizen engagement and participation. Today, the public sector of The Gambia needs more capacity, resources, and coordination to implement effective digital transformation strategies and initiatives across different industries and levels of government. The Gambia has an opportunity to harness the benefits of the digital economy for advancing its social and environmental goals, such as increasing wealth, improving health and education outcomes, promoting gender equality and

inclusion, and mitigating climate change impacts. This requires further addressing the digital divide, ensuring that no one is left behind in the digital transition, and developing a holistic and integrated approach to digital policymaking that balances economic, social, and environmental objectives.

Out of many successful steps, The Gambia recognizes the importance of gender equality in its society. Accordingly, it has formally entered the Gender Equality Seal Certification Programme to assist public and private institutions in ensuring fair and equitable workplaces. The program is developed in collaboration with the private sector and governments to create certification incentives when commitments towards gender equality are met. As a result, the United Nations Development Programme (UNDP) Gender Equality Seal Certification Programme awarded The Gambia Country Office a SILVER level certification in the 2019-2020 round of the Gender Seal. This has been achieved through a focused partnership with the Gambia Chamber of Commerce and Industry (GCCCI) and the University of The Gambia (UTG) to mainstream gender equality in private sector companies in The Gambia.

Some underlying challenges that need to be addressed to ensure the prosperity of the digital economy include:

- **Unstable international fiber optic connections and domestic electricity networks** create disruptions in the foundation of the local digital ecosystem.
- **Internet coverage and unaffordable costs create a digital divide** between and within regions, sectors, firms, and individuals, limiting access to and participation in the digital economy for many people.
- **Government services are predominantly analogue**, and the interoperability, data management, and Keyless Signature Infrastructure (KSI) are not in place and are urgently needed for the foundation of new e-services in the country. Fully functional digital services are missing from basic service line-ups such as business registry, tax collection, and others.
- **Cybersecurity standards, frameworks, and systems need to pinpoint attention to the existing and upcoming services** to ensure the trust of its people and businesses towards the emerging digital economy in The Gambia.
- **With a saturated market, a few dominant platforms and firms hold the concentration of market power and data**, which reduces competition, innovation, and consumer choice.
- **The impact of automation and digitization creates skill mismatches, wage inequalities, job displacements, and social disruptions.**

To address these challenges, policymakers need to adopt a holistic and adaptive approach that balances the opportunities and risks of the digital economy. They must foster an enabling environment that supports **innovation, competition, inclusion, and trust in the digital economy**. They must also **collaborate with other stakeholders**, such as businesses, civil society, academia, and international organizations, to leverage their expertise, resources, and networks. Finally, they need a measurable action plan for all those aspects of the digital economy development.

2.2 National, regional, and global context of the digital economy

The information and communications technology and digital economy landscape are undergoing rapid and transformative changes, driven by advances in digital technologies such as cloud computing, the Internet of Things (IoT), big data, and artificial intelligence. These technologies are reshaping the markets, creating new opportunities and challenges for businesses, workers, and consumers, and shifting economic paradigms globally and in The Gambia. The following provides an insight into the national, regional, and global context of the digital economy and The Gambia.

United Nations Development Program’s (UNDP) Digital Strategy 2022-2025 long-term vision as depicted in Figure 1 below, is to create a world in which digital is an empowering force for the people and the planet pinpointing three whole-of-society approach directions of change – structural transformation, leaving no one behind, and building resilience.

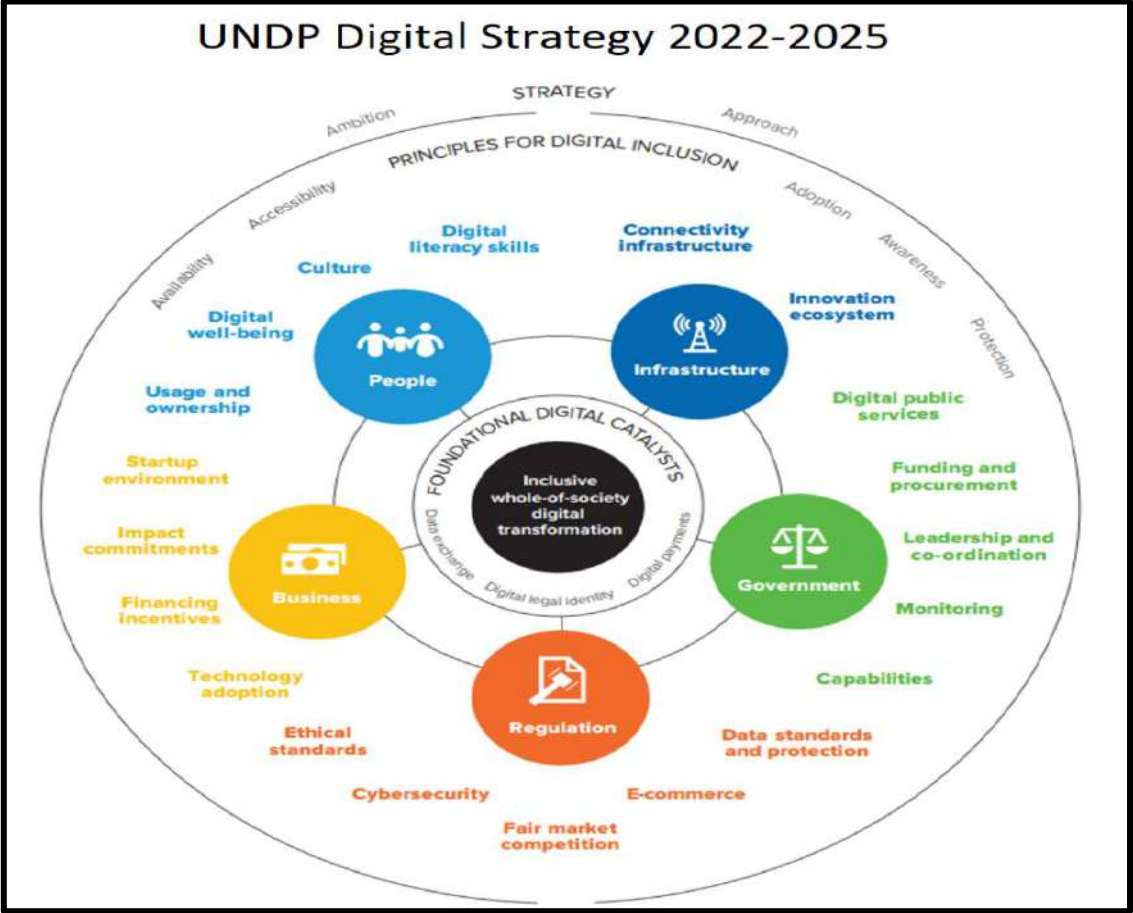


Figure 1: Source: www.undp.org

The National Context

The Gambian government has recognized the potential of the digital economy and has taken action to succeed in that. Successful steps have been taken in launching the first e-services, such as digital electronic birth certificates, The ASYCUDA customs management system, vital statistics database and Civil Service E-recruitment Portal. These experiences provide a promising path forward in switching from analog to digital on a national services level.

Ministry of Information and Communication Infrastructure (MOICI) now Ministry of Communications and Digital Economy (MoCDE) introduced various policies and strategies

with implementation timelines of "2020-2024 " including the Broadband Policy & Strategy 2020-2024, Cybersecurity Policy & Strategy 2020-2024 and other strategies. These policy and strategy initiatives includes significant goals such as **enhancing last-mile network connectivity, improving regulatory policies, reinforcing e-government and cybersecurity, expediting the establishment of regional ICT centers for communities and schools, advancing digital literacy for civil servants and the entire population, and fostering a favorable environment for local digital content creation**, and much more. It is crucial to capitalize on this progress and strategic guidance to ensure that identified priorities are efficiently executed while simultaneously addressing outstanding regulatory and legal gaps.

The Gambia ranked 174th out of 193 countries in the UN E-Government Development Index 2022 as indicated in Table 2, rising seven places following the prior survey conducted in 2020.

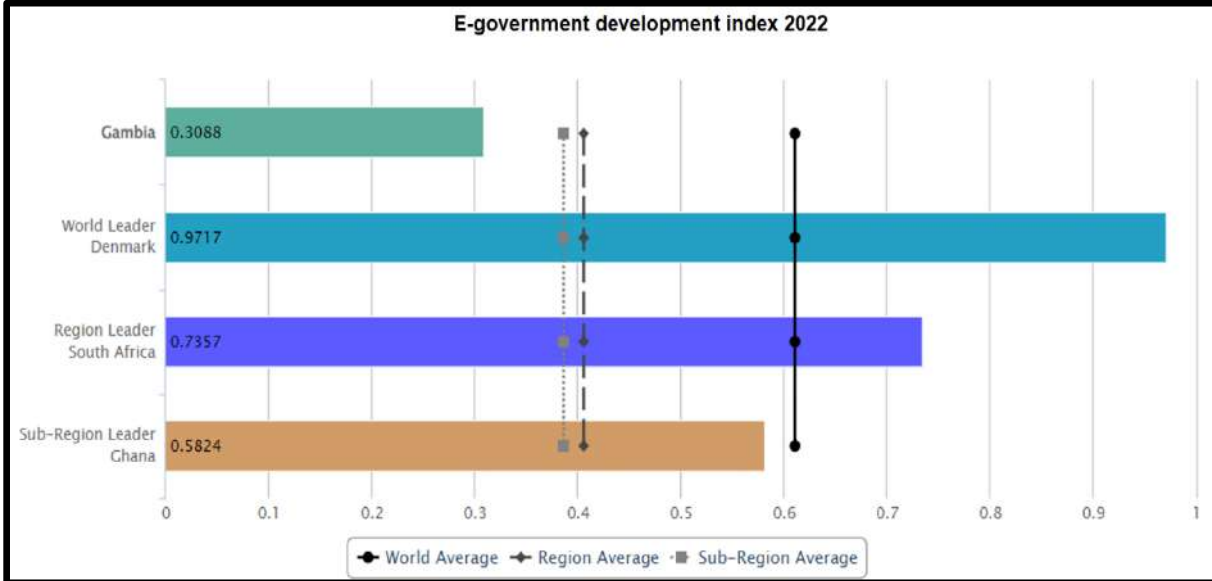


Table 2: UN E-Government Development Index 2022

The Gambia is heavily dependent on the Africa-Coast-to-Europe (ACE) submarine fiber optic cable as a primary international telecommunication link, which has reached the halfway point of its technical lifespan with remaining four (4) years legal lifespan and is experiencing frequent damages and disruptions, highlighting the need for alternative redundancy international submarine fiber optic cable network(s). However the torrential network through Senegal serve as a backup capacity. The national fiber optic backbone network is relatively well-developed. Access to fixed broadband is well below the global average. According to Public Utilities Regulatory Authority (PURA) as of December 2020 there were of 41,612 subscribers connected to the last mile fixed broadband internet. **The country’s internet penetration rate stood at 51,0 per cent of the total population at the start of 2022, with internet users increasing by 2,9 per cent between 2021 and 2022.** At the same time, mobile phone penetrations seem high due to multiple phones per user. As of data provided by GSMA Intelligence, there were 4,22 million cellular mobile connections in The Gambia in 2022.

The Gambian Education and Skills Development Institution (KGESDI) aims to achieve 75% digital literacy among the government workforce and 65% digital literacy among the national workforce by 2024. In addition, The Africa Higher Education Centers of Excellence (ACE) project and existing Technical and Vocational Education and Training (TVET) institutions are

focused on enhancing higher education quality, teaching proficient and competent professionals in fields such as science, technology, engineering, mathematics, health, and agriculture to meet human capital demands. However, **more investments are needed to ensure that all university students have access to broadband internet, computers, and mobile devices for online learning**, to satisfy the private sector's expectations, necessitating a skilled workforce to sustain their operations.

The Gambia has shown great initiative in entrepreneurship by building its next generation of entrepreneurs. **Startup incubator centers have emerged with co-working spaces with digital tools and connectivity, mentorship, competitions, and other critical enablers of vibrant private sector innovation.** Local business angels' network is rising; Startup Grind Banjul, Jokkolabs, and numerous other collaboration platforms and networks are being kick-started, enabling more Gambians to participate in the entrepreneurship and innovation ecosystem. In addition to local businesses, official language of The Gambia is English, making it an attractive foreign direct investment location for IT service centers.

The Regional Context

Nearly 300 million Africans live more than 50 kilometers from a fiber or cable broadband connection, making **high-speed internet availability a significant hurdle for digital transformation.** In the Telecommunication Infrastructure Index, The Gambia demonstrates results below the world average. Still, it has increased its score by 6% compared to 2020 and is better than the region's average. Africa's Digital Transformation Strategy (ADTS) aims to close the digital infrastructure gap by guaranteeing investment and financing to achieve accessible, affordable, and secure broadband across demography, gender, and geography. The ADTS also aims to bring an additional 300 million people in Africa online by 2025. The private sector is vital in implementing the digital transformation strategy by developing network infrastructure such as independent broadband operators and tower companies. The importance of private sector involvement in the digital development of the African Union is on the rise. An instance of this is the World Bank's All Africa Digital Economy Moonshot Initiative, which seeks to digitally link every person, enterprise, and government in Africa by 2030 with private sector investment.

The digital economy is expected to proliferate, with The African GDP global ICT industry projected to increase. International Finance Corporation (IFC) and Google 2020 Economy Africa Report find that Africa's internet economy can potentially reach US\$180 billion or 5.2 per cent of the continent's gross domestic product (GDP) by 2025. However, this growth is not guaranteed and depends on countries making the Internet universally accessible and affordable while strengthening analog foundations such as skills, regulations, and institutions. In the UN E-Participation index as shown in Table 3, which measures the use of online services to facilitate the provision of information by governments to citizens, interaction with stakeholders, and engagement in decision-making processes, **The Gambia has been ranked 143rd in the world among 193 countries, also placing it behind many African states.** The ranking might quickly change as the use of services in cross-border e-trade is expected to go up with the newly launched ASYCUDA customs management system.

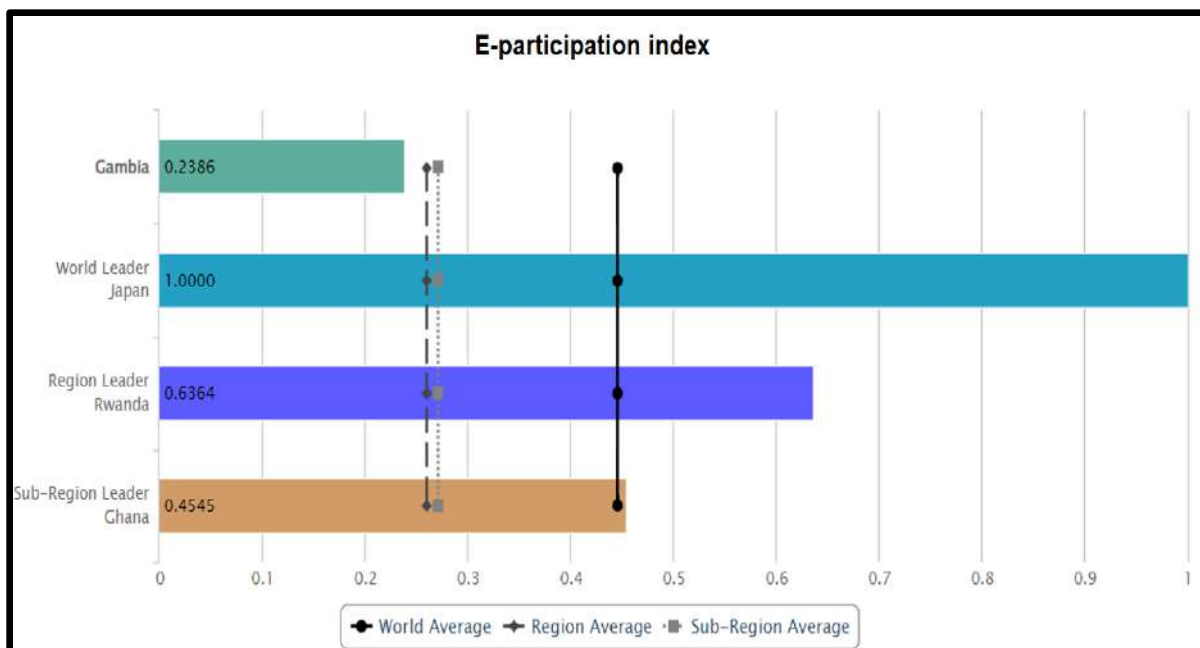


Table 3: UN E-Participation Index 2022

The biggest challenge for digital transformation in Africa is strengthening coordination, aligning policies and regulations, and scaling up investment and resources. In recent years, the increased internet use in Africa has resulted in a five-fold increase in cyberattacks due to a lack of cybersecurity frameworks in most countries. For example, **the Gambia ranks 107th on ITU's Global Cybersecurity Index, scoring 32.12, placing it in the 20th position within the region.** The African Union Commission and many other partners are working with African states to address these challenges by harmonizing laws and regulations and driving leadership for necessary reforms. The Gambia has already initiated some cybersecurity frameworks on its own such as Directorate of Cyber Security, National CSHIRT, Formulation of Cyber Security Bill, National Cyber Security Strategy, and 2019 Malao Convention and provision.

With increased collaboration in developing digital infrastructure and capabilities in Africa's public and private sectors, the region can gain significant benefits and better leverage the opportunities presented by the digital future. The African Union has set 16 objectives, including building a Digital Single Market by 2030 and digitalizing agriculture, health, and education sectors. World Bank suggests that when reaching the African Unions' 2030 "Digital Transformation for Africa" goal of universal and affordable internet coverage, the real GDP growth per capita can increase by 5% annually and reduce poverty by 2.5% annually across Sub-Saharan Africa (ECOWAS). In addition, with the leadership of The Economic Community of West African States, many countries have launched a national ID card system that uses similar standards as several United Nations and the European Union countries. This allows a positive outlook for international interoperability and future cross-border services.

With African Unions Agenda 2063 as depicted in Figure 2, its nations aspire to become a prosperous continent with shared prosperity through social and economic transformation with inclusive growth and sustainable development.

African Union's Agenda 2063



Figure 2: Source: www.idsa.in

The Global Context

Digitization is globally taking place at unprecedented levels. According to McKinsey research, the world will be experiencing more technological progress in the coming decade than in the preceding 100 years. Understanding the effects of technological change can help avoid shocks to the system for nations, organizations, and individuals. **Around half of the global work activities could be automated in the next few decades** as next-level process automation and virtualization are becoming more commonplace. According to Statista, in 2018, enterprises that had undergone digital transformation made up 13.5 trillion U.S. dollars of the global nominal GDP. By 2023, this figure is expected to rise to 53.3 trillion U.S. dollars, representing more than half of the overall nominal GDP. This indicates that the global economy is on the brink of being dominated by digital technology.

McKinsey estimates that more than 60% of work done by public administration officials could be automated. By 2025, more than 50 billion devices will be connected to the Industrial Internet of Things. Faster digital connections powered by 5G, and the Internet of Things have the potential to unlock economic activity. Robots, automation, 3D printing, and more will generate around 79.4 zettabytes of data annually. Implementing faster connections in mobility, healthcare, manufacturing, and retail could increase global GDP by 1.2 trillion to 2 trillion U.S. dollars by 2030. AI is one of the biggest tech trends, and we are still only in the early days of its development. Next-generation computing will help find answers to problems that have held back science and society for years, unlocking unprecedented business capabilities.

According to World Bank, in 2022, around 3 billion people still lacked access to the Internet, with the majority concentrated in developing countries. Even in areas with mobile broadband coverage, 43% of the world's population did not use mobile Internet in 2021. Around 850 million people worldwide cannot verify their identity, limiting their access to digital services

and opportunities. The digital gender gap remains significant as 259 million fewer women than men have internet access, despite women comprising nearly half the global population. The share of Internet users in urban areas is almost twice that in rural areas, and in low-income economies, only 39% of young people aged 15-24 use the Internet compared to 23% of the rest of the population. Digital technologies offer a unique opportunity for countries to drive economic growth, provide access to services and employment, and keep people connected during times of crisis.

According to International Telecommunication Union (ITU), information and communication technologies provide the means for tenable nations to deliver high-quality services and goods in governance, education, healthcare, finance, retail, tourism, agriculture etc. It boosts health and well-being, creates jobs, mitigates climate change, reduces poverty and hunger, improves energy efficiency, and makes the environment and communities more sustainable (Source: www.itu.int). Information and communication technologies can help accelerate progress towards every single one of the 17 United Nations Sustainable Development Goals (SDGs) as shown in Figure 3 below.



Figure 3: Source: www.un.org

Digital by default is the new approach, and trends such as digitally compatible legislation are becoming more critical as governments move toward the digital future. Modeling legal rules as visual code helps make the underlying logic of the rules more accessible and helps pinpoint common challenges to service digitization. Global digital trends demand governments review and update curricula in their education system to focus more on the most relevant skills for the future of work. McKinsey research recommends that governments introduce a skill-based certification system that can adapt to the changing occupations and skills and fund schemes that encourage lifelong learning and adult training to ensure they can fulfill their potential in the labor market.

The African Union Digital Transformation Strategy (DTS) and The EU Digital Roadmap overlap in areas such as the digital transformation of public administration, digital solutions related to connectivity, and leveraging digital transformation to improve education and skills. The EU and the African Union aim to work towards a digital transformation that benefits the people. The DTS aims to harness digital technologies and innovation to transform Africa’s societies and economies. It is anticipated

that in 2022, the overall volume of Global Internet Protocol traffic, both domestic and international, will surpass the cumulative amount of Internet traffic recorded until 2016. Most cross-border data transfers occur between North America and Europe. However, the largest data traffic in Africa continues to be with Europe, with a significant growth trend as shown in Table 4 below.

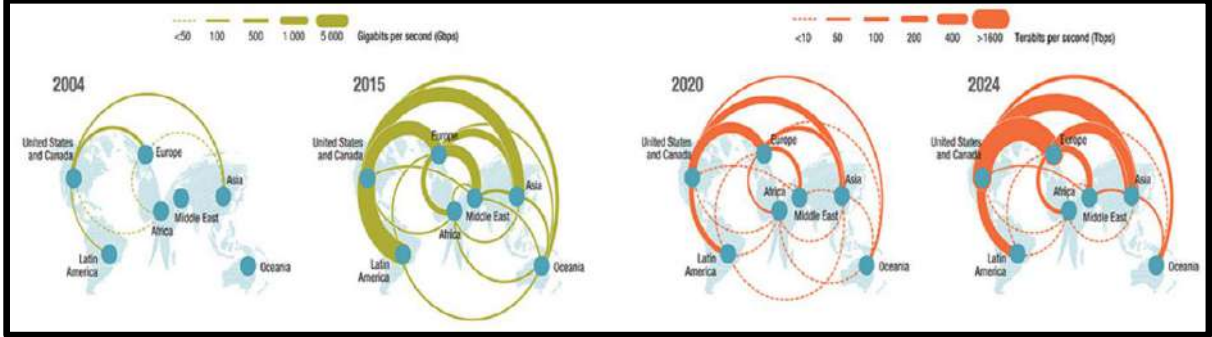


Table 4: Global Internet Protocol traffic 2022

One of the DTS objectives is to design and implement innovative financing models to digitally transform Africa with an incremental investment of 20 billion U.S. dollars from 2020 – 2025, growing to 50 billion U.S. dollars a year from 2026 – 2030. The DTS will build on existing initiatives, frameworks, and “Flagship Projects.” Digital transformation is also one of the key pillars of the EU’s new engagement strategy with Africa. ICT projects in Africa are financed by Development Finance Institutions and the private sector, giving space for the private sector from local, regional, and global markets to gradually play a more significant role in several stages of the project cycle.

The World Bank Group framework for digital development as shown in Figure 4 below, is built on digital foundations such as digital connectivity, data infrastructure, ICT industries and job establishment etc. These foundations with related accelerators will facilitate digital development across sectors and drive social and economic development.

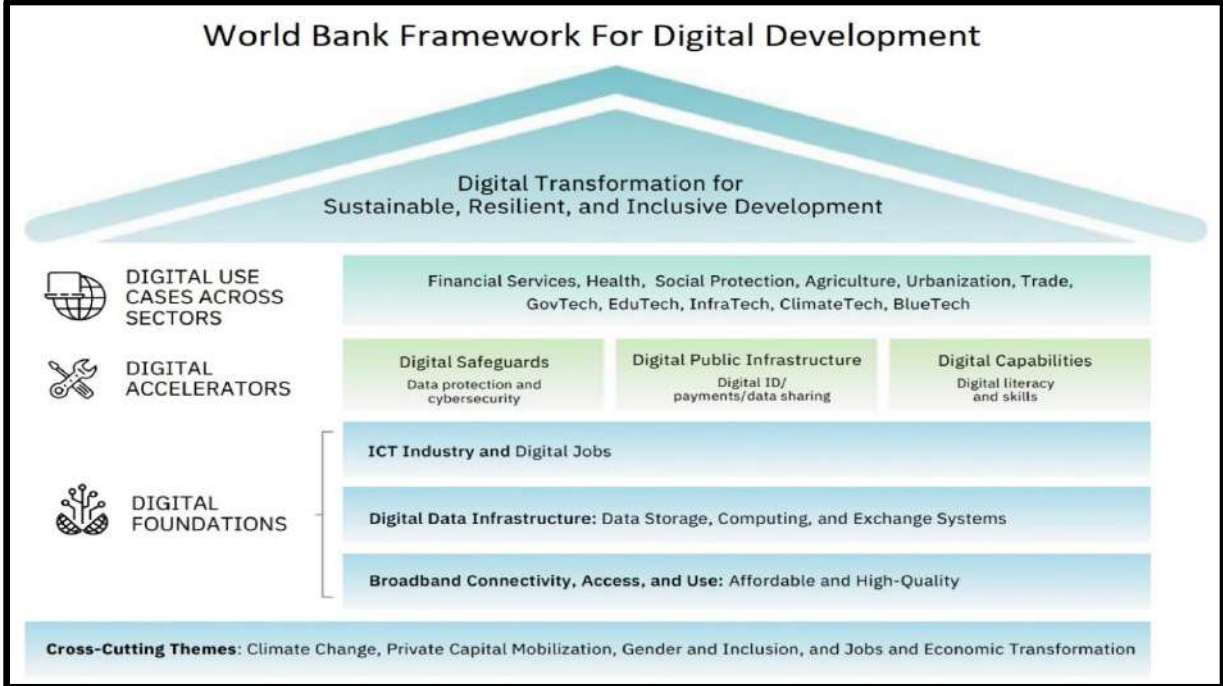


Figure 4: Source: www.worldbank.org

2.3 Vision, purpose, objectives, guiding principles, priorities.

Vision

- **The Gambia – as the most advanced digital society and IT innovation hub in Africa.**

Purpose

- The Gambia transformed into a **fully digital state** with flourishing information technology innovation and entrepreneurship. The digital economy master plan is a comprehensive countrywide plan with flagship digitization projects that leverage technology, digital solutions, and services to connect the unconnected and under-connected, spur the development and adoption of digital services in critical sectors such as education, health, transportation, agriculture, trade etc., create jobs and innovation, and develop the economy towards a skills and knowledge-based economy.

Top 5 objectives

1. **Modernization of the nationwide digital infrastructure** with comprehensive last mile connectivity, dual international fiber connection and high-end data centers.
2. **Information society regulatory, policy, and law frameworks in place** covering, for example, digital identity, digital payment, e-services, cybersecurity, and open data.
3. **Interoperability, data systems, PKI & KSI infrastructure and fully digital identity system to be developed** as the foundation of all new e-services.
4. **Digital Transformation and Modernization of the Public Sector including rolling out of 500+ secure, trusted, easy to use omnichannel digital public sector services enrolled throughout the country** that are the preferred choice of government-to-citizen and government-to-business interaction.
5. **Nationwide ramp-up of IT, ICT and Digital education capabilities and establishment of 100+ digital entrepreneurship and innovation hubs** in collaboration with education system and tech firms.

Top 5 guiding principles

1. **Public and private sector collaboration** thriving towards excellence in digital skills, digital inclusion, digital infrastructure, digital security, digital innovation, and entrepreneurship.
2. **Lead by example** as a government by continuously enrolling new advanced digital services and be a digital leadership role model and inspiration to IT talent and entrepreneurs.
3. Every new service is designed **digitally ground up and omnichannel by default**.
4. Information is distributed between institutions, cross-used, and entered the system by a **once-only principle**.
5. **Continuous improvement in all aspects of IT** is fundamental to ensure the fast-track digital development of The Gambia towards the most advanced digital society and IT innovation hub in Africa.

Top 5 Priority Intervention Areas

The following are the topmost 5 priority interventions area for the Ministry of Communications and Digital Economy (MoCDE), The Gambia that has been initiated and championed by the Honorable Minister that he will wish to achieve during his tenure in office.

1. **Roll out of a secondary submarine cable:** The Ministry is prioritizing the roll out of a Secondary Submarine Cable to provide adequate redundancy for the ACE Submarine Cable (addressing redundancy in the first mile) and also help strengthen the Gambia's digital sovereignty. The secondary submarine cable will also provide adequate capacity to support efforts for rapid digital transformation.
2. **Establishment of a Tier 4 National Data Centre:** The establishment of the Tier 4 Data Centre will enable the provision of secure and reliable hosting and other data center services for both public and private sector. The tier 4 data center will also strategically position the Gambia as a regional hub that can provide Data Centre services for tech giants and transnational firms including banks and other critical businesses.
3. **Deployment of an Integrated payment gateway:** The Ministry is prioritizing the deployment of an integrated payment system in a bid to advance digital payments and drastically reduce cash transactions in the economy. The benefits of the integrated payment gateway also include increased revenue for government due to the improved efficiency in collection. The payment gateway will also foster financial inclusion especially for those in rural Gambia.
4. **Digital Government Development:** The Ministry continuously priorities the consolidation and strengthening of the gains of the e-government program. Short- and medium-term interventions will include the development of a one-stop shop for government services (Common Services Centre). This platform will allow citizens to access a wide range of government services online in real time. Digital government development efforts also include the establishment of a Government Service Bus & an Open Data Platform that would enable Government entities and associated systems and e-services to integrate and effectively share data among themselves.
5. **National Digital Identity initiative:** This initiative will focus on creating a robust interactive platform that assigns unique digital IDs to all Gambians from birth. The merits of digital ID include providing more accurate data to support policy making, social development interventions, easing economic activities for the citizenry and strengthening national security amongst others.

3 Pillars

The Gambia Digital Economy Master Plan 2033 consists of 10 pillars that guide the development of The Gambia to a fully digital state powered by resilient digital infrastructure and cutting-edge digital technologies with flourishing information technology innovation and entrepreneurship. Each of the 10 pillars are key enablers to; realize an advanced digital state and digital society powered by resilient digital infrastructure, ensure effective and efficient

service delivery to citizens and businesses, and are also crucial in bolstering business and economic activities for economic growth and societal transformation.

Pillar 1 - Digital infrastructure

The Gambia will invest in digital infrastructure, including broadband connectivity, to improve access to digital services. The government will also develop robust systems and data infrastructure to support digital innovation, entrepreneurship, and business growth.

Pillar 2 - Digital government, services, data, and data management

The Gambia needs to digitally transform and modernize its public sector business processes and will establish a robust digital identity system and services to enhance the efficiency and effectiveness of service delivery and develop a comprehensive data management system to collect, store, and analyze data for policymaking and decision-making purposes in the cohesion of strict data protection and privacy.

Pillar 3 - Digital financial services & inclusion

The government will strengthen, promote, and invest in digital financial services, including digital payment systems and services, to achieve financial inclusion and promote economic growth.

Pillar 4 - Digital entrepreneurship and innovation

The Gambia will promote digital innovation, entrepreneurship, and digital businesses through targeted policies and programs. The government will also prioritize the development of a supportive ecosystem for digital businesses, including associations and triple-helix cooperation.

Pillar 5 - Innovation and business ecosystems

The Gambia will prioritize the development of innovation and business ecosystems that support the growth and development of the digital economy. This will include establishing associations and triple-helix cooperation between the government, private sector, and academia to drive innovation and promote entrepreneurship.

Pillar 6 - Digital skills including youth and lifelong learning programs

The government will prioritize the development of digital literacy and skills among the population through targeted training programs and initiatives to equip citizens with the necessary digital skills to participate fully in the digital economy.

Pillar 7 – Cybersecurity and Data Protection

The government will strengthen cybersecurity and data protection to protect citizens and businesses from cyber threats and promote trust in the digital economy.

Pillar 8 - Digital policy, legal and regulatory matters

The government will develop policies, strategies, legal and regulatory frameworks, standards, protocols, and guidelines to support the growth and development of the digital economy. These frameworks will be developed with relevant stakeholders to ensure inclusivity and transparency.

Pillar 9 - Digital cooperation and partnership

The government will foster digital cooperation and partnership with regional and global actors to promote the growth and development of the digital economy. This will include collaboration on digital infrastructure development, knowledge sharing, and capacity-building.

Pillar 10 - Digital advocacy and policy dialogue

The government will advocate for policies that support the growth and development of the digital economy. This will include engaging in policy dialogue with relevant stakeholders and promoting public awareness of the benefits of the digital economy.

3.1 Digital infrastructure (including connectivity and systems)

The digital infrastructure pillar focuses on the country's digital infrastructure that enables access to digital services and technology, improving digital connectivity and systems and fostering a culture of digital innovation.

A baseline for any digital economy is its **physical infrastructure** that acts as a foundation for all its digital services, business models, and transactions. From a broader angle, this foundation needs to provide fast, stable, secure and affordable connectivity both on an international and domestic level covering all regions within the national borders via cable, cellular and or satellite connections. Digital inclusion, enablement, and engagement of Gambian people to participate in developing the digital economy starts with their ability to access the internet via different devices used in society, including desktop computers and mobile devices. Therefore, the **digital connectivity infrastructure** enables its digital economy and society.

Like many other fast-developing nations, the Gambia faces significant challenges in building digital infrastructure. The government has prioritized improving digital connectivity, systems, and data management to improve the country's digital economy. The Gambia's Information and Communication Technology for Development Policy Statement 2018-2028 recognizes the challenges faced in building digital infrastructure in the country, stating that the Gambia's ICT infrastructure is not yet fully developed, with low penetration of key infrastructure components such as fiber optic cables and data centers. According to the World Bank Group's Digital Development Partnership (DE4A) report, the country's limited resources have resulted in low investment in digital infrastructure, slowing down the country's progress in building digital connectivity and systems.

The Gambia's primary international traffic is routed through the African Coast to Europe (ACE) cable, which has experienced several cable cuts in recent years and has been the cause of repeated internet outages in the country. For example, the country's single submarine fiber optic cable was damaged, and a terrestrial backup route to Senegal broke down simultaneously, resulting in unprecedented digital disconnection for more than a day. Despite these challenges, The Gambia has an overall internet resilience index of 43% and is ranked

29th in Africa. Additionally, the high cost of digital services and technology has made accessing them difficult for many Gambians. In 2022 there were 4.22 million cellular mobile connections in The Gambia, equivalent to 167.3 percent of the total population, and 1.29 million internet users with an overall internet penetration rate of above 50% percent of the total population.

Furthermore, the Gambia has a limited fiber-optic network in the first, middle and last mile, and most of the country's internet connectivity traffic is via ACE International Submarine Cable with limited capacity terrestrial redundant link from Senegal or via sometimes satellite. This limits the bandwidth and quality of internet connectivity in the country, affecting digital service delivery. On the other hand, the high mobile penetration rate in The Gambia presents an opportunity for the country to leverage mobile technology to deliver digital services to its citizens.

The Gambia is one of the smallest countries in continental Africa and faces many fragility drivers. The country is undergoing many reforms, with over half of the population living above the national poverty line and over half of the workforce today getting formal schooling. **Access to basic services has significantly improved but needs to be improved across regions while administrative capacity remains limited.** Nevertheless, there have been many improvements in recent years, such as increased electricity access rates, renewable energy uptake, youth literacy rates, and increasing uptake of digital technologies among enterprises and individuals.

Despite the challenges, several initiatives are being undertaken to improve digital connectivity and systems in The Gambia. One of the key initiatives is the National Broadband Network (NBN) project, which aims to provide high-speed internet connectivity across the country. The project has been implemented in partnership with the African Development Bank, and has been completed in 2019, resulting in improved internet penetration and connectivity. In addition, a steady electricity supply has always been a problem in the Gambia. Recent cooperation with European Investment Bank and The European Union will enable the Gambia to be the first country in Africa to provide renewable energy electrification for all public schools and health facilities.

To improve and strengthen the digital infrastructure in The Gambia, there is a **need to develop a robust data center ecosystem.** This will require the development of world-class data centers that can host critical infrastructure and provide cloud services to businesses and individuals both at national and regional or global level. Currently, the country has several base-level data centers that are private sector facilitated, including the GAMTEL Private Cloud Data Center, Government e-Government Mini Data Center and the West Africa Internet Exchange Point Data Center. These data centers provide hosting services, cloud computing, and other related services to their customer base or public institutions.

The Gambian government is also sougning for partnership to establish an internationally recognized national Tier 4 data center in The Gambia to boost a reliable platform for hosting digital services and applications. It aims to centralize and provide secure and reliable storage for government, private sector, businesses and citizens data and a platform for delivering e-government services to citizens. The government can offer incentives to companies willing to invest in the envisaged national Tier 4 data center or future invest in it once established. In addition, it can work with international partners to ensure that this envisaged data center meet international standards.

This envisaged national Tier 4 data center would serve as hubs for cloud computing services in the subregion, helping reduce the nationwide operational cost of digital services. In the skills domain, The Gambian telecommunications company Gamtel has partnered with the private

sector to establish a training center that offers courses in network maintenance, software development, and ICT project management plus some other existing similar training centers or institutions, all to address or reduce the digital infrastructure skill gaps in the country.

The government has also implemented several policies and regulations to support the development of digital infrastructure in The Gambia. In 2018, the government published the Information and Communication Technology for Development (ICT4D) Policy Statement 2018-2028, which outlines the government's vision and strategy for developing ICT in The Gambia. The policy statement emphasizes the need to establish a digital economy and the importance of digital infrastructure in achieving this goal. The policy statement sets out several key objectives for developing digital infrastructure, including expanding broadband connectivity, establishing data centers, and promoting innovation and entrepreneurship in the ICT sector. In addition, the Gambia's national broadband policy outlines the need to create a holistic framework for the country to fully harness new technologies such as the Internet of Things (IoT), data analytics (DA), and artificial intelligence (AI).

The ICT infrastructure relies on electricity infrastructure development and sometimes they reinforce each other, and the latter is extensively being carried out throughout the country, covering both grid and renewable energy expansions. Strategic Roadmaps such as Universal Access by 2025 and transforming the Gambia Electricity Sub-sector play a key role in providing a reliable base for the functioning of ICT infrastructure. The Government has set an ambitious goal of providing universal access to electricity for all Gambians by 2025, making it one of Africa's first countries to achieve universal access. The Government of Gambia is successfully implementing The Programme for Accelerated Community Development (PACD) Rural Electrification Project that will extend electrification to seven additional villages in the North Bank Region. In addition, the new Global Gateway project of the EU is accelerating the implementation of the Gambia Renewable Energy project, which electrifies schools and health centers across the Gambia with reliable green energy, benefiting more than 1000 rural schools and 100 health centers. The project transforms electricity access in rural communities nationwide. It ensures that education and health services benefit from reliable and clean power. Once fully operational, the Gambia Renewable Energy project will increase the energy supply in the Gambia by one-fifth.

Out of many successful initiatives and plans, **there is still a further need to increase investment in digital infrastructure.** The government can explore partnerships with the private sector and international organizations to mobilize resources for digital infrastructure projects. **An alternative way to improve digital infrastructure in The Gambia is to promote public-private partnerships (PPPs) that can provide financing for digital infrastructure projects.** PPPs can unite government entities, private sector organizations, and multilateral institutions to leverage each other's strengths and resources. In addition, PPPs can enable sharing of risks and costs associated with digital infrastructure projects, which can be particularly useful in countries with limited resources.

Digital infrastructure projects that leverage new technologies like FTTX, 5G wireless networks, Internet of Things (IoT) devices, and cloud computing services all have the potential to enhance the growth of the digital economy significantly. However, the performance and reliability of this type of modern infrastructure require complex investment and technical expertise. Therefore, it will be important for The Gambia to collaborate with international partners and local private sector organizations to identify and implement best practices for these segments.

The Gambia has made progress in recent years in expanding its telecommunications network and increasing the number of internet users. However, **the international fiber network**

needs further strengthening. National Fiber Optic Backbone Network should be extended to connect all major cities and towns, providing high-speed internet access and facilitating the expansion of digital services to underserved areas starting from the Greater Banjul Area and expanding towards the West Coast Region or other Regions. In addition, considering the remaining digital divide across the country, particularly between urban and rural areas, **The Gambia should consider enabling further access to affordable high-speed Internet across the country.** This could include initiatives or business models to promote competition in the telecommunications sector, subsidies for Internet access for low-income households, and infrastructure projects to connect remote and underserved areas to the Internet. Addressing the high costs of digital services can be further achieved by implementing policies that promote competition in the digital services market and reducing taxes for infrastructure operators.

Satellite technology can also be critical in improving digital infrastructure in The Gambia, especially in rural and remote areas. For example, satellite technology can provide high-speed internet connectivity to communities that are not reached or are too costly to be connected by traditional fixed-line infrastructure. The government can work with satellite providers to implement this technology. In addition, it can provide funding and regulatory support to ensure success.

The key flagship projects needed to develop or strengthen the national digital infrastructure, including connectivity, systems, and data, are as follows:

- **Investment in additional international subsea fiber optic cable** to improve the connection speeds and reliability of international digital information exchange.
- **Investment in National Broadband Network Upgrade and Expansion** to upgrade the current underlying technologies that needs upgrade and expand core backbone and transport networks to regions, cities, towns and major settlements yet to be covered to extend coverage and improve access to broadband connectivity.
- **Building international Tier3 or Tier4 standard data centers or Cloud Infrastructure** to facilitate stable digital connectivity and information services for Gambian citizens, government, and businesses.
- **Cellular network taxation policy could be eased** towards operators to enable further development of free market competition resulting in end-user price reduction of cellular connectivity. This might result in a short-term loss in tax collection from mobile network operators but will be returned vertically from the economy by enabling a boost of digital economy engagement from businesses and consumers and from digital society efficiencies.
- **Deploying community-based fixed broadband and or Wi-Fi networks** for schools, hospitals, libraries, community centers, sport centers, tourism development areas, trade centers, airports, transportation centers and markets etc., through public-private partnerships to provide internet access to low-income earners, freelance innovators, and entrepreneurs, promote effective and efficient service delivery to citizens and increase citizen participation in the digital economy.
- **Establishing and deploying Initiatives or Projects for Cross-Sector Infrastructure Sharing** where the digital sector, energy sector, transportation sector and local governments sector combined their infrastructure and technologies such as fiber optic cables, electricity cables and broadcasting cables and associated technologies etc., through either a single underground infrastructure route or single

airial infrastructure such as poles, dots and towers, with this, these sectors can ensure a more rational, optimal and cost-effective investment and create more efficient, affordable, resilient, and interconnected network that benefits society and the environment.

- **Investment in Internet of Things Initiatives or Projects** including water quality monitoring and management system, waste management, healthcare for the children, disable and elderly and other related applications to improve quality of lives and wellbeing.
- **National Satellite Communication System:** The objective of this project is to launch a national satellite communication system to enhance connectivity in remote and underserved areas. It addresses the digital divide by providing internet access where terrestrial networks are unavailable or inefficient. This project involves launching and operating one or more dedicated communication satellites. These satellites will provide broadband internet services, support emergency communication, and facilitate telemedicine and e-learning in remote regions.
- **Upgrade and Enhance the Existing National Internet Exchange Point (IXP):** The existing National IXP serves as a critical hub for routing domestic internet traffic. This project aims to upgrade and enhance the IXP to improve its efficiency and capacity. The upgrade includes expanding the IXP infrastructure, increasing its peering capacity, improving the participation of stakeholders or parties, and enhancing its security measures. This will reduce latency, improve internet speeds, and foster the development of local content and services.
- **E-Government Network (Single Government Wide Area Network) Enhancement:** To create a more efficient, secure, and interconnected e-Government network, facilitating seamless data sharing and communication among government agencies. This project involves expanding pop sites, equipment upgrade and expansion and integrating various government networks into a single, unified platform. It includes upgrading network infrastructure, implementing security measures, and establishing a centralized system for data sharing and communication. This will streamline government operations, enhance service delivery, and improve data security.
- **E-Health Network:** To establish a nationwide e-health infrastructure for telemedicine and healthcare services, promoting access to quality healthcare. The project includes setting up a dedicated network that connects healthcare facilities, professionals, and patients. It also encompasses the development of telemedicine platforms, electronic health records, and telehealth services. This infrastructure will facilitate remote consultations, patient monitoring, and efficient healthcare delivery.
- **Digital Education Connectivity:** Enhance the digital infrastructure to support online education and e-learning initiatives, enabling access to quality education for all. The project involves upgrading internet connectivity in educational institutions, ensuring that schools and universities have the necessary digital tools and resources. Additionally, it may include the development of e-learning platforms and content. This initiative will expand access to education, particularly in remote and underserved areas.
- **IoT Connectivity for Agriculture:** Provide infrastructure to support precision agriculture and rural IoT applications, improving agricultural productivity and sustainability. This project involves deploying IoT sensors and communication infrastructure in rural agricultural areas. It enables farmers to monitor soil conditions,

crop health, and weather data in real-time. Data collected is used for informed decision-making, ultimately increasing crop yield and resource efficiency.

- **Smart Grids for Energy:** Implement smart grids to enhance the efficiency and reliability of energy distribution and management. The project entails upgrading the existing energy grid with digital technology. Smart meters, sensors, and automation systems are integrated to monitor and control energy distribution efficiently. This reduces energy wastage and allows for better integration of renewable energy sources.
- **Digital Transport Infrastructure:** Enhance the digital infrastructure to improve transportation systems and logistics. This project includes implementing intelligent transportation systems, integrating real-time data for traffic management, improving public transportation services, and facilitating efficient logistics and supply chain management. It aims to reduce congestion, enhance safety, and optimize transportation networks.
- **High-Performance Computing Centers:** Establish high-performance computing centers for research and innovation. These centers are equipped with advanced computing infrastructure, including supercomputers and data analytics tools. They support research, data analysis, and innovation across various sectors, including science, healthcare, and industry. These centers enable the country to conduct cutting-edge research and development, fostering innovation and economic growth.
- **Development and Deployment of Information Systems and Digitalizing services for all Ministries, Departments and Agencies (MDAs):** This project will aim at providing needed information systems for all sectors including MDA and the digitalization of all the business processes and services these sectors or MDAs offers so as to improve productivity and efficiency in their service delivery.
- **Rolling out a national assessment on the establishment of connectivity infrastructure for autonomous vehicles and smart transportation systems** including vehicle to vehicle (V2V) infrastructure, Vehicle to Infrastructure (V2I), Vehicle to Human (V2H) and other Vehicular Technologies and future systems such as Unmanned Aerial Vehicles (UAVs), flying cars and their management using digital systems and or platforms.

Improving digital infrastructure in The Gambia is a critical step towards realizing the digital economy's full potential. The Gambia can create a strong foundation for a prosperous digital society and economy by focusing on initiatives such as implementing policies and incentives to attract private sector investments in the telecommunications sector and initiatives to reduce the cost of internet services and devices for citizens to **expand digital infrastructure and high-speed internet access throughout the country.**

3.2 Digital government, services, data, and data management

Government offices' digitization and staff restructuring are required to align public sector institutions behind the vision of becoming a digital economy. The government needs to lead by example and become efficient and digitized before it can expect it from other stakeholders in the local society. Government plays a crucial role in digital leadership, adopting and demonstrating the benefits of digitization to its nation.

Current State of Government Services - The Gambia has made progress in developing and implementing various digital systems and services over the years including electronic civil registration and vital statistics system (eCRVS), single window business registration platform, integrated financial management system (IFMIS), electronic records management system (ERMS), e-Tax Filing Service and digital excise tax stamp solution etc. In addition, in collaboration and cooperation with the local government authorities and private sector, the first-ever digital address system is being launched across the country that will be simultaneously used in digital space to enable city navigation, social services, digital trade and advance e-commerce. Despite the progress made, there are challenges related to the unavailability of integrated and interoperable government enterprise architecture with secure data exchange layer to streamline service delivery and make public services more user-friendly and efficient.

Data Protection and Privacy - The proliferation and adoption of various government services in different sectors, have exhibit challenges related to storage, processing and sharing of personal data and triggered the development and adoption of the National Data Protection and Privacy Policy and Strategy 2019, which sets out the guiding principles for collecting, processing, storing, and sharing personal data. In addition, it establishes the responsibilities of data controllers and processors, outlines the rights of data subjects, and provides mechanisms for complaints and redress. The Data Protection and Privacy Policy and Strategy aims to establish a legal and regulatory framework that ensures personal data protection while promoting innovation, growth, and competitiveness in the digital economy. It outlines the principles and standards for collecting, processing, and storing personal data, as well as the rights of individuals to control their personal data.

Data and Data Management - In addition to the policy and strategy, the **Gambian government has also prioritized the development of data infrastructure and management systems to facilitate the use and sharing of data across sectors.** This includes the development of a national data management framework, establishing a national data repository, and developing data standards and protocols to ensure interoperability and data quality. The World Bank Group's 2021 Digital Economy Diagnostic report for The Gambia, known as DE4A, identifies several challenges related to data and data management that need to be addressed to realize the potential of the digital economy fully. These challenges include a lack of data infrastructure and management systems, limited availability and accessibility of data, and inadequate capacity and skills for data analysis and use.

In addition, besides the lack of data infrastructure, management systems and availability and accessibility of data, quality of data is also another critical component of the data ecosystem that deserves attention, as quality of data can significantly impact the usefulness and accuracy of insights derived from it. **The Gambian government could improve data quality by establishing data collection and reporting standards across different sectors and agencies.** This could involve creating standardized data formats, definitions, and protocols and investing in data cleaning and validation tools to ensure that data is accurate and reliable. In addition, the government could **promote the use of open data to increase government transparency and accountability** and encourage innovation and economic growth.

This could involve making government data publicly available in machine-readable formats and creating platforms and tools that allow citizens and businesses to access and analyze this data. **Digital Identity System** – Aside the need to prioritize the development of data infrastructure and management system, **The Gambia has successfully launched its national ID card** in 2018 as part of the biometric identity card program of The Economic

Community of West African States, which uses similar standards as several United Nations and the European Union countries. The card allows a positive outlook for cross-border use and recognition in future services. The government's strategic choice is to lay the foundation for a secure and advanced digital nation with every citizen as part of it. **The intention is to roll out the digital infrastructure required for digital services. Still, it will need further planning, coordination, finance, upgrades, and expansion.** Government registries and databases interoperability development would significantly increase the public sector's productivity and eventually enable “once-only” and other progressive digital society principles. The initial effort by National Records Services (NRS) to digitalize records/registries is in progress with a recently launched pilot project.

Digital identity is a crucial component of a digital economy by which individuals can authenticate their identity online, enable trusted services, and access digital services. A digital identity system can help streamline the delivery of government services, facilitate access to financial services and enhance online security. Developing an inclusive digital identity system accessible to all is critical for achieving a thriving digital economy.

To develop an inclusive digital identity system for The Gambia, the government should first develop a digital identity infrastructure that include a central database for storing digital identity data, as well as secure authentication mechanisms that government agencies, the private sector, the financial system, and other service providers can use.

After launching the digital identity, **the government should promote digital identity across all sectors of the economy, including government services, financial services, and e-commerce, and provide incentives for service providers to adopt digital identity solutions.** Due to the novel status of the national digital identity system, the government should conduct public awareness campaigns to educate citizens in all segments of the population, including those who are not digitally literate, about the benefits of digital identity and how to use the system. This process should include **educating the public on safe digital practices** such as protecting their personal data, for example, avoiding online scams- Fostering a culture of trust and security in the digital space is crucial.

To ensure that the digital identity system and services are legally recognized, the government needs to establish a **legal framework for digital identity**, including developing laws and regulations that govern the use of digital identity locally and internationally and establishing standards for issuing and verifying digital identities. This would also result in establishing a governance structure, such as certification authority to oversee the implementation and management of the digital identity system and services. This includes investing in continuous research and development to ensure the system remains at the forefront of technological innovation. By planning for the future, the government can ensure that the digital identity system remains relevant and effective for years.

Legal and Regulatory Framework – The development, adoption and use of digital ID services and other e-services are not enough, it needs to be supported by the **development of a legal and regulatory framework** that governs not only e-services but digital identity data collection, storage, and use **to ensure a fully functional digital ID system with none or limited exposure to data security and privacy risks.** The legal and regulatory framework should also ensure that the digital identity system, e-services and other systems complies with international privacy and data protection standards. The framework should be developed in consultation with stakeholders, including civil society, private sector actors, and international partners.

As digital identity systems, e-services and other digital systems or services collect and store sensitive personal information, it is essential to have a legal framework to protect the privacy and security of that data. The government should work on developing a **data protection and privacy law** that is in line with international standards, such as the General Data Protection Regulation (GDPR) of the European Union and establish a data protection authority to implement the data protection law and regulate data protection and privacy issues in The Gambia. This law should include provisions for data protection, privacy, and security, including the rights of individuals to access, correct, and delete their data, as well as penalties for non-compliance. The government can work with international organizations such as the International Association of Privacy Professionals and the International Association of Data Protection Authorities to develop these laws and ensure they meet international standards and ensure its effective implementation.

Lastly, since mobile phones are the country's most widely used communication device, developing a **mobile digital identity solution and other mobile digital government services would provide an efficient and convenient way for individuals to access and use digital identity services and other government digital services**. This solution could involve the use of mobile apps or mobile web-based platforms. In addition, the government should prioritize digitization and automation of key government services, such as visa application, health services, agricultural services, trade & commerce services, transport services, land registration, and other social services. Digitization will streamline service delivery, reduce administrative burdens, and improve the overall efficiency of government operations. The government should also explore emerging technologies like blockchain and artificial intelligence to enhance service delivery further.

There are several layers in digital governance, services, and data management, out of which the key flagship projects that need investment to be developed, strengthened and implemented are as follows:

- **Develop a long-term ICT budget planning strategy** in line with the National Development Plan defining digitization priorities. Start formal cooperation in priority settings and outcome-based evaluation in all areas of ICT-related financing between the Ministry of Communications and Digital Economy and the Ministry of Finance and Economic Affairs. Create a committee or working group where all key stakeholders and donors can coordinate the priorities of ICT funding with the ministries. Also, identify critical government requirements and map potential open-source solutions developed by other governments or private sector organizations. Harness open-source software where possible and create a government code repository utilizing platforms such as GitHub and GitLab.
- The **selection process of e-services for public servants, citizens, and businesses should be carefully planned based on their return on investment in the digital economy and social system development**, focusing first, for example, on the digital tax system, ease of doing business services. In all the planning, a good opportunity to launch mobile-first adopted services nationwide should be considered with its low-cost implementation and good user experience. To achieve maximum digital services adoption and digital inclusion and considering the developing regions in The Gambia with limited reading and digital device literacy, a simplified interface and voice-based services might be an excellent opportunity to achieve maximum adoption across all communities. Global researchers state that by 2024, AI-

generated speech will be behind more than 50% of people's interactions with computers.

- **Work out an actionable and measurable action plan towards launching new public e-services, from planning and design to deployment and continuous improvement.** In fine detail, this would include, for example, services level agreements, prioritizing the e-services long list, and key performance indicators (KPIs). This could be divided between a short-term plan and a long-term plan. For the sustainability of each selected investment, all ICT-related costs should be included in financial plans, such as maintenance, licenses, and development costs, to clearly outline the initial investment (CAPEX) and operational cost (OPEX) needs.
- **Assign Chief Digital Officers (CDO) to every ministry to oversee IT investments, processes, and policies.** Minimum qualifications should be agreed for these CIOs and adequate payroll set-up to attract and sustain these competences. This helps to build a foundation that IT is approached from a strategic perspective within each ministry. In addition, form an IT manager's working group and host regular meetings where different IT specialists introduce their work, projects, and outcomes. This helps to build a community and paves the way for better cooperation.
- **Promote cooperation and collaboration with the private sector and expand the number of external experts** involved in developing the e-government strategy and action plans. To further boost digital development cooperation and engagement, a communication plan should be set up to raise awareness of the importance of digital transformation and provide relevant training to stakeholders inside and outside the government. In addition, establish an up-to-date single information point for publishing information regarding digital government and e-government strategy development.
- **Establish public servants' e-cabinet system** on a governmental level to enable transparent law-making and accelerated public sector digital development.
- **Develop a lean and future-proof e-government foundation by building a secure data exchange platform, public key infrastructure, keyless signature infrastructure, digital certificates system and digital public registries** to enable fully functional e-cabinet and efficient digital cooperation across institutions and other stakeholders. In the process, develop government cross-functional requirements outlining principles, standards, and requirements for public sector IT development. In addition, establish an interoperability catalog to see what technical components and data exist in the public sector to enable transparency, re-usability, and interoperability.
- **Enable existing biometric national ID cards to be technically used as a personal identification and transaction execution method in online channels/services.** Furthermore, for the growing mobile-first segment of society, launch a national-level SIM-card-based Mobile-ID and a software-based digital ID solution in cooperation with cellular network operators to add more flexibility in the digital identification toolbox next to the national ID card-based digital identity method.

- **Prepare data management strategy and action plan to coordinate the area across the government and plan its development.** The Ministry of Communications and Digital Economy can lead a cross-governmental mapping of high-value data and prepare for its digitization, sharing, and re-use, including open data. Based on the mapping, data re-users' needs, and assigned priorities, allocate financing to priority areas. Establish a data management working group to support knowledge sharing, raise awareness, and coordinate government activities. Develop an open data portal and enforce its use across organizations to ensure that public institutions, businesses, NGOs, and citizens can access all government-published open data from a single easy-to-use gateway. Develop a data catalog to improve search and accessibility of government-held data assets, including open data, for example, Amundsen. Community-driven open-source solutions such as CKAN should be considered for development to reduce maintenance and implementation costs.
- **Establishing a digital identity system, interoperability system, and public services line-up is critical to building a robust digital economy in The Gambia.** Such a system can improve service delivery, increase financial inclusion, and enhance the security and privacy of all societal stakeholders. However, the system's success will depend on careful planning, stakeholder engagement, and effective implementation. Therefore, the government must work closely with citizens, private sector organizations, and international partners to develop a system that meets the needs of all stakeholders and fosters inclusive economic growth.
- **E-Government Portal Development:**
The Gambia Government should develop or ensure the development of an E-Government Portal. This E-Government Portal will create a centralized digital platform where citizens, businesses, and government entities can access various government services online. This portal will offer a user-friendly interface, allowing citizens to apply for permits, licenses, pay taxes, access public information, and interact with government agencies seamlessly.
- **Digital Public Service Delivery Centres:**
The Gambia Government should develop or ensure the development of a Digital Public Service Delivery Centres. These Digital Public Service Delivery Centres will be physical locations strategically placed to facilitate access to government services for citizens without reliable internet access or limited digital literacy. Trained personnel at these centres will assist citizens in using digital platforms and completing online transactions, making government services more inclusive and accessible.
- **Digital Records Management System:**
This will strengthen the existing electronic records management system (EMRS) deployed by the National Records Service (NRS) or ensure the development of a Digital Records Management System that will digitize and centralize government records and documents, making them easily accessible, searchable, and secure. The Digital Records Management System ensures efficient data storage, retrieval, and

sharing, leading to improved decision-making and accountability within the government.

- **Citizen Feedback and Grievance Mechanism:**

Participatory Governance is evidence of Good Governance; thus, the Gambia Government can register more gains on Good Governance through engaging the citizens or business more by the use of digital technologies. To do so, there is a need to develop a Citizen Feedback and Grievance Mechanism System, This Citizen Feedback and Grievance Mechanism will be a platform that enables citizens to provide feedback, suggestions, and register complaints about government services. This system helps in addressing citizens' concerns promptly, promoting transparency, and enhancing citizen engagement in governance.

- **E-Cabinet and Parliament System:**

Having an e-Cabinet and e-Parliament System in the Gambia will enhance policy and law-making process and ensure efficiency and timeline decisions or actions. The E-Cabinet and Parliament System will seek to digitize the cabinet and parliamentary proceedings, enabling secure and efficient communication among government officials. It streamlines decision-making processes, reduces paperwork, and fosters collaborative governance.

- **Government Chatbot:**

Due to the nature of Government and Government Bureaucracies, the traditional ways of providing feedbacks to inquiries are no more effective, as such to ensure effective and efficient provision of information, the Gambia Government should develop or ensure the development of a Government Chatbot. The Government Chatbot will be an AI-powered virtual assistant designed to handle routine inquiries and provide information on government services. It operates 24/7 and offers quick responses to citizens' queries, reducing the burden on human staff and enhancing service efficiency.

- **Digital Health Records:**

The Gambia Government should develop or ensure the development of Digital Health Records System and Services. This Digital Health Records systems will be a centralized electronic health records system accessible to authorized healthcare providers. This secure system allows for easy sharing of patient data, leading to better-coordinated healthcare services and improved patient outcomes.

- **E-Justice System:**

The E-Justice System will involve in digitizing and streamlining the legal processes within the judiciary of The Gambia. It includes online case management, electronic filing of legal documents, and virtual court proceedings. This initiative expedites the judicial process, enhances transparency, and ensures better access to justice for citizens.

- **Digital Addressing System:**

The Gambia Government in collaboration or partnership with partnerships or solutions provides should develop a Digital Addressing System for the Gambia. This

Digital Addressing System (GDAS) project for The Gambia is to create a comprehensive and accurate digital addressing system that will revolutionize how locations are identified and navigated within The Gambia. The system will provide every residential, commercial, and public location with a unique digital address, making it easier for individuals, businesses, and government agencies to access services including social amenities or services, deliver goods, and respond to emergencies more efficiently. The system will include components and features such as Geocoding Infrastructure and Database, Digital Address Assignment, Mobile Application, Web-based portal and integration with public services.

- **Remote Government Services for Rural Areas:**

This initiative will focus on providing government services to remote and rural areas in The Gambia where physical infrastructure is limited. It involves deploying mobile government services and digital outreach programs to ensure that citizens in these areas can access essential government services without traveling long distances.

- **Real-Time Data Analytics for Governance:**

There is a need to develop a Real-Time Data Analytics System for the Gambia Government. This Real-Time Data Analytics for Governance System will involve using advanced data analytics tools to process and analyse large datasets generated by various government departments. This enables policymakers to make data-driven decisions and respond proactively to emerging challenges and opportunities.

- **Smart Policing System:**

The Gambia Government in collaboration or partnership with partnerships or solutions providers should develop a Smart Policing System for the Gambia. The Smart Policing System (GSPS) will modernize and optimize law enforcement practices by integrating smart technologies and data-driven approaches. The primary goal is to enhance public safety, reduce crime, and improve the overall efficiency and effectiveness of policing in The Gambia. This system will include these components and features Integrated Command Centre, Video Surveillance Network, Predictive Policing Algorithms, Mobile Policing Application, Community Engagement Platforms and other Biometric Recognition Systems.

- **Develop or Strengthen E-Procurement System:**

This initiative will seek to enhance the existing E-Procurement under the Gambia Public Procurement Authority (GPPA) or seeks to develop a new E-Procurement System that will digitize the government procurement process, making it more efficient, transparent, and cost-effective. It involves creating an online platform for vendors to bid on government contracts, reducing paperwork, minimizing corruption risks, and enhancing vendor engagement.

- **Smart Traffic Management System:**

There is a need to develop or implement a Smart Traffic Management System in The Gambia that will utilize intelligent transportation systems and data analytics to optimize traffic flow and reduce congestion in urban areas. It involves real-time

monitoring of traffic conditions, adaptive traffic signals, and providing citizens with live traffic updates to improve commuting experiences.

- **Virtual Government Training Programs:**

The Virtual Government Training Programs leverage e-learning platforms and virtual classrooms to provide government employees with skill development and capacity-building opportunities. This initiative ensures continuous learning and enhances the efficiency and effectiveness of government officials for the Government of The Gambia.

- **Disaster Management and Response System:**

There is a need to develop or implement a Disaster Management and Response System in The Gambia. The Disaster Management and Response System will focus on using digital technologies, such as GIS mapping and real-time data monitoring, to improve disaster preparedness, response, and recovery efforts. This initiative helps in coordinating emergency services, disseminating critical information, and reducing the impact of disasters on citizens and infrastructure.

- **Establishment of Public Key Infrastructure (PKI):**

The establishment of a Public Key Infrastructure is essential for enhancing the security of digital transactions, communications, and data exchange. PKI provides the necessary infrastructure, tools, and processes to enable secure and authenticated digital interactions. This project includes the following:

- **Certification Authority (CA):** A Government or authorized body will establish a Certification Authority, which is responsible for issuing digital certificates to individuals, organizations, and devices. These certificates include a public key and identity information and are used for digital signatures and encryption.
- **Key Management Infrastructure:** The PKI includes a secure key management system to generate, store, and distribute public and private keys for users and devices. This ensures the confidentiality and integrity of digital communications.
- **Registration Authorities (RA):** RAs act as intermediaries between users and the CA. They verify the identity of individuals or entities requesting digital certificates and facilitate the issuance process.
- **Secure Protocols:** The PKI infrastructure will employ secure cryptographic protocols to protect the confidentiality and integrity of data during transmission, as well as for secure authentication and authorization.

Each of these flagship project contributes to the development of a robust digital government ecosystem, fostering efficiency, transparency, and citizen-centric service delivery in The Gambia.

3.3 Digital financial services & inclusion

Digital financial services have revolutionized the financial sector worldwide, enabling greater access to financial services and products, especially for underserved populations. However, in The Gambia, the adoption of digital financial services still needs to improve, and **there is a need to enhance financial inclusion using digital payment systems and services.** Implementing a robust digital financial ecosystem can help The Gambia realize its digital

economy goals by creating opportunities for individuals, businesses, and the government. In line with the Digital Economy Master Plan, this ten-year plan aims to establish a thriving digital financial ecosystem that promotes financial inclusion and enables the growth of the digital economy.

According to the US Department of State 2023 report, currently, the total number of banking customers in The Gambia stands at 772,101, equivalent approximately to 30.8% and only 14 percent use E-Banking. The Gambia currently has 80 branches and 208 point-of-sale (POS) terminals. . The Gambia's low adoption of traditional banking services highlights the need for innovative digital financial solutions. Limiting the transaction fees can be an additional tool to attract more digital financial usage MSMEs and the communities. Currently, **mobile money is the primary form of digital payment in the country**, with mobile money accounts representing 33% of the adult population according to the World Bank database as of 2022. However, most of these accounts are inactive, with limited transactions being made through the mobile money system. **The low adoption rate of digital financial services is due to a lack of trust in the system, limited financial literacy, and a need for regulatory clarity.**

In partnership with the Central Bank of The Gambia, the Gambian government is working towards improving financial inclusion in the country and has developed and adopted a National Financial Inclusion Strategy (2021-205) in line with the National Development Plan. The UN Capital Development Funds (UNCDF) 2021 survey report, Women's Economic Empowerment in The Gambia, notes that the new strategy enhances access and use of quality financial services, leading to inclusive growth and poverty reduction.

The government of The Gambia has firmly taken steps towards strengthening the digital finance ecosystem. In 2022, the goal was to improve the national digital payment systems and gateways, including targeting the growth of e-commerce platforms and the uptake of mobile money and other digital financial services. In addition, the Central Bank of the Gambia is focused on developing the digital landscape with GAMSWITCH interconnectivity between the platforms and many other technical solutions to enable digital transformation in the country's financial sector. GAMSWITCH is a PPP providing a robust platform for the full online payment integration of all commercial banks, financial institutions, billing systems, international payment gateways and electronic channels such as ATMs, POS, Web and Mobile.

In 2022 The UNCDF launched an initiative to provide financial and technical assistance to Gambian fintech companies to provide digital financial services to underserved Gambian youths. **A mobile wallet is under development** that enables remittance customers to store, send, and receive money in a 6-month pilot program under the Jobs, Skills and Finance for Women and Youth in The Gambia program. **The Ping Wallet initiative** will offer services through three subscription plans with limited transaction fees and commission on airtime. It will provide easy access to remittances estimated at 63% of the Gambian GDP. The partnership network will include partnerships with AfriMoney, QMoney, and other banks to develop a minimally viable product that enables Gambians to receive remittances and use Ping to access a simple mobile wallet. In addition, new digital or e-wallet services such as Wave facilitating the sending of remittance are emerging with fast adoption within and outside the country. To ensure a vibrant digital financial ecosystem and achieve financial inclusion in The Gambia, the following key flagship projects or initiative will be developed and or implemented:

- **Develop a digital financial services strategy:**

To establish a digital financial ecosystem, The Gambia needs a comprehensive digital financial services strategy that outlines the roadmap for digital financial inclusion. The strategy should

be developed through a consultative process with key stakeholders, including financial institutions, fintech companies, telecoms or mobile network operators, regulators, and consumers. The strategy should outline the government's vision for the sector, the key stakeholders involved, and the specific initiatives and programs for intervention, including policy and regulatory reforms, infrastructure development, capacity-building, consumer education, and awareness campaigns. The strategy should also identify the financial and technical resources required for successful implementation.

- **Collaborate, monitor, and evaluate progress:**

The CBG should facilitate collaboration by establishing an **ongoing multi-stakeholder platform** that brings together all key players in the digital financial ecosystem. The platform should provide a forum for stakeholders to exchange ideas, share best practices, and identify areas for further collaboration. In addition, the government and its financial sector stakeholders should establish robust monitoring and evaluation mechanisms to track progress in implementing the digital financial services strategy. This should include the development of key performance indicators to measure progress against specific targets and establishing regular reporting mechanisms for stakeholders.

- **Expand digital payment systems and infrastructure:**

The Gambia needs to **expand its digital payment infrastructure to promote adopting digital financial services**. This requires finalizing the national digital payment gateway systems to enable digital trade and digital finance to expand across the country and cross borders. This expansion of digital payment systems should include the development of a national payment switch that connects all payment systems and enables interoperability among different payment systems, developing secure and reliable digital payment platforms, and deploying digital payment agents in underserved areas. This system should be **interoperable, secure, and reliable**. It should support all types of transactions, including **person-to-person, business-to-business, and government-to-person** transactions. In addition, Central Bank of the Gambia (CBG) could work with mobile network operators and other payment service providers to establish a robust digital payment system that is accessible, secure, and affordable.

- **Strengthen the legal and regulatory framework:**

The legal and regulatory framework for digital financial services in The Gambia needs to be strengthened to provide clarity and certainty to market players. **CBG should further develop clear rules and guidelines for digital financial services, including licensing, capital requirements, and consumer protection**. Furthermore, the CBG should **collaborate with relevant stakeholders** to develop a risk-based approach to regulation that promotes innovation, consumer protection, and financial inclusion while safeguarding the integrity and stability of the financial system. In addition, the government can encourage the adoption of interoperable payment systems by setting standards for payment interfaces and promoting open APIs that allow different payment systems to communicate with each other.

- **Enable financial literacy and financial inclusion:**

Promoting financial literacy and consumer protection is critical to successfully adopting digital financial services. Therefore, the CBG should collaborate with financial institutions, fintech companies, and other stakeholders to develop financial education programs that target vulnerable populations, such as women, youth, and rural communities.

This can be achieved through **public awareness campaigns, financial education programs in schools and community centers, and business training programs.** Financial education materials, such as brochures, booklets, and online resources, could be created and disseminated to the public.

The government could work with schools to **incorporate financial education into the curriculum.** This could be done by training teachers or by developing financial education materials specifically for schools. Using digital tools such as mobile apps, online courses, and webinars can help expand the reach and effectiveness of financial literacy programs. The government could leverage existing channels, such as radio and television, to disseminate financial education information to the public.

Public awareness campaigns could also be run through social media and other online platforms. Collaborating with Financial Institutions and NGOs: Financial institutions and NGOs can be essential in expanding financial literacy programs. They have expertise in financial services and access to target groups. Collaboration with financial institutions and NGOs can help to reach more people and improve the effectiveness of the programs. The programs should be designed to increase awareness of digital financial services and their benefits and educate consumers on the safe and responsible use of digital financial services.

- **Strengthen consumer protection and cybersecurity:**

The government should continuously work to strengthen consumer protection in the digital financial services sector by developing and **implementing robust regulatory frameworks that protect the rights and interests of consumers.** This should include the establishment of clear guidelines for the use and protection of personal data, the development of effective dispute resolution mechanisms, and the establishment of effective oversight mechanisms to ensure compliance with relevant regulations and standards.

In addition, the establishment of **financial industry cybersecurity standards and continuous capacity-building** is required to ensure the security and integrity of digital payment systems. Cybersecurity training programs and collaboration between financial institutions and cybersecurity companies must be encouraged.

- **Foster public-private partnerships:**

The government should actively engage with the private sector to foster public-private partnerships to help drive innovation and accelerate the adoption of digital financial services. This could include establishing **regulatory sandboxes for experimentation and innovation** and providing **training and mentorship programs for fintech startups.**

The government should leverage more mobile technology to increase access to digital financial services. Public-private partnerships include partnering with telecoms or mobile network operators to expand mobile money offerings, as well as promoting the development of mobile applications and services that enable digital payments that are more flexible and inclusive for the citizens. The government can work with merchants to encourage them to accept digital payments by providing incentives, such as reduced transaction fees and tax breaks. This can help to create a critical mass of merchants accepting digital payments, which in turn will encourage more consumers to adopt digital payment methods. In addition, the national digital identity system can facilitate secure personal identification and access to digital financial services. The standardization, security, and interoperability of national digital ID with the financial sector can be an accelerator of financial services amongst private sector providers and an accelerator of uptake of those services amongst citizens and businesses.

- **Enhance cross-border remittances:**

The government should develop partnerships with neighboring countries and regional organizations to facilitate cross-border digital finance interoperability standards and payments, which will greatly reduce the cost of remittances. This could involve **developing interoperable payment systems, harmonizing regulatory frameworks, and promoting collaboration between financial institutions and stakeholders in different countries**. Enforcing international standards and establishing international partnerships with other countries is essential for the positive trade balance and export potential of the digital economy of The Gambia.

- **Establish a digital financial services oversight committee:**

The government should establish a **digital financial services oversight committee** to provide oversight and guidance on developing and implementing the digital financial inclusion strategy. This committee should include representatives from relevant government agencies, financial institutions, and other stakeholders. It should monitor progress, identify challenges and opportunities, and provide guidance on developing and implementing targeted interventions and initiatives.

- **National Digital Payment Platform:**

The Government should develop or ensure the development or enhancement of a National Digital Payment Platform that is aimed at creating a unified and secure digital infrastructure for financial transactions across the country. The platform will facilitate seamless and instant payments, allowing individuals and businesses to transfer funds, make purchases, and conduct various financial transactions digitally. It will integrate multiple payment channels, including mobile money, internet banking, and electronic payment systems. The platform will prioritize security and data privacy to ensure the trust of users and protect against cyber threats. By providing a central, interoperable system, the National Digital Payment Platform will reduce the dependence on cash transactions and promote a cashless economy.

- **Mobile Banking for the Unbanked:**

The Gambia Government should work with Telecoms or Mobile Network Operators and other players within financial ecosystem to extend banking services to the unbanked population of The Gambia by leveraging mobile technology. Many individuals, especially in rural areas, lack access to traditional banking facilities due to geographical constraints, however mobile penetration is good in those areas, which can be leveraged upon to deploy mobile banking. Mobile Banking for the Unbanked will enable these underserved populations to open digital bank accounts using their mobile phones. Through simple and user-friendly interfaces, users can perform basic banking operations such as deposits, withdrawals, transfers, scan-code to pay and bill payments. This will be supported by the proposed financial literacy and awareness programs to ensure that the unbanked population can fully benefit from these services.

- **Mobile Money Agent Network Expansion:**

To complement Mobile Banking for the Unbanked, the Mobile Money Agent Network Expansion by Telcos and MNOs in Collaboration with Government, will aim to increase the availability of mobile money agents throughout the country. Mobile money agents act as intermediaries between users and financial institutions, facilitating cash-in and cash-out transactions. By expanding this network, more individuals, particularly in remote areas, will have convenient access to mobile financial services. This will include recruiting and training agents, establishing agent management systems, and implementing incentives to promote agent participation.

- **E-wallet for Government Payments:**

The Government should establish or develop and implement a Digital or E-wallet for Government Payments by digitizing and streamlining the process of government payments and disbursements. It involves creating digital or electronic wallets for government employees, citizens, and businesses, linked to their unique identification numbers, to receive payments from the government. This includes salary payments, social welfare benefits, pensions, and subsidies. By transitioning from traditional cash-based disbursements to e-wallets, the government can improve transparency, reduce leakages, and enhance the efficiency of fund distribution. This will also enable citizens to make digital payments for government services and taxes, further promoting the adoption of digital financial services.

- **Mobile-Based Agriculture Insurance:**

The Government should partner with stakeholders including the private sector to develop or implement a Mobile-Based Agriculture Insurance, recognizing the significance of agriculture in The Gambia's economy, this will provide farmers with access to mobile-based agriculture insurance. Mobile-Based Agriculture Insurance will utilize satellite technology, weather data, and crop information to assess risks and provide customized insurance coverage to farmers. In the event of crop failure or other agricultural-related losses, farmers can file claims through

their mobile phones. By mitigating the financial risks associated with farming, this initiative will enhance the resilience of farmers and encourage investment in the agricultural sector.

- **Women-Centric Financial Inclusion Program:**

The Government as part of its gender-mainstreaming policies and strategies, should establish a Women-Centric Financial Inclusion Program powered by a digital solution that is designed to address gender disparities in financial access and empower women economically. The Women-Centric Financial Inclusion Program will focus on providing tailored financial services and products that meet the specific needs of women entrepreneurs and low-income women. It may include women-only savings groups, microloans for women-led businesses, and financial literacy programs geared towards women. By promoting women's financial inclusion, the project aims to boost economic growth, reduce poverty, and foster gender equality.

- **Blockchain for Financial Inclusion:**

Government can leverage on blockchain technology to enhance the security, transparency, and efficiency of financial services in The Gambia. Blockchain has the potential to provide a tamper-resistant and decentralized ledger, ensuring the integrity of transactions and customer data. This may also explore various use cases, such as digital identities for the unbanked, cross-border remittances, and supply chain finance for small businesses. By integrating blockchain into the financial ecosystem, The Gambia can enhance financial inclusion and foster trust among users and financial institutions.

- **Digital Credit Scoring:**

The Government supported by CBG, MNOs, Telcos, and other players in the financial ecosystem, should establish, develop or implement a Digital Credit Scoring system that seeks to improve access to credit for individuals and small businesses that have limited credit histories. Traditional credit scoring models often exclude these underserved segments, hindering their ability to access loans and other financial products. This initiative will develop and implement alternative credit scoring algorithms with a digital solution that leverages alternative data sources, such as mobile phone usage patterns, utility payments, and social media activity. By using these non-traditional data points, lenders can make more accurate and inclusive credit decisions, expanding credit access to a wider range of individuals and businesses.

- **Open Banking Framework:**

The Open Banking Framework aims to create a standardized and secure framework that allows customers to share their financial data securely with third-party providers. Through APIs (Application Programming Interfaces), customers can grant permission to fintech companies and other financial institutions to access their account information and conduct transactions on their behalf. This open and interoperable system fosters innovation and competition in the financial sector, leading to the development of innovative products and

services that cater to specific customer needs. It will also prioritize data protection and customer consent to ensure a safe and customer-centric open banking ecosystem.

- **Financial Inclusion Research Center:**

The Government of The Gambia in collaboration with stakeholders including Ministry of Higher Education, Research, Science and Technology and other research institutions should work together to establish a Financial Inclusion Research Center in The Gambia, as it will be a vital initiative that will serve as a hub for research, data analysis, and policy development related to financial inclusion in the country. The center will collaborate with government agencies, academic institutions, and international organizations to conduct in-depth research on financial inclusion challenges and opportunities in the country. The insights gained from the research will inform the design and implementation of evidence-based policies and initiatives. Additionally, the center will act as a knowledge-sharing platform, disseminating best practices and lessons learned to stakeholders across the financial ecosystem.

Digital financial services offer significant economic growth and development opportunities in The Gambia, particularly in underserved areas and low-income communities. However, realizing the potential of digital financial services will require concerted efforts by the government, financial institutions, and other stakeholders. Overall, the goal is to establish a digital financial services ecosystem that promotes financial inclusion, supports economic growth, and enhances the overall digital economy in The Gambia. By implementing these measures over the next ten years, The Gambia can position itself as a leader in the digital financial services sector in the region and beyond.

3.4 Digital entrepreneurship and innovation

The Gambia's economy is largely based on agriculture, fishing, and tourism. However, **the country significantly progressed in developing its digital economy and service industry in recent years.** The nation is increasingly recognizing the importance of entrepreneurship in contributing to job creation, economic growth, and a more competitive economy.

To support the further development of the general entrepreneurship and innovation landscape of The Gambia, The Gambia Government through its Ministry of Trade, Industry and Regional Integration (MOTIE) developed and adopt a National Entrepreneurship Policy aims to build domestic capacities for the private sector and create synergies for domestic business sector development and foreign investors' attraction. In addition, the policy aims to enhance entrepreneurship education and skills development, improve access to finance, facilitate technology exchange and innovation, and promote awareness and networking while addressing cultural biases, including gender. The policy envisions a thriving and sustainable middle-income economy driven by self-reliant and innovative local entrepreneurs and an enabling and strengthened ecosystem, embracing all parts of the country by 2026. The Gambia Investment and Export Promotion Agency (GIEPA) will play a key role in the institutional entrepreneurship framework in harmony with the national development plan, in Gambia Competition and Consumer Protection Commission industrial policy, and in other governance mechanisms.

The Gambia aims to build domestic capacities for the private sector and create synergies for domestic business sector development and foreign investors' attraction and integrate entrepreneurship competencies and skills into formal and informal education, promote innovation and sustainable development funding, and strengthen linkages between private and public sector institutions through the National Entrepreneurship Policy (NEP). The Entrepreneurship Policy also aims to remove obstacles to business operations, upgrade entrepreneurship education and skills, facilitate access to finance, and support new businesses. Simplifying the process of establishing and running a business in The Gambia will have a significant impact on local entrepreneurship growth and foreign direct investment attraction. Lowering the amount of bureaucracy, cost, and other barriers to operating business in The Gambia can already play a significant role in increasing national GDP and exports.

In addition, many initiatives have been launched to support the entrepreneurship and innovation ecosystem of the country, more so in the digital space, such as training and seed investment to digital startups and establishing rural information and innovation hubs for digital inclusion and innovation. The integration of digital technologies in the education system and agricultural sectors is steadily occurring. The Gambia Government has identified ICTs as a priority sector in the Recovery-Focused National Development Plan, where the digitization of the economy is one of the key pillars, with digitization as a catalyst for accelerating economic growth and improving efficiency in both public and private sectors.

The University of The Gambia, The Ministry of Trade, Industry, Regional Integration and Employment, in collaboration with the United Nations Development Programme and the International Trade Centre through the Youth Empowerment Project, are creating a Tech Hub in The Gambia. **The Tech Hub** aims to promote innovation, support digital entrepreneurship, provide incubation and acceleration support for tech startups, and foster collaboration between students, experts, project leaders, entrepreneurs, and innovators. It will connect young innovators with local support organizations, universities, financial intermediaries, angel investors, and venture capitalists. It will offer training, free office space, access to a conducive workspace environment, tools, and other facilities. The Tech Hub will focus on private sector innovation advice, support, and/or financing and emphasize female innovators and women-led projects. The Tech Hub is expected to accelerate ICT sector innovation and growth and support existing traditional industries such as agriculture, health, education, and tourism.

Furthermore, the Ministry of Communications and Digital Economy and the University of The Gambia partnered to rollout a feasibility study on the establishment of a technology hub at the University of The Gambia and Regional Information and Innovation Hubs in all regions of the country to promote and spur innovation on ICTs, Digital Solutions and Related in the country with the aim to empowering university students and youths to be developing local ICT solutions including products and services that would address societal challenges. All these initiatives are geared towards supporting digital innovation and entrepreneurship.

Also, The Gambia is part of the African, Caribbean, and Pacific (ACP) research and innovation strengthening programme, which also contains an international innovation fund. The goal is to unlock member countries' innovation potential and support the transition into knowledge-based economies for sustainable development. The Innovation Fund provides financial support for projects that advance solutions for increasing access to digital literacy, creating links between research and innovation skills development and labor market demand, and promoting local and indigenous knowledge.

Digital business models emerge among entrepreneurs, and digitization is adopted across industries. The country already has some startup initiatives, such as the National Youth Council and The Gambia Youth Chamber of Commerce, which have been instrumental in promoting entrepreneurship and innovation. In addition, several privately started digital innovation ecosystem hubs are already active, resulting in a new generation of digital entrepreneurs, such as **PointClick, Disruptive Lab, and Jokkolabs etc.** The government has recognized the opportunity for private sector-led growth in digital transformation through public-private partnerships. MoCDE has shown strong intentions to initiate the growth of jobs in information and communication technologies. However, the startup ecosystem is still in its early stages, and there is a need to develop a more supportive environment to encourage the growth of startups. To do so, the following key flagship projects or initiative will be developed and or implemented under this Digital Economy Master Plan 2023-2033:

- **Build business environment as an enabler:**

Focus on building a favorable business environment is an opportunity to promote digital innovation, entrepreneurship, and digital businesses in The Gambia. **A predictable and progressive business environment for digital businesses should cover data privacy, cybersecurity, intellectual property, and consumer rights.** The framework should be designed to encourage innovation and entrepreneurship while protecting the interests of consumers and companies.

A conducive business environment can help entrepreneurs and businesses thrive, increasing the number of digital startups and successful digital businesses. To achieve this, the government can take other practical measures, such as **simplifying starting and registering a business, reducing bureaucracy, and providing incentives for digital startups and enterprises.**

There is a need to **amend existing laws, policies, and regulations to cater for the ever-evolving digital market, as there is a need to protect consumers adequately without also stifling disruptive innovations.** The GCCPC needs to continuously advise any policies government proposes to take or taken that affect competition or consumer and align changes with the Competition and Consumer Protection Acts. It is crucial for institutions to carefully prepare consult the commission when designing their laws or regulations. Some of the government policies might be anticompetitive, and the commission's role is to put those checks and balances. This will enable the commission to highlight anti-competitive or consumer welfare issues in that sector.

Additionally, efforts can be made to attract foreign investment in the digital sector by offering favorable tax regimes, subsidies, and other incentives. Offering companies an efficient and secure digital identity platform in company registration, taxation, and online banking can further grow digital SMEs. The government could also promote adopting open data policies to encourage the development of data-driven startups. This could involve creating a national open data policy, establishing a national open data portal, and funding projects that use open data.

- **Develop regulatory sandboxes:**

With its small size and potential low red tape opportunity, The Gambia can develop a **regulatory sandbox environment where innovative products, services, and business models can be tested without facing the total regulatory burden.** This would allow entrepreneurs to experiment and try innovative ideas, products, or services quickly and surpass the international competition in the R&D phase. This could set a rise to experimentation and innovation culture and create a highly competitive and innovation-driven entrepreneurship scene in The Gambia. These sandboxes can target specific strategic sectors that the government or the national innovation council foresees as most important or have more significant growth opportunities. These sandboxes can also be promoted overseas to attract foreign investment and talent from other parts of Africa and the world.

A regulatory body can supervise the implementation of the regulatory framework for innovation. The regulatory body should be responsible for issuing licenses, setting standards, monitoring compliance, and enforcing penalties for non-compliance. Developing a regulatory framework for innovation requires a skilled workforce that can implement and enforce the regulations. Therefore, there is a need for international capacity-building and training programs for regulators and other stakeholders involved in the development and implementation of the regulatory sandbox framework.

- **Develop national digital innovation hubs:**

Developing a digital innovation hub is critical to supporting digital innovation and entrepreneurship in The Gambia. Therefore, the best possible areas should be identified across the country as hotspots for innovation hubs.

These hubs could be funded for 5-10 years or more until they become self-sufficient. Then, additional tax incentives could attract private sector investment in those innovation hubs.

Government can partner with private sector organizations to establish incubators and accelerators in those hubs nationwide. The innovation hubs should be designed to provide a collaborative environment for digital startups, focusing on providing access to incubation space, mentorship, training, coaching, workshops, seminars, networking opportunities, and other resources for like-minded individuals to succeed.

The hub spaces should provide affordable office space with high-speed internet, electricity, and other essential amenities entrepreneurs need. The hubs should also offer access to affordable support services such as accounting, legal, and marketing assistance. Innovation hubs should also support digital startups to access finance and investment. Partnerships with universities and research institutions, as well as supporting the development of innovation centers of excellence in selected hubs, are an additional opportunity for R&D growth to develop cutting-edge products and services.

In addition to establishing physical innovation hubs, the government could also consider supporting **virtual innovation hubs**, enabling entrepreneurs and innovators to collaborate and access resources online. This could help overcome some of the logistical and financial barriers to entrepreneurship in The Gambia, such as limited access to physical infrastructure and funding.

- **Establish a digital innovation startup fund:**

An essential aspect of digital entrepreneurship is the need for financing mechanisms tailored to the needs of startups and small businesses. As a small and rising economy, startups and SMEs are key in boosting digital innovation. However, traditional banking and investment channels may not be accessible or appropriate for these ventures. Therefore, **alternative financing options such as crowdfunding, venture capital, and impact investing should be explored and promoted.**

Establishing a startup fund is one of The Gambia's most effective ways to support digital innovation and entrepreneurship. It is possible to initiate a fund of funds where the government invests part of the fund's monetary budget and the private sector the other half. Additional measures such as tax incentives for VC funds, streamlined procedures for registering and operating funds, and clear rules and guidelines for investing in startups can be created to increase private sector interest.

The startup fund should be designed to provide seed funding to early-stage digital startups, focusing on companies developing innovative solutions to local challenges. The startup fund should also offer mentorship and support to the startups, helping them to navigate the challenges of starting and growing a digital business. The fund can provide seed capital, working capital, and other forms of financing to startups. The government can also partner with financial institutions to provide loan guarantees to startups, making it easier for them to access loans. In addition to providing access to finance, the government can also consider giving tax incentives to investors who invest in startups. This will encourage more investors to invest in startups, giving them the capital needed for growth. In addition to these steps, ensuring that VC funds operate transparently and accountably is crucial. This can be achieved through appropriate regulations and oversight and by promoting best practices in corporate governance and reporting.

- **Develop a digital entrepreneurship curriculums and training programs:**

Entrepreneurship education is critical for developing a culture of entrepreneurship in The Gambia. The government can partner with educational institutions to incorporate entrepreneurship education into the existing and new curriculums. This could be harnessed in primary, secondary, and tertiary institutions to encourage the development of an entrepreneurial mindset from a young age. This can be done by **introducing digital and or general entrepreneurship courses and providing seed funding and support for entrepreneurship programs and competitions in universities and technical colleges.**

The curriculum should provide students with the skills and knowledge they need to start and grow a digital business, including website development, digital marketing, and e-commerce. The curriculum should also provide practical experiences, like internships and mentorship opportunities, to help students develop their skills. Fostering a **continuous learning and improvement culture within the digital economy ecosystem is crucial**. Life-long learning training programs for grown-ups can be established to divert more of the population toward digital entrepreneurship. Encouraging people to learn from each other's successes and failures, best practices, and approaches can inspire and turn many well-established specialists into successful entrepreneurs.

- **Encourage public-private partnerships:**

Analyze the requirements and plan for developing a comprehensive government procurement registry that enables local companies to participate easily in public sector innovation. In addition, it allows for more transparency and raises general awareness of government-initiated projects. As a result, the government can outsource significantly more solutions as complete services to the private sector (for example, PPP) to reduce the burden on the government and, by that, also provide a breeding ground for knowledge transfer and new scalable business models across the entrepreneurial scene.

The Gambia could also strengthen regional cooperation and integration within the West African region, capitalizing on initiatives such as the West African Economic and Monetary Union (WAEMU) and the Economic Community of West African States (ECOWAS) to expand market access for Gambian digital businesses and pursuing further bilateral and multilateral trade agreements that facilitate the export of Gambian digital services and the inflow of foreign direct investment into the country's digital sector. In addition, the government could develop partnerships with other ECOWAS member states to share best practices, resources, and expertise in digital innovation and entrepreneurship. That would ultimately lay a strong foundation for future exports of digital solutions made in The Gambia.

- **Digital Entrepreneurship inclusion:**

Implement policies and initiatives to bridge the digital divide and ensure that all Gambians, regardless of socio-economic background, gender, age, or geographic location, can access and benefit from digital technologies and services. **Digital entrepreneurship should include all segments of society**, including women and marginalized groups. Women face significant barriers to accessing finance, training, and networks in entrepreneurship. **Initiatives such as women-only startup accelerators and mentorship programs** can help to level the playing field and promote gender equality in the digital economy.

For regional inclusion, **developing digital infrastructure is critical to enable digital businesses**. The government should invest in developing high-speed internet, cloud computing, and other advanced digital technologies to support the growth of digital businesses in all regions of The Gambia. Digital businesses should adopt inclusive business models and practices, such as hiring people from diverse backgrounds, addressing gender imbalances in their workforce, and providing affordable products and services for low-income populations.

Enhance the platform/mechanism that enables citizens' digital engagement. The general aim of (digital) engagement should be a better quality of life by being (digitally) engaged in political decision-making (advanced policy development), using government (e-) services, and having the necessary awareness and skills for these engagements. For that, people also need opportunities and access. This is particularly important for digitally vulnerable citizen groups. Therefore, we recommend mapping the digital possibilities of different (digitally vulnerable) groups regarding digital access, literacy, skills, and engagement in general, as well as the concrete needs of specific groups. Then, based on the mapping, develop a strategy and a plan with recommendations, capacity-building initiatives, action proposals, and pilot projects and create opportunities for different groups to implement to get quick and tangible results in increasing digital engagement. Citizens and businesses will then be more streamlined towards new initiatives, and the adoption speed of changes or new services will increase significantly if there has been an open engagement in ideation, design, and other phases.

Develop transparency and trust between government and citizens and establish a public digital platform where government initiatives and processes can be seen publicly with the potential to comment on those activities. This can easily be tied to a government e-cabinet platform to enable accelerated information flow between the policymaker and the stakeholders. The key to building trust is the transparency and accountability of the public sector's plans, actions, impact, and feedback and the credibility of the input from the citizens and the organizations. It is essential to understand, show and explain the value of trust and the benefits of (digital) engagement for a democratic society. Citizens' trust in public services is a precondition for more active e-participation.

Raise awareness of opportunities of how digital tools and digital business models can increase the competitiveness of Gambian companies both locally and internationally and across traditional industries. This can be achieved, for example, with online promotions, experience sharing, and best practice workshops.

Develop a systematic roadmap on how government can harness all the private sector opportunities to enable the private sector to lead the digital development of the Gambian society and economy. Include the best practices from across the world to develop a measurable and achievable action plan to engage the private sector to the maximum and achieve the desired digital leadership position in the region.

- **Digital Marketplace Platform:**

The Government in collaboration with stakeholders including the private sector should develop and or implement a Digital Marketplace Platform that would be designed to foster digital entrepreneurship and innovation by providing a centralized online marketplace for businesses to showcase their products and services. This platform will connect local entrepreneurs and businesses with a wider audience, both domestically and internationally. It will also offer resources such as mentorship programs, funding opportunities, and networking events to support the growth of startups and small businesses in The Gambia.

- **Blockchain Innovation Initiative:**

The Government should engage digital startups or innovators in The Gambia to develop homemade Blockchain technology or solution aims to implement and harness the potential of blockchain technology in various sectors, such as finance, supply chain management, and public services. Blockchain can enhance transparency, security, and traceability in transactions, which can be especially valuable in areas like land registry, identity management, and financial services. This initiative will work on regulatory frameworks, conduct pilot projects, and provide training to stakeholders to facilitate the adoption and use of blockchain solutions.

- **Rural Technology Outreach:**

The Government should work with various key stakeholders to establish a Rural Technology Outreach program that seeks to bridge the digital divide between urban and rural areas by providing access to technology and digital resources in remote communities. It will involve setting up digital hubs and community centers equipped with computers, internet connectivity, and digital training programs. By empowering rural residents with digital skills, this initiative aims to unlock entrepreneurial opportunities and encourage innovation in rural areas.

- **Artificial Intelligence Research Center:**

Government and stakeholders should establish a National Artificial Intelligence Research Center that will serve as a hub for research, development, and innovation in the field of artificial intelligence (AI). It will bring together experts, researchers, and industry professionals to collaborate on cutting-edge AI projects and applications. The center will focus on AI-driven solutions to address local challenges, such as healthcare, agriculture, and education. Additionally, it will foster partnerships with academia and the private sector to create a robust AI ecosystem in The Gambia.

- **Digital Health Innovation:**

This initiative will focus on engaging local innovators, startups and entrepreneurs to establish a Digital Health Innovation initiative that aims to develop digital health solutions or harness technology and digital solutions to enhance healthcare delivery and outcomes in The Gambia. The initiative will focus on telemedicine, electronic health records, health monitoring devices, and AI-driven diagnostics. By improving access to healthcare services and leveraging data for personalized treatment plans, this initiative aims to create a healthier nation and drive innovation in the healthcare sector.

- **Fintech Innovation Lab:**

The Government should establish or ensure the establishment of a Fintech Innovation Lab that will support the growth of the financial technology sector in The Gambia. The lab will serve as an incubator and accelerator for fintech startups, providing mentorship, funding, and access to resources. This lab will focus on innovative fintech solutions, such as digital payment

platforms, mobile banking, and microfinance technologies, to promote financial inclusion and create a thriving fintech ecosystem.

- **Data Analytics Hub:**

The Government, Private Sector and other stakeholders through partnership should establish a Data Analytics Hub that will centralize and analyze data from various sources to generate valuable insights for businesses, policymakers, and researchers. By employing advanced data analytics techniques, this hub will support evidence-based decision-making, market research, and policy formulation. The hub will also encourage collaboration between the public and private sectors to maximize the value of data and drive data-driven innovation.

- **Virtual Reality/Augmented Reality Lab:**

The Government should work with partners to establish a Virtual Reality/Augmented Reality (VR/AR) Lab that will be a center for exploring immersive technologies and their potential applications across various sectors. From education, health and training to tourism and entertainment, VR/AR can revolutionize user experiences and create new business opportunities. This lab will facilitate research, development, and experimentation with VR/AR solutions, fostering innovation and entrepreneurship in this emerging field.

- **Green Technology Innovation Initiative:**

There is a need for the Gambia to establish a Green Technology Innovation initiative that will promote the development and adoption of environmentally friendly technologies and practices. This initiative will focus on renewable energy solutions, sustainable agriculture practices, waste management innovations, and green infrastructure development. By encouraging green entrepreneurship and innovation, The Gambia can contribute to global efforts to combat climate change while creating a green economy.

- **Cross-Border Collaboration Program:**

The Government and Stakeholders should establish a Cross-Border Collaboration Program on Digital Entrepreneurship and Innovation that will foster international partnerships and collaborations between The Gambia's entrepreneurs, researchers, and innovators and their counterparts from other countries. This program will facilitate knowledge exchange, technology transfer, and market access opportunities. By connecting with global innovation ecosystems, The Gambia can leverage international expertise and resources to accelerate its digital entrepreneurship and innovation efforts.

By implementing these flagship projects under the Digital Entrepreneurship and Innovation Pillar, The Gambia can create a thriving digital economy that nurtures innovation, empowers entrepreneurs, and fosters sustainable economic growth and development.

3.5 Innovation and business ecosystems

The Gambia has made significant progress in its digital transformation journey. Several industry associations are actively developing the digital economy, including the ICT cluster and business angels' network. In addition, good experience has been gained from public-private partnerships in public service development and increasing the private sector competitiveness. However, there is still a long way to go in further developing innovation and business ecosystems to realize the potential of the digital economy fully. Establishing a strong innovation and business ecosystem is necessary to promote collaboration and growth in the digital sector.

Cross-industry partnerships with industrial sector

The Gambia must establish an efficient and effective digital infrastructure to support adopting digital technologies in agriculture. **Collaborative relationships between different industries can be subsidized or incentivized** to achieve mutually beneficial outcomes that could not be achieved independently. For example, a collaboration between The Information Technology of the Gambia (ITAG) and the Association of Gambian Horticultural Producers and Exporters (GFAR). ITAG's aims to collaborate, explore, and develop the ICT community in the Gambia, involving a broad spectrum of professionals covering all aspects of ICT. GFAR is working towards making agri-food research and innovation systems more effective. Collaboration between the two entities and industries could have wide mutually beneficial benefits.

To promote the adoption of digital technologies, farmers and other stakeholders in the agriculture sector can be trained by ICT sector stakeholders on using digital tools, applications, and platforms. This includes **training on accessing and using digital information, services, and products to enhance productivity, profitability, and competitiveness**. It can also involve **establishing e-commerce platforms** that connect farmers with buyers and enabling digital payments to promote transparency and efficiency in the local and cross-border agriculture value chain.

National Agroforestry Strategy for The Gambia 2022-2032, for example, foresees great opportunities in transforming the agriculture and horticultural industry in the Gambia, which the country is heavily dependent on. Agroforestry is a relatively new and underdeveloped segment in the whole world, and developing IT solutions such as precision agroforestry could bring accelerated productivity growth for local farmers and scalable IT export opportunities for ICT firms.

These solutions can capture data on water use, crop production, soil quality, weather patterns, drones, satellite imagery, and other relevant information to support evidence-based decision-making. IT-aided precision planning and optimizing the distribution of limited farming resources, Gambia can restore its food security and become an important AgriTech innovation exporter. This is one of many segments where Gambian farmers and ICT entrepreneurs could jointly develop their unique value proposition and high international competitiveness. Due to successful cross-industry partnerships, Gambia can quickly become an agroforestry and regenerative farming innovation hub for Africa or the World. The Inclusive and Resilient of

Agricultural Value Chain Development (GIRAV) could be one of the platforms where this type of collaboration opportunity could be explored.

Cross-industry partnerships with services sector

In the context of tourism, the ICT industry partnership with The Gambian Tourism and Travel Association (TTAG) can be a powerful method for driving innovation in this highly important sector for The Gambia. By bringing together companies with complementary strengths and capabilities, tourism and ICT businesses can help to create new value for customers and stakeholders while also driving efficiency and healthy competitiveness in the marketplace. Tourists seek to research, compare prices, use chatbots, and virtual assistants and make bookings from their homes.

Collecting and analyzing data can provide valuable insights into tourist behavior and preferences, which can be used to develop targeted marketing strategies, improve tourist experiences, and identify areas for improvement. As a result, tourism companies can increase the use of IT to market their services to potential customers through websites, social media, and other online channels.

Tourism companies can develop mobile apps to provide real-time information about local attractions, events, and services and also develop virtual tourism digital solutions through the use of virtual reality or related technologies. Online marketing can help reach a wider audience and attract tourists to Gambian destinations or entice them to pay for virtual tourism. IT can significantly enhance the tourism experience for tourists and companies by providing easy access to information, personalized services, and convenient booking and planning tools.

Digital payment systems such as mobile money, e-wallets, POS, and online payment gateways can simplify the payment process for tourists and businesses. Implementing these systems can also help reduce cash-based transactions, which can be vulnerable to fraud and theft. **Cross-industry partnerships between ICT and the traditional services sector can greatly value local society.** Gambian tourism sector competitiveness can be seriously increased with IT systems development, and just like in the industrial sector, many of those IT platforms can also be exported across Africa and The World in collaboration with local ICT companies that develop those solutions.

Local IT entrepreneurs and diaspora powered talent growth programs

Develop a public-private partnership based on the “École 42” format, like a unique **IT programming education program**. Initiate local tech entrepreneurs and diaspora funding for the necessary infrastructure of the “École 42”-like program to kick-start this additional layer of IT education in different parts of Gambia. This will provide high-tech career opportunities and high-paid jobs for young talent nationwide and speed up digital innovation entrepreneurship.

The “École 42” format is used worldwide and offers free and open courses in computer science without any prerequisites. The school uses a self-study learning method and trains developers for 2 to 5 years through projects and programming rushes. The school was initially

created to promote innovation and digital transformation. There are no teachers or courses, and students learn through peer-to-peer learning. To join, students must complete a programming rush called the “Piscine”. If successful, the training lasts two to five years. “École 42” formats do not give a state-recognized degree, but graduates are recognized by many private sectors worldwide.

Triple-helix cooperation between government, industry, and academia

The government should initiate and promote triple-helix cooperation between government, industry, and academia to facilitate the development of innovative solutions. This cooperation can **facilitate the sharing of knowledge, resources, and expertise, which will help to drive the growth of the digital economy**. Such platforms will also enable platforms for advocacy and defining challenges and opportunities that the triple helix format can tackle with more incredible speeds. This can include establishing an innovation advisory council and national innovation network composed of government officials, industry leaders, and academic experts. Its role can be to provide advice and guidance to the government on matters related to innovation and entrepreneurship, as well as to promote collaboration among stakeholders.

An enabling environment for such partnerships can be created by hosting networking events and sponsoring industry-academic conferences. In addition, to strengthen partnerships between universities and industry, the **government can establish programs to promote technology transfer from universities and research institutions to industry, resulting in joint research projects, industry-sponsored scholarships, and technology transfer offices**. This will help to ensure that innovations developed in academic settings are translated into commercial products and services.

Diaspora fund of funds

The government could also promote collaboration with Gambian diaspora communities to foster the growth of the digital innovation, entrepreneurship, and digital business sectors. This could involve establishing partnerships with diaspora organizations, funding diaspora-led digital innovation projects, and creating a diaspora innovation network.

The government can create a fund for the diaspora, an investment vehicle that pools capital from diaspora investors rather than directly investing in individual enterprises. The fund-of-funds model offers several benefits to diaspora investors, including increased diversification, access to a broader range of investment opportunities, and reduced risk due to exposure to multiple funds with different strategies and asset classes. In addition, government oversight and quality assurance can be a value and trust benefit that would increase the chances of tapping into worldwide diaspora resources. The underlying funds may include venture capital funds for startups, infrastructure funds, and industry-specific funds like agriculture, horticulture, etc.

Public private partnership investments

The government can harness the public-private partnerships (PPP) in the identified priority investment sectors, such as infrastructure development, digital transformation and

development of the agriculture, healthcare, and education sectors through the use of digital solutions or technologies. These sectors have a high potential for private-sector involvement. They can have a significant impact on economic growth and social development. As a next step, engagement with private sector entities to identify the exact PPP opportunities is needed and further enabling the environment for such PPPs to be successfully executed. This can involve holding **consultative meetings with industry associations and chambers of commerce and hosting investment forums and roadshows to attract private sector investment**. Additional measures such as **investment guarantees, tax breaks, and access to finance** can be added to further increase the private sector interest. In addition, the government can establish a dedicated PPP unit to oversee the development and implementation of PPP projects. This unit can provide technical assistance to government agencies, conduct feasibility studies, and facilitate project implementation, involving training on project preparation, procurement, contract negotiation, and monitoring and evaluation.

The government can develop standard contractual documents for PPP projects to streamline procurement and reduce transaction costs. Standard documents can also improve transparency and ensure consistency in project implementation. By encouraging public-private partnerships, the government can leverage private sector expertise, resources, and networks to create a more dynamic and sustainable business environment, attract foreign investment, and drive economic growth and social development.

Fostering the development of industry associations

Continuous development of industry associations is an important element of creating a conducive business environment in The Gambia, more so digital or online businesses. Industry associations can serve as an effective platform for businesses to collaborate and advocate for policy and regulatory changes that benefit their respective sectors.

The government can create an enabling environment that supports the formation of new industry associations by **establishing enhanced legal frameworks that govern their operations, including precise registration and reporting requirements to ensure accountability and transparency**. Additionally, the government can **provide financial support** to industry associations to enable them to carry out their activities effectively. Furthermore, as described earlier in the chapter, the government can encourage collaboration between different industry associations by promoting regular dialogue and cooperation to share and unite knowledge and skills for mutually beneficial new digital products and services development and related. For example, the government can organize regular roundtables or workshops where representatives from different industry associations can meet and discuss common challenges and opportunities, more so digital or online businesses in the digital sector.

The three key flagship projects in digital Innovation and business ecosystems, incl. associations and triple helix cooperation, that need further investment are as follows.

- **Establish a national startup ecosystem development unit** under The Gambian Investment & Export Promotion Agency. Build systematic relationships and collaborations with existing startup community platforms to intensify cooperation in

tackling challenges and harnessing opportunities of the startup industry. Enable the startup ecosystem development unit to run regular digital startups community networking events and knowledge-sharing platforms and assign the investor relations development and venture capital market development (locals, international incl. diaspora based). Publish use cases of government and other sector cooperation to highlight the value such collaboration creates. Reach out to other sectors and identify their data needs. Based on the analysis, prioritize investments, or collaborate with government organizations to publish such data.

The Innovation and Business Ecosystem pillar of the Digital Economy Master Plan for The Gambia aims to create an enabling environment for innovation and entrepreneurship in the digital economy. The plan will be implemented over the next ten years. It will focus on establishing a National Innovation Hub, supporting startups and entrepreneurs, encouraging triple-helix cooperation, and strengthening business associations and other collaborative formats.

- Digitalization strategies of the most important traditional industries should be created over the coming years to ensure the economy's systematic vertical modernization. These include manufacturing, transport, logistics, and other industries. Modernization industries such as agriculture with ICT can lead to increased agricultural productivity and rural development, improved food security, enhanced farmer income generation, and contribute to achieving the Sustainable Development Goals.

3.6 Digital literacy and skills

The digital literacy and skills pillar focuses on those critical components of the digital economy that empower individuals and businesses to use digital technologies effectively and efficiently. Every nation's economic success is fundamentally based on its level of education and the ability to harness new knowledge in economic development. Adopting new services is based on the level of skills and know-how in society on how to use those services. At the same time, those skills are harnessed for public sector digital development, and companies are always short of IT-savvy employees. The higher the skill level in ICT, the higher the potential for developing competitive IT solutions for domestic and international markets.

Digital literacy and skills are critical components of the digital economy, as they empower individuals and businesses to use digital technologies effectively and efficiently for personal and business gains. The Ministry of Higher Education, Research, Science and Technology has successfully initiated a national innovation fund that will promote a self-sufficient, creative, and knowledge-based society for sustainable socio-economic growth. **The national innovation fund** is expected to achieve several objectives, such as nurturing grassroots innovations that will help The Gambia become a global player in sustainable technologies, facilitating partnerships between the government, academia, industry, and civil society to **promote open science and innovation**, encouraging private sector investment in innovative projects to improve competitiveness and efficiency, implementing scientific and technological innovations, promoting inclusiveness including gender equality in STEM and Indigenous Knowledge Systems, and achieving the SDGs, the objectives of The Science, Technology and Innovation Strategy for Africa 2024 (STISA 2024), and of the Pan-African Agenda 2063.

The Gambia has several strengths and opportunities in its STEM system that come from recent high-level strategies and policy frameworks, like the national entrepreneurship policy, short-term interventionist funding regimes, intellectual property and related policies, and a proactive private sector, which create a supportive environment for long-term, significant and sustainable development. In addition, the youthful population can present an opportunity for the future growth of The Gambia, and unlocking this population's potential through education is paramount, mainly training at the tertiary level and technical and vocational training in digital technologies and innovation.

To improve digital literacy across The Gambia, it's essential to **create a comprehensive digital skills training program that caters to all levels of society**. First, the program should be developed to make people aware of digital technologies and their benefits. The program should be made accessible to everyone, regardless of their location, age, or background. This can be achieved through various measures, including establishing community learning centers, online courses, and mobile learning platforms. In addition, the training program should be designed to meet the needs of different industries and sectors of the economy. For instance, training in digital marketing, data analysis, and social media management can be provided to small and medium-sized enterprises (SMEs) to help them improve their competitiveness in the digital age.

Meanwhile, cybersecurity, cloud computing, and software development training can be provided to IT professionals to enable them to develop and implement secure and efficient digital solutions. In addition, **online learning platforms**, such as massive open online courses, can provide access to high-quality education and training to individuals who may need access to traditional educational opportunities. The government can promote the use of these platforms and work with providers to tailor content to the needs of the Gambian population.

The Gambia should develop a **national digital skills framework** that defines the different levels of digital competencies required for various economic roles. This system can be used to measure the proficiency of individuals, organizations, and educational institutions in digital skills and competencies, and it can provide a framework for continuous learning and improvement. This will ensure that the training provided is relevant, standardized, and effective in meeting the economy's needs. The certification program could include a comprehensive curriculum, training materials, and assessments aligned with the identified digital skills and practical competencies. The certification program should also be accessible and affordable to all individuals, regardless of their socio-economic status or educational background. To achieve this, the program can offer scholarships or subsidies for low-income individuals. Finally, to ensure the credibility and recognition of the certification program, partnerships with international bodies, such as the International Digital Economy and Society Index or the International Telecommunication Unions possible, to align the certification program with international standards and best practices.

In later stages, Gambia is ready to create more capital-intensive industries, such as electronics which is heavily tied to the IT industry. The electronics and mechatronics industries are a natural evolution of the Gambian high-tech sector, where existing IT skills can be integrated into consumer electronics, autonomous robotics, and other devices and machinery. The success of high-tech industries depends on having a highly skilled and educated workforce. Therefore, **the government can invest in education and training programs that widen its scope from existing ICT to science, technology, engineering, and mathematics (STEM)** to build the necessary talent pool for those new high-tech industries and simultaneously leverage the ICT sector capacity. This must include best practices from

across the world, such as close cooperation with the private sector in scholarships and apprenticeships with hands-on experience for the students.

The digital skills development in The Gambia should not be left to the government alone. **Public-private partnerships (PPPs) can play a critical role in supporting the development of digital skills by providing funding, expertise, and resources.** The government should work closely with the private sector to identify areas where PPPs can be established to support digital skills development. For instance, private companies can provide funding to establish digital skills training centers, provide expert trainers, and offer internship opportunities for students. In return, the government can provide tax incentives and other benefits to encourage private sector investment in digital skills development.

The digital skills development in The Gambia should start at an early age. Therefore, the government should introduce ICT education in primary and secondary schools. This will help to build a foundation of digital skills that can be built upon as students' progress through their education. ICT education should be designed to provide students with a basic understanding of digital technologies and how they work. Additionally, the curriculum should include practical components that enable students to develop their digital skills through hands-on experience. By starting digital skills training at a young age, The Gambia can create a generation of well-equipped citizens to participate in the digital economy.

Establishing a National Digital Skills Council could help The Gambia's government better understand the current demand and supply of digital skills. The council should include industry, academia, government, and civil society representatives. It could guide on the development of relevant qualifications, the accreditation of digital skills programs, and support the development of new programs to meet the digital economy's demands. The council could also help promote digital skills training in underserved areas of the country and provide guidance on funding and financial support for digital skills training programs.

The government could work with industry and civil society to expand access to digital skills training for underrepresented groups, including women, youth, and those living in rural areas. Digital skills centers in rural areas are one method to ensure that citizens living in these areas have access to digital skills training programs. This can significantly help to bridge the digital divide between urban and rural areas and promote inclusive economic growth.

Digital skills training could be integrated into vocational training programs and the curriculum at all levels of education. It could also be provided through online learning platforms and mobile applications to reach wider audiences. Developing online training resources allows citizens to learn digital skills from anywhere. This can include video tutorials, online courses, and interactive training platforms enabling users to learn independently. These resources can be made available for free or at a low cost to ensure they are accessible to as many people as possible.

There is a need to address the digital skills gap and skills standardization in both the public and private sectors. The government can provide training programs for public sector workers to improve their digital skills and increase efficiency in their work. In addition to complex programming and IT systems, this can include training in software programs such as Microsoft Office, data analytics, artificial intelligence tools, and project management software. The government can collaborate with private companies to develop training programs for employees in different digital skills covering various areas, from digital marketing to cloud computing. The government can create precise data collection on the demand and supply of digital skills and monitor the effectiveness of digital skills training programs. This system can

then facilitate regular updates on The Gambia's digital skills ecosystem and provide recommendations for future interventions.

The government could work with industry to develop and promote digital career pathways showcasing the diverse opportunities in the digital economy. The paths could help individuals identify the digital skills required for different roles and provide guidance on the education and training needed to acquire those skills. This could include promoting the development of digital apprenticeships and internships and supporting the creation of digital job fairs and other networking events. In addition, the government could partner with private sector companies to provide practical internships and apprenticeships to help graduates gain hands-on experience and learn directly from partitioning professionals.

The government can establish **Community Technology Centers** in remote areas where people have limited access to technology. These centers can access computers, the internet, and other digital resources. The centers can also be equipped with trainers to teach people in those community's basic digital literacy skills. Mobile computer labs are an alternative to schools and communities lacking technology access. These mobile labs can be equipped with laptops, tablets, and other digital tools that can be used for learning and skill development. Trainers can be sent with mobile labs to teach digital literacy and skills to students and community members. The government can also invest in public Wi-Fi networks in urban and rural areas to provide digitally excluded people access to the internet and digital resources, including the physically impaired citizens. Public Wi-Fi networks can be set up in public places such as parks, libraries, and community centers.

The COVID-19 pandemic has shown that remote study, work, and digital nomadism can be effective ways to study, work and contribute to the economy. The Gambian government should work towards providing the necessary infrastructure, such as high-speed internet, co-working spaces, and supportive policies to enable location independent participation in education system and in the economy. **Technology can be a powerful tool for delivering educational and entrepreneurship boost in the country.** Therefore, the Gambia should explore the use of technology, such as online platforms for location independent studies and training programs, to deliver training and resources to students, specialists, and entrepreneurs across the country. This can also attract digital nomads from around the world, who can bring their skills and knowledge to The Gambia and contribute to its digital economy.

Digital literacy and skills are constantly evolving, and it is essential to develop a culture of lifelong learning to ensure that individuals and organizations are equipped to keep pace with these changes. Therefore, the government should develop initiatives to encourage lifelong learning amongst individuals and enterprises and promote a culture of learning and innovation across all regions in The Gambia.

The key flagship projects in digital skills development that need further investment are as follows.

- **Boost digital literacy** through different campaigns to increase trust in digital services, digital identity, and digital data. Promote good cyber hygiene that helps to minimize data leakages, system malfunctions, and other similar risks. This increases trust towards adopting digital systems and the integrity of the IT systems by avoiding any future disruptions of the digital services launched.
- **Invest in The Gambian higher education system** to further increase the number and quality of software development courses nationwide. Ensure each student's

computer hardware availability and enforce practical problem-solving challenges through the IT syllabus. In addition, online digital skills training platforms can be used to reach a wider population. This can be done through partnerships with leading online learning platforms such as Coursera, Udemy, and EdX.

Current education system in The Gambia at all levels needs establishment of robust IT Infrastructure or physical hardware upgrade both for students and teachers. The enrollment of students is growing steadily amongst Gambian citizens and computers, or digital devices/tools are needed to provide modern education. In a modern-day school smart devices such as laptops, tablets or related have become essential parts of acquiring the skills that are needed in modern society. **Investment into IT hardware is essential to build the education system layer as a foundation of the digitization of The Gambian economy.**

- **Develop a public-private partnership program based on “École 42”**, a unique IT programming education program. Include local tech entrepreneurs and diaspora funding for the necessary infrastructure of the “École 42”-like program to kick-start this additional layer of IT education in different parts of Gambia. This will provide high-tech career opportunities and high-paid jobs for young talent nationwide and speed up digital innovation entrepreneurship.
- **National Digital Skills Assessment Program:**
The Government in collaboration and partnership with the Private Sector and other Development Partners through this program, will assess the digital skills and literacy levels of the population in The Gambia. The program will involve conducting nationwide assessments to identify areas of strengths and weaknesses in digital skills. The results will help policymakers and stakeholders design targeted interventions and training programs to bridge the digital skills and literacy gap in the country.
- **Digital Skills Training Centers:**
There is a need for the establishment of Digital Skills Training Centers that will serve as hubs for delivering comprehensive digital skills training to individuals of all ages. These centers will offer courses on basic digital literacy, advanced digital skills, and emerging technologies. They will be equipped with state-of-the-art facilities and experienced instructors to ensure high-quality training. In establishing these centers, the government may choose to do it, partner with the private sector to do it or invite investors through a PPP model or using other possible business models.
- **E-Learning Platform:**
The Government and or the private sector will develop a National E-Learning platform that will provide accessible and flexible digital skills training to a wider audience including students at all grades and levels. This platform will host interactive online courses, tutorials, and resources to cater to different learning styles. Learners can access these materials anytime, anywhere, enabling them to upskill and reskill at their convenience. This platform may also create room for connecting or integrating with

other existing platforms in the country, regionally and internationally to serve as a knowledge hub for the Gambia and beyond.

- **Coding Bootcamps:**

Coding bootcamps will focus on teaching coding and programming skills to aspiring developers including children, youths, and IT professionals. These intensive and short-term programs will immerse participants in hands-on coding projects, fostering their proficiency in various programming languages and frameworks. In doing so, the Government can incentives existing I.T or ICT training institutions to do it or partner with partner with them, in which at least more than 500 people will be trained annually on coding and programing skills.

- **Digital Skills Scholarships:**

The Gambia through its Ministry of Communications and Digital Economy and other key stakeholder will establish a Digital Skills Scholarships initiative in the country that will mobilize and provide financial support to deserving individuals, especially from underserved communities, to pursue digital skills training and certifications. This would-be initiative will ensure that talented individuals are not hindered by financial barriers and can contribute to the digital economy effectively and sustainably.

- **Mobile Application Development Challenge:**

Now that all digital solutions are transitioning to mobile or are mobile-based and the greater chunk of our population have mobile phones, thus the Government should give due consideration and focus to mobile application and as such should establish a Mobile Application Development Challenge in the country. This Mobile Application Development Challenge will organize a competition that encourages participants to develop innovative mobile applications to address local challenges or enhance various industries. The challenge will inspire creativity and foster entrepreneurship among Gambian youth.

- **Digital Skills for Teachers:**

There is an urgent need to establish a Digital Skills for Teachers Program in The Gambia. This program will focus on equipping teachers with the necessary digital skills to integrate technology into their teaching methods. Teachers will learn how to use educational technology, online resources, and digital tools effectively to enhance the learning experience of their students. In implementing this program, the Ministry of Communications and Digital Economy, will leverage on the cross-cutting nature of ICT to collaborate with the Education Ministries in the country and institutions of learning to mobilize the needed resources to establish such program. This program will program will be one of the game changers for digital literacy in the country moving forward.

- **Community-Based Digital Literacy Programs:**

In a whole of society approach to digital transformation, Community driven initiative, projects or programs are the easiest way to engage and have buying of the community, as such, since digital skills and literacy is one of the foundational pillars of the digital

transformation and the digital economy, the Government and collaborators or partners should establish a Community-based digital literacy programs that will be organized to reach individuals in remote areas and underserved communities. Trained facilitators will conduct workshops and training sessions to empower community members with essential digital skills.

- **Digital Literacy Curriculum in Schools:**

Schools are the spaces where talents, skills and knowledge are created, this coupled with the fact that talents, skills and knowledge, more so digital ones are the basis for all economic activities, there imperative for the Government to establish a Digital Literacy Curriculum in the country by Introducing digital literacy as part of the school curriculum to ensure that students acquire essential digital skills from an early age. The curriculum will cover topics such as coding, application development, internet safety, basic computer skills, and information literacy.

- **Digital Skills for Farmers:**

The Gambia Government identified the Agriculture Sector as its topmost priority sector for development with a vision to achieve food self-sufficiency for the country, however the surest and most sustainable way of realizing a vibrant and striving agricultural sector is through digital transformation and digitalization of the agriculture value chain and adoption of digitally enabled technologies to enable smart and precision farming and to do that, farmers must be digitally skilled. This initiative will provide training to farmers on using digital tools, agricultural apps, and precision farming techniques. Farmers will learn to leverage technology to scale with higher production and optimize their crop yields, manage resources efficiently, and access market information.

- **Social Media Marketing Training:**

The Government, likewise, the private sector, CSO, NGOs, investors and other individuals should work together to support startups, entrepreneurs to leverage on social media platforms or similar technologies to create values. This training program will focus on teaching entrepreneurs, small businesses, and individuals how to effectively use social media platforms for marketing, promotions, and business growth. Participants will learn strategies to promote products and services, engage with customers, and leverage social media analytics.

- **Digital Literacy Ambassadors Program:**

The Digital Literacy Ambassadors Program will identify and train individuals from diverse backgrounds as digital literacy ambassadors. These ambassadors will be responsible for promoting digital skills within their communities and helping others navigate the digital landscape. These ambassadors can or will work closely with The Gambia Government including the Ministry of Communications and Digital Economy and other relevant stakeholders to mobilize the needed resources and financing to rollout projects or programs on digital skills and literacy throughout the country.

Other Additional Projects / Programs

In addition to the key flagship's projects, programs or initiatives previously identified, The Gambia Government through its Ministry of Communications and Digital Economy, will work with partners locally and globally to mobilize the needed resources to implement the following projects, programs and initiatives or invite or attract local or international investors to implement them in a win-win situation for the investors, governments, and citizens of the country:

- **Digital Skills for Seniors:**

The Digital Skills for Seniors program will be to bridge the generational digital divide by offering tailored training and support for senior citizens. The initiative will focus on empowering older individuals to confidently use digital devices and navigate online services. This program will cover essential skills such as internet navigation, online communication, and the use of common digital tools. The goal is not only to enhance seniors' digital literacy but also to promote their social inclusion in an increasingly digital society.

- **Data Analysis and Visualization Workshops:**

These workshops will focus on imparting data analysis techniques and skills in data visualization to both professionals and students. Participants of the workshops will gain hands-on experience in interpreting and presenting data effectively. The workshops will cover a range of tools and methodologies, ensuring that attendees are equipped with the necessary skills to derive meaningful insights from data. By fostering a data-driven mindset, the project aims to enhance decision-making processes across various sectors.

- **Digital Skills Certification:**

The Digital Skills Certification program will aim to standardize and validate individuals' competencies in different areas of digital skills. The certification process will cover a spectrum of skills, including basic digital literacy, advanced software proficiency, and other specialized areas. These certifications will serve as tangible proof of an individual's skill proficiency, enhancing employability and promoting a culture of continuous skill development.

- **Open Data and Data Management Training:**

This flagship project will focus on promoting the use of open data and providing training on data management practices, privacy, and ethics. The training equips participants with the skills to responsibly handle and leverage data, fostering transparency and innovation across sectors. The project will contribute to building a robust foundation for a data-driven culture while emphasizing the importance of ethical considerations in data usage.

- **Smart Agriculture Training:**

The Smart Agriculture Training initiative will target farmers, educating them on utilizing smart technologies, Internet of Things (IoT) devices, and data-driven approaches to enhance agricultural practices. Farmers will gain insights into optimizing resource usage, improving crop yield, and adopting sustainable farming practices. By incorporating technology into agriculture,

this project will aim to increase productivity and resilience in the face of environmental challenges.

- **Remote Work Skills Training:**

Recognizing the increasing prevalence of remote work, this program will focus on equipping individuals with the necessary skills for effective collaboration in virtual and distributed teams. The Training program will cover virtual communication, project management tools, and strategies for maintaining productivity in a remote work environment. The project will aim to prepare individuals for the evolving nature of work and enhance their adaptability to remote work opportunities.

- **Digital Skills Roadshows:**

The Digital Skills Roadshows will take a mobile approach to raise awareness and provide on-the-ground training. These roadshows will be done in different regions, organizing events, workshops, and demonstrations to engage communities and individuals. The goal is to create awareness about the importance of digital skills and literacy while making training accessible to a diverse audience.

- **Financial Literacy and Digital Banking Training:**

This project will focus on promoting financial literacy and teaching individuals how to use digital banking services securely and effectively. Participants will learn about budgeting, financial planning, and the advantages of digital transactions. By enhancing financial literacy, the project will contribute to financial inclusion and empowers individuals to make informed financial decisions in the digital age.

- **Emerging Technologies Training:**

The Emerging Technologies Training initiative will introduce participants to cutting-edge technologies such as AI, Blockchain, Virtual and Augmented Reality. The training will aim to develop expertise in these technologies, preparing individuals for future job opportunities in emerging fields. By staying ahead of technological advancements, participants can contribute to innovation and competitiveness in the digital landscape.

- **Digital Skills for Tourism:**

This initiative will provide training to individuals working in the tourism industry, enabling them to leverage digital platforms for marketing, customer engagement, and service delivery. Participants learn how to use social media, online booking systems, and other digital tools to enhance the overall tourist experience. The project will aim to strengthen the digital presence of the tourism sector and promote sustainable tourism practices.

- **Smart City Planning Training:**

The Smart City Planning Training project will target urban planners and local authorities, providing them with the knowledge and skills to leverage digital technologies for efficient city planning, transportation, and resource management. Participants will gain insights into smart city concepts, data-driven decision-making, and technologies that enhance urban sustainability. The project will contribute to the development of smart and resilient cities.

- **Digital Skills for CSOs/NGOs:**

Civil Society Organizations (CSOs) and Non-Governmental Organizations (NGOs) will receive digital skills training through this program to enhance their outreach, fundraising, and project management efforts through digital channels. Participants will learn how to leverage social media, online platforms, and digital communication tools to amplify their impact and connect with a wider audience. The project will aim to strengthen the digital capabilities of organizations working towards social change.

- **Online Business Development Courses:**

This flagship project will involve the development of online courses to equip aspiring entrepreneurs with the knowledge and skills needed to start and grow businesses in the digital era. The courses will cover topics such as e-commerce, digital marketing, and business analytics. By providing accessible and comprehensive training, the project will aim to foster entrepreneurship and innovation in the digital business landscape.

- **Geospatial Technology Workshops:**

Workshops on Geographic Information Systems (GIS) and mapping skills will be introduced to benefit various sectors, including urban planning, agriculture, environment, and disaster management. Participants will learn how to collect, analyze, and interpret spatial data, enhancing decision-making processes in diverse fields. The project will contribute to building geospatial capabilities across sectors for better resource management.

- **Digital Skills for Creative Industries:**

Artists and creatives will receive training on using digital tools and platforms to showcase their work, collaborate with others, and reach a global audience. The project will aim to empower individuals in the creative industries to leverage digital technology for artistic expression, marketing, and collaboration. By embracing digital tools, participants can expand their reach and contribute to the growth of the creative economy.

- **Remote Healthcare Training:**

Healthcare professionals will receive training on telemedicine and remote healthcare technologies to improve access to healthcare services. The project will focus on enhancing the skills needed for virtual consultations, remote monitoring, and the secure handling of medical data. By embracing remote healthcare, the initiative will aim to increase healthcare accessibility and efficiency.

- **Digital Skills for Renewable Energy:**

This program will train individuals in the renewable energy sector on using digital tools for monitoring, maintenance, and optimization of renewable energy systems. Participants will gain expertise in technologies that enhance the efficiency and sustainability of renewable energy solutions. The project will contribute to the advancement of clean energy technologies and the digital transformation of the renewable energy sector.

- **Digital Skills for the Telecommunication Industry:**

Professionals in the telecommunication industry will receive training on the latest technologies and tools used in the sector. The training will cover areas such as network management, emerging communication technologies, and cybersecurity. By staying abreast of advancements in the telecommunication field, participants can contribute to the growth and security of digital communication networks.

- **Data Science Bootcamps:**

Bootcamps focusing on data science will train participants in data analysis, machine learning, and predictive modeling to address real-world challenges. The intensive and hands-on nature of the bootcamps will allow participants to develop practical skills in data science. The project will aim to meet the growing demand for data science expertise and promote innovation through data-driven solutions.

- **Digital Skills for Law Enforcement:**

Law enforcement personnel will receive training on using digital tools and technologies for crime prevention, investigation, and cybersecurity. The training covers digital forensics, cybersecurity best practices, and the use of technology in law enforcement operations. By enhancing digital skills in law enforcement, the project aims to improve the effectiveness and efficiency of crime prevention and investigation.

- **Virtual Job Fairs and Networking Events:**

The Virtual Job Fairs and Networking Events initiative will be a pivotal component of The Gambia's Digital Economy Master Plan, it will support to bridge the gap between job seekers possessing digital skills and employers in need of such talents. This project will acknowledge the dynamic nature of the digital economy and seeks to create a virtual platform that fosters connections between job seekers and potential employers.

- **Digital Skills Exchange Program:**

The Digital Skills Exchange Program will be to enhance The Gambia's digital capabilities by fostering collaboration with international partners and organizations. This initiative will recognize the importance of cross-cultural learning and will aim to facilitate the exchange of digital skills expertise and knowledge and promote cross-cultural learning.

Overall, the Digital Literacy and Skills pillar of the Digital Economy Master Plan for The Gambia is essential for equipping the citizens of The Gambia with the necessary digital skills and knowledge and achieving the country's goals of becoming a leading digital economy in the region. It is the people that execute progress. By investing in digital literacy campaigns, improving the higher education system, developing public-private partnership programs like “**École 42**”, and ensuring a focus on monitoring and evaluation, The Gambia can build a strong foundation for its digital economy that will benefit its citizens, enable flourishing entrepreneurship, and attract international investment. Moreover, with a highly skilled workforce and a thriving digital sector, The Gambia can position itself as a leading hub for innovation and IT in Africa.

3.7 Cybersecurity and Data Protection

Building a digital society requires close attention to cybersecurity. Any system is as good as its weakest link, and digital space is full of abundant cyber threats. Therefore, cybersecurity and data protection are critical components of the digital economy. With the increase in digitization and the use of technology in all aspects of life, the risk of cyber-attacks and data breaches is also increasing. Those threats can undermine the integrity of government services and diminish the trust among its citizens and businesses that use those services.

Building trust takes a very long time, and losing trust can only take one bad experience. Therefore, securing digital platforms, services, and systems and ensuring the security and privacy of citizens' and organizations' data are crucial elements when building a prosperous and flourishing digital state.

The Gambia needs to **develop and implement a comprehensive plan to strengthen its cybersecurity and data protection capabilities**. The key flagship projects in digital data & systems security that need to be invested in first are as follows.

- The Gambia has made progress in cybersecurity and data protection in 2019 by developing and adopting a Data Protection and Privacy Policy and Strategy, which provides a framework for protecting individuals' personal data. However, citizens and businesses still need more awareness and understanding of cybersecurity and data protection issues and those strategies need continuous improvement. **The existing legal and regulatory framework needs to be more comprehensive to address current and future cybersecurity and data protection & privacy threats adequately**. Therefore, the Gambia needs to upgrade and update its national cybersecurity strategy that address the current and future threats to its digital infrastructure. The strategy should cover all sectors, including government, critical infrastructure, and private businesses, including enacting new laws and regulations that specifically address cybersecurity and data protection issues.

Additionally, **creating a committee to review the National Cybersecurity Strategy and its implementation plan regularly would be strongly recommended**. Develop tools for supervising the implementation of the national cybersecurity strategy, including monitoring, and testing the readiness to deal with cyber incidents. In addition, there must be tools enabling, for example, penetration tests for checking vulnerabilities and recommendations to test the cyber hygiene of users. Finally, publish regular overviews of strategy implementation to show development and advancements in the area.

- Develop national information security standards, baseline requirements, and procedures to be implemented by the government and the private sector, with the monitoring system and implementation plan, including capacity-building and review the current cybersecurity legal framework and update it based on the best practices. That includes drafting and adopting a National Cybersecurity Law providing requirements for the maintenance of network and information systems essential for the functioning of society, including network and information systems of the public sector, liability, and supervision, as well as bases for the prevention and resolution of cyber incidents. This would also mean developing an implementation plan with concrete steps towards desired goals, specific tasks and timelines, policies related to cybersecurity by

government authorities, setting up an institutional cooperation framework, cybersecurity governance model, mandates, guidelines, and procedures, together with financial resources.

- To ensure wider compatibility and standardization, The Gambia should enact data protection laws that align with international best practices and standards, such as the European Union's General Data Protection Regulation (GDPR) or the African Union's Convention on Cybersecurity and Personal Data Protection, NIST Cybersecurity Framework or ISO 27001, Payment Card Industry Data Security Standard, Secure Coding Standard by the Software Assurance Forum for Excellence in Code and many others to ensure that businesses and organizations operating in the country are complying with global best practices and industry standards. **Cross-border cybersecurity and data protection agreements should be developed with other countries to ensure security of cyberspace and protect personal data when transferred across borders.** Data protection and privacy legislation should provide guidelines for collecting, processing, and storing personal data by private and public sectors. The Gambia should also establish partnerships with international law enforcement agencies to prevent and combat cybercrime. This can be achieved by signing cooperation agreements with relevant agencies to facilitate the exchange of information, joint investigations, and the prosecution of cybercriminals.
- Mandate The Gambia National Computer Security and Incident Response Team (gmSCIRT) to lead cybersecurity implementation in the country. Make it mandatory to have chief information security officers (CISO) and data protection officers (DPO) in all ministries and create a networking platform. All public institutions must address technological and physical threats daily. CISO knows best what these threats are and how to avoid them. CISO cooperation mechanic is a good example of the best international practice supporting knowledge and experience exchange.

The DPOs will complement information security procedures with a special focus on data protection and related capacity-building. Develop a competency model for public sector officials, conduct training programmes and create a yearly knowledge validation-competency development, monitoring, and training.

- **Develop a cyber lab for training and resilience building.** This lab would include software and hardware to enable code analysis, look for vulnerabilities, and train cybersecurity experts in the public and private sectors, of both technical and non-technical personnel. In addition, the gmSCIRT should regularly assess the country's cybersecurity posture to identify vulnerabilities and potential threats. This would enable its team to proactively address issues before they become major problems. gmSCIRT should have Memoranda of Understandings (MOU) with other national computer emergency response teams including the security sector and financial intelligence units in the country to facilitate information sharing and coordination of latest best practices and counter fighting common cyberthreats.

- **The Gambia should also develop a national incident response plan (NIRP) crucial for more comprehensive cybersecurity management.** NIRP should outline how organizations should respond to and recover from cyber incidents. The NIRP also helps coordinate efforts between different organizations and establish clear roles and responsibilities in the event of a cyber-attack in cooperation with gmSCIRT and other stakeholders. This would include setting clear incident response procedures for identifying, containing, analyzing, eradicating, and recovering from cyber incidents. The procedures should also include communication and reporting protocols for incidents within the government institution and with relevant authorities such as gmSCIRT and others. Timely and effective communication is critical during cyber incidents. Those practices should be regularly trained and exercised with simulations etc. The Gambia should also conduct regular cybersecurity audits to assess the effectiveness of established cybersecurity standards and best practices. Independent third-party organizations should conduct these audits to ensure objectivity. They should be based on internationally recognized standards, such as ISO 27001.
- **The Gambia needs to enhance its capacity-building efforts in cybersecurity on a wider scale.** In today's digital age, data breaches and cyber-attacks can compromise personal and sensitive information, leading to identity theft, financial loss, and reputational damage. This is new to many citizens and businesses in Gambian society. Therefore, it is essential to raise awareness of those threats and take measures to protect personal data and ensure privacy. This would include **encouraging private sector participation in cybersecurity and data protection efforts.** The government should launch public awareness campaigns that educate citizens and businesses about cybersecurity, data protection solutions, and how to protect themselves. This would involve planning and organizing regular awareness-raising campaigns for the public to improve cyber hygiene and general resilience and help to decrease cyber incidents. In addition, cybersecurity recommendations should be developed for the private sector to follow.

Area-specific requirements can constantly be developed, but entrepreneurs and citizens who lack detailed knowledge about cybersecurity should be able to use requirements and recommendations. In addition, such requirements make it possible to establish training and awareness-raising programs. The government should also **establish partnerships with international organizations** and tap into industry networks to further source best practices and technical assistance and training. This can include collaboration with regional and international organizations, such as the African Union, the ECOWAS, and the United Nations. A further boost can be added with the promotion of cybersecurity research and development, including funding for cybersecurity research projects, collaboration with universities and research institutions, and support for cybersecurity startups. **The government could establish a Cybersecurity Center of Excellence** as a hub for cybersecurity research, development, and innovation. The center could work with academic institutions, research organizations, and the private sector to develop and promote cybersecurity best practices.

- Establish a National Cybersecurity and Data Protection Authority:**

Although there are efforts in strengthening and safeguarding the cybersecurity and data protection domain of the Gambia including the developed and adopted cybersecurity policy, strategy, data protection policy & strategy and data protection and privacy bill being pursued, however, to effectively implement these documents, there is a to establish a National Cybersecurity and Data Protection Authority in the country. The establishment will involve creating a central authority responsible for overseeing and coordinating all cybersecurity and data protection initiatives across the country. The National Cybersecurity and Data Protection Authority will serve as the regulator for cybersecurity and data protection strategy, policy, legal and regulatory frameworks implementation and focal point for incident response or management, and collaboration with relevant stakeholders. Its role will be to ensure a cohesive and coordinated approach to cybersecurity and data protection matters.
 - Develop a national cybersecurity workforce development strategy:**

Recognizing the critical shortage of skilled cybersecurity professionals, the government, in collaboration with partners locally and globally, should focus on developing a comprehensive workforce development strategy. The strategy may include initiatives such as scholarships, training programs, internships, and partnerships with educational institutions and industry experts to nurture a pool of competent cybersecurity experts. The goal will be to build a robust and well-prepared cybersecurity workforce to address the evolving cyber threats in the country.
 - Strengthen the capacity of law enforcement and judiciary on cybercrime:**

Cybercrime is one thing, persecuting and punishing cybercriminals are another thing, thus considering the growth of illegal cyber activities by criminals, the Gambia Government should focus on enhancing the capabilities of law enforcement agencies and the judiciary to handle cybercrime cases efficiently. This would involve specialized training for law enforcement officers and prosecutors to investigate and prosecute cybercriminals effectively. Additionally, it may involve setting up dedicated cybercrime units and specialized courts to handle cyber-related legal matters. The goal is to expedite the resolution of cybercrime cases and bring offenders to justice promptly.
 - Develop and enforce standards for secure software development:**

The aim of this initiative will be to establish comprehensive guidelines and regulations for secure software development practices across both the public and private sectors. By promoting secure coding standards, encryption, authentication, and other best practices, the Gambia Government will seek to reduce the vulnerabilities present in software applications and systems including Artificial Intelligence Systems, Applications and Tools. This initiative will not only safeguard critical government systems but also protect private businesses and citizens from potential cyber threats. Regular audits and assessments will be conducted to ensure compliance with the established standards.
- Reporting Platform for Cyber Incidents / Crimes:**
- To respond effectively and efficiently to cyber incidents and cybercrimes, the Gambia Government with stakeholders should establish a secure online reporting platform and

hotline for cyber incidents and crimes. This will encourage timely reporting of cyber incidents and crimes, in which government, organizations, businesses and individuals can report any cybersecurity-related issues they encounter. This initiative will streamline the reporting process, facilitate prompt responses from authorities, and ensure the efficient resolution of cyber incidents in the country.

- **Cybersecurity Standards for Critical Infrastructure:**

Critical Infrastructures that mostly shoulders life and livelihood activities, in which their malfunctions can have negatives consequences to people lives and health and nowadays these critical infrastructures are powered by digital technologies or IT systems. As such, there is a need for their protection and to do, the Government should establish and develop Cybersecurity Standards for Critical Infrastructure. This initiative focuses on setting mandatory cybersecurity standards for critical infrastructure sectors, such as ICT, energy, transportation, healthcare, and other sectors deemed essential for the nation's functioning. These standards will ensure that critical infrastructure entities implement adequate cybersecurity measures to protect against cyber threats that could disrupt essential services and potentially harm the public.

- **Mobile App Security Assessment:**

As the use of mobile applications increases, ensuring their security becomes crucial. This initiative involves establishing a systematic process for assessing the security of mobile applications used within the country. Mobile app developers will be required to adhere to cybersecurity guidelines and submit their apps for assessment before releasing them to the public or common apps used in the Gambia Digital Space including emerging ones will be screened and users on the country advised or notified of their safety status. This will safeguard users' data and privacy while using mobile applications.

- **Cybersecurity Certifications for Products:**

To ensure the security of technology products used within the country, the government will certification, testing and conformity assessment lab and develop a certification program that evaluates and verifies the cybersecurity features of hardware and software products. Manufacturers and developers will be encouraged to obtain cybersecurity certifications for their products to demonstrate their commitment to security and give consumers confidence in their offerings, in which only those products certified will be allowed to be used in the country or consume in government related projects.

- **Cybersecurity Audits for Businesses:**

Under this initiative, regular cybersecurity audits will be conducted for businesses to assess their security posture. The audits will identify vulnerabilities, assess risks, and provide recommendations for improving cybersecurity measures. Compliance with cybersecurity best practices will be encouraged, and businesses that meet or exceed the prescribed security standards may receive certification or recognition from the Cybersecurity Designated Authority, Regulator or the Ministry of Communications and Digital Economy.

- **Cyber Insurance Framework:**
 To encourage businesses to invest in cybersecurity measures, the government will develop a cyber insurance framework. This framework will outline the requirements and benefits of cyber insurance policies that cover potential financial losses resulting from cyber incidents. By having cyber insurance, businesses can mitigate the financial impact of cyberattacks and ensure quick recovery from cybersecurity breaches.
- **National Cybersecurity Drills or Exercises:**
 National cybersecurity drills or exercises involve simulated cyberattack scenarios designed to test the readiness and response capabilities of the country's cybersecurity infrastructure. These drills will involve various stakeholders, including the executive, judiciary and legislature and government agencies, critical infrastructure providers, security institutions or apparatus and private sector organizations. The exercises help identify potential weaknesses in incident response procedures, improve coordination among different entities, and enhance overall cybersecurity readiness.
- **Cybersecurity Incident Database:**
 Currently, the frequency of cybersecurity incidents is becoming common in the country including the recent Ransomware Cybersecurity Incident at the Central Bank of The Gambia. The would-be cybersecurity incident database will serve as a repository of information on past cyber incidents, including their nature, impact, and response. The database will help identify patterns, trends, and emerging cyber threats, enabling authorities to proactively address cybersecurity challenges and develop more effective strategies to protect against future incidents.
- **Create a national cybersecurity awards program:**
 This initiative aims to recognize excellence and innovation and acknowledge and celebrate outstanding contributions and innovations in the field of cybersecurity. The government will establish a national cybersecurity awards program that recognizes individuals, organizations, and businesses for their exceptional efforts in securing digital assets, promoting cybersecurity awareness, and developing innovative cybersecurity solutions. This recognition can inspire others to excel in the domain and drive further progress in cybersecurity practices.
- **Data Breach Notification System:**
 Data breaches are most of the time critical or expensive as they most of the time involves individual personal or privacy data or financial related data and they are becoming more frequent in the Gambia Digital Space. Considering the criticality, exposure of privacy and financial losses associated with Data Breaches, the Gambia Government should establish and develop a Data Breach Notification System. The data breach notification system will enhance transparency and accountability when it comes to data breaches. This system requires organizations, businesses and individuals to report any data breaches promptly to the relevant authorities and affected individuals. Timely notifications enable individuals to take necessary precautions against potential

identity theft or other cyber-related risks. It also helps the authorities respond quickly to contain the impact of breaches and investigate the causes.

- **Data Localization Policy:**

Data is the new oil or data is even more valuable than oil, gold, and diamond, as most of our life activities are enabled or powered by data, more so digital data due to the high uptake and proliferation digital systems, applications, and services at all levels of society, which are mission critical and socially transformational. As such, there are classified, critical, sensitive, and normal data. Therefore, governments globally are developing and adopting data localization policies to respond to commoditize data, create values from data, safeguard, protect and effectively manage data systems. The Gambia Government should develop a Data Localization Policy that policy seeks to develop and implement policies that require sensitive data generated within the country's borders to be stored and processed locally. This initiative aims to enhance data protection by minimizing the risks associated with cross-border data transfers and ensuring that sensitive information remains within the country's jurisdiction.

- **Privacy Impact Assessments (PIA):**

Digital technologies are great in supporting digital transformation and the use of digital for development, however, there are or there can be implications related to breach of privacy in the use of digital technologies. The Gambia and collaborators should establish a mechanism for Privacy Impact Assessments (PIAs) that will be conducted for new and existing government projects and initiatives, or even other projects related to critical national information infrastructure that involve the collection, storage, or processing of personal data. PIAs help identify and address potential privacy risks and ensure that privacy protection is built into the design of government programs and services and for community or society-oriented projects or programs.

The Cybersecurity and Data Protection pillar of the Digital Economy Master Plan for The Gambia is critical to the success of the country's digital transformation. The implementation of this 10-year plan for cybersecurity and data protection in The Gambia will require a significant investment of resources, including funding, personnel, and technological infrastructure. However, the benefits of a secure and resilient digital infrastructure are substantial. They will help to ensure the country's continued economic growth and development in the digital age. The actions outlined in this plan will help to improve cybersecurity readiness, protect citizens' personal data, and promote a secure and trustworthy digital environment. By implementing these actions over the next 10 years, The Gambia can build a resilient, stable, secure digital economy that benefits all its citizens.

3.8 Digital policy, strategies, legal and regulatory matters

Governments have duties on behalf of their society to lead policy development and set strategies and frameworks of shared understanding and playgrounds in the form of standards, regulations, and laws. **Digital policy, strategies, legal and regulatory matters are the guidelines, plan of actions and agreements by which the rest of the digital platforms and tools are being built.** Therefore, the government should review and enhance the digital economy's policies, strategies, legal and regulatory frameworks to ensure

they are up-to-date and conducive to the sector's growth. This should include reviewing existing policies, strategies, laws, and regulations and developing new ones, where necessary, to ensure they align with international best practices and standards.

Currently, there are various Policies, Strategies, Laws/Acts and Regulations already developed and adopted to guide and drive the development of the Digital Economy Sector of The Gambia, which includes the following key policies such as ICT for Development (ICT4D) Policy 2018-2028, National Broadband Policy 2021-2024, National Cybersecurity Policy 202-2024, National Data Protection & Privacy Policy 2019, Universal Access Service (UAS) Policy and Government Email Policy 2023.

Besides these policies, the following key strategies were also developed and adopted such as E-Government Strategy 2021-2024, National Broadband Strategy 2021 – 2024, National Cybersecurity Strategy 2021-2024 and National Data Protection & Privacy Strategy 2019.

In addition, to ensure effective implementation of these policies and strategies, the following key Laws/Acts were also developed and adopted such as the Information and Communication (IC) Act 2009, which has been reviewed, updated and it has evolved to a Draft Communications Bill 2023 plus the PURA Act 2001 and the Gambia ICT Agency Act of 2019. Outcome of the IC Act 2009 and the PURA Act 2001, the following key guidelines or regulations have been developed and adopted by the ICT regulator PURA to ensure effective regulation of the Telecoms and ICT Sector of the country such as Quality of Service (QoS) guidelines 2022, License Application Guidelines, National Numbering Plan Regulation Guidelines.

Evidentially, the development, adoption and implementation of these policies, strategies, laws/acts, guidelines and or regulations have immensely contributed to the development of the Telecommunication, Media, Technology (TMT) and ICT sector, however there are gaps in these existing national or government documents or there are areas that needs new policy, strategy, legal and regulatory interventions.

The Government of The Gambia will have to continue working closely with relevant stakeholders to develop new policies, strategies, legal and regulatory frameworks, standards, protocols, and guidelines or enhance existing ones that promote developing and adopting digital technologies in The Gambia. These policies, strategies and frameworks should follow best practices design to encourage investment, innovation, and competition in the digital economy. The number of key flagship projects in digital policy, strategies, legal and regulatory matters that need to be invested in is as follows.

- Assign legal framework development roles within the Ministry of Communications and Digital Economy and the Ministry of Justice. Additional roles could be created for drafting within PURA or other relevant agencies. This would ensure the capacity to develop the most critical legal frameworks that do not exist today. **Continue to develop a legal framework that supports digital transformation and outlines the norms. These include reporting, document exchange, open data, data management, data exchange, interoperability, cybersecurity, digital public services, and digital ID, including aligning digital identity with a physical national identity card.** Develop a plan to systematically engage local organizations, for example, in developing significant policies and legal frameworks. Cross-governmental legal framework development and approval processes should be standardized, and the same approach should be implemented in all the previously mentioned areas.

- As highlighted in previous chapters, the **government should work with international organizations**, such as the International Organization for Standardization (ISO), to develop and adopt international standards related to the digital economy. These standards should cover data privacy, cybersecurity, and e-commerce. In addition to adopting international standards, the government should develop national standards to ensure that digital systems and services are interoperable and secure. The government can **work with relevant stakeholders**, such as industry associations and academia, to develop these standards. This should be followed by promoting compliance with national and international standards, which can be achieved through public awareness campaigns, training and capacity-building programs, and incentives for companies that comply.
- Develop an open data policy to ensure the publication of open data in a standardized way, such as metadata standards, development of government open data portal and publication of open data at the government open data portal to be developed . Develop a data management policy, including metadata management, data quality assurance and data lifecycle management, to outline how data should be managed. In addition to policy, relevant guidelines should be developed. Develop a metadata standard (standard DCAT-AP etc.) to define how government organizations must describe their data assets.
- Develop protocols for data sharing, digital signatures, digital payments, and other critical interoperable components of digital services. To facilitate data sharing between different entities, the government should develop protocols for data sharing that ensure the privacy and security of personal information. These protocols should also ensure that data is shared transparently and ethically. In addition, digital signatures are an important tool for verifying the personal authenticity and integrity of digital documents. Therefore, the government should develop digital verification and signature protocols to ensure their legality and reliability. In addition, digital payment protocols are needed to ensure the security and reliability of digital payments.
- Make public procurement processes transparent and accessible to everyone. Developing a centrally coordinated and managed public procurement register provides the necessary transparency. It enables all stakeholders to participate in procurements. Ensure new procurements allow local companies to participate by eliminating limiting factors such as extensive revenue and publishing the information of all procurements in one information point. Enabling local small and medium size companies to add value to public sector systems allows a progressive two-way knowledge transfer and significantly boosts the local innovation ecosystem. Public Procurement Registry needs to be fine-tuned to increase the digital development engagement from the local IT sector and provide two-way knowledge transfer and overall growth of the IT sector in The Gambia.

- **E-Commerce Policy and Strategy:**
 The E-Commerce Policy and Strategy will focus on fostering the growth of digital commerce within The Gambia. The policy will focus on creating an enabling environment for businesses to conduct online trade and for consumers to engage in secure and efficient e-commerce activities. This may involve providing incentives for businesses to adopt e-commerce practices, promoting digital payment solutions, improving logistics and delivery infrastructure, and addressing barriers to cross-border e-commerce. To develop and effectively implement this policy and Strategy, Government cannot do it alone, an ecosystem-based approach will be more effective, government, the private sector and businesses must work together to make it happen.
- **E-Commerce and Consumer Protection Law:**
 An E-Commerce Policy and Strategy and its development alone is not enough, the Gambia Government must develop or strengthen existing E-Commerce and Consumer Protection Law that is designed to safeguard the interests of consumers engaging in e-commerce transactions. This law will set out regulations and standards for online businesses to follow, ensuring transparency, fair pricing, and protection against fraud and deceptive practices. The law may also establish mechanisms for dispute resolution and customer support for e-commerce transactions.
- **Digital Skills and Literacy Development Policy and Strategy:**
 Digital Skills and Literacy Development is an important component of the Digital Economy, as such the Gambia Government in collaboration stakeholders and ecosystem players should develop a robust policy and strategy for Digital Skills and Literacy Development. This policy aims to bridge the digital divide by providing the necessary training and education to equip citizens with digital skills. It may encompass programs for basic digital literacy, technical skills training, and advanced digital skill development to meet the demands of the digital economy. The strategy might involve partnerships with educational institutions, private sector stakeholders, and government agencies to support digital skills and literacy development in the country.
- **Develop Intellectual Property Rights Protection Law for the Digital Sector:**
 This law is meant to protect intellectual property rights in the digital domain. It addresses issues related to copyright, trademarks, patents, and other forms of intellectual property to encourage innovation and creativity in the digital sector while preventing unauthorized use and infringement of digital content.
- **Digital Location Address & Street Naming Strategy:**
 The Digital Location Address & Street Naming Strategy will complement the existing Digital Addressing Policy for the Gambia and seeks to establish a comprehensive and accurate digital mapping system that assigns unique location addresses to every property and place within The Gambia. This strategy is crucial for efficient e-commerce deliveries, emergency services, and urban planning.

- **Open Data Policy:**
 The Open Data Policy will complement the existing Open Data Strategy for the Gambia and seeks to promote the sharing and accessibility of government data and information with the public and private sectors. By making non-sensitive government data openly available, it encourages transparency, innovation, and the development of data systems and data-driven solutions.
- **Public Key Infrastructure (PKI) Policy and Strategy:**
 Currently there is no PKI framework or authority in the Gambia. The PKI Policy and Strategy will focus on establishing a secure and trustworthy framework for digital communication and transactions. It involves the use of public key encryption and digital certificates to authenticate users, secure data, and ensure the integrity of electronic documents, which is critical for digital payment systems and services, digital identities, e-commerce and e-commerce development, cross-border payments or transactions and trade.
- **National Digital ID System & Services Policy and Strategy:**
 Currently there is no Digital ID System & Services policy or strategy in the Gambia. The National Digital ID System Policy & Strategy will ensure the development of a robust and inclusive digital identification system for citizens. This system can streamline access to public services, facilitate e-commerce transactions, and enhance security and data integrity. This will help expedite the growth of e-commerce development and trusted services applications.
- **Digital Financial Inclusion Policy and Strategy:**
 The Digital Financial Inclusion Policy and Strategy will support extending financial services to underserved populations by leveraging digital technologies. It will also involve promoting mobile banking, digital wallets, and other digital payment solutions to increase financial access and participation within The Gambia.
- **Digital Content Creation and Distribution Policy and Strategy:**
 The Digital Content Creation and Distribution Policy and Strategy will focus on nurturing local content creators and facilitating the development and distribution of digital content, more so local digital content. It will also include incentives for content creation, support for local artists and creators, and the development of platforms for content distribution.
- **Smart City Policy and Strategy:**
 There is no Smart City Policy and Strategy in The Gambia. The Smart City Policy will ensure The Gambia leverage digital technologies to improve urban living standards and enhance the efficiency of city services. The Smart City Strategy will involve implementing Artificial Intelligence (AI) systems and applications, IoT systems, devices and applications, smart infrastructure, intelligent transportation systems, smart energy grid, smart water management system, smart city digital solutions and applications, and data-driven decision-making to create resilient, sustainable and innovative cities.

- **E-Government Interoperability Framework:**
 The E-Government Interoperability Framework will ensure seamless data sharing and communication among different government agencies and departments. It enables efficient and integrated e-government services for citizens and businesses and enhances the effective and efficient delivery of government services within and outside the country.
- **Digital Platform Taxation Policy and Strategy:**
 The Digital Platform Taxation Policy seeks to establish fair and transparent tax regulations for digital platforms and services operating within The Gambia. This policy and strategy addresses issues related to digital service taxes, cross-border taxation, and ensuring that digital companies fulfill their tax obligations and gain in return through incentives from the Government. There has never been such policy or strategy in the Gambia, thus the Gambia Government should prioritize the development and adoption of a Digital Platform Taxation Policy and Strategy, to better gain from the platform and Gig economy and its dependencies.
- **Digital Tourism Policy and Strategy:**
 The Tourism Sector of The Gambia is one of greatest contributors to GDP and The Gambia can gain far more from this sector if its embraces digital technologies and digital transformation. The Digital Tourism Policy focuses on leveraging digital technologies to promote tourism in The Gambia. It may include strategies to enhance online marketing, improve digital infrastructure for tourists, and develop digital tools for enhancing the travel experience or even the use of virtual and augmented reality technologies to enable virtual tourism to create new revenue streams for the tourism sector and improve the brand visibility of The Gambia.
- **Internet of Things (IoT) Development Policy and Strategy:**
 The IoT Development Policy will foster the development, growth, and responsible use of IoT technologies within The Gambia. It may involve setting IoT standards, addressing privacy and security concerns, and promoting the adoption of IoT in various sectors, including agriculture, healthcare, and infrastructure. This will also help The Gambia to embrace advanced and high-level automation including industrialization and industrial automation to register gain in manufacturing and ensure higher production of goods and services.
- **Artificial Intelligence (AI) Development Policy and Strategy:**
 There has never been an AI policy and Strategy in The Gambia. The AI Development Policy and Strategy will focus on promoting AI research, development, adoption, and application within The Gambia. It may include initiatives to support AI startups, develop AI talent, and establish ethical and responsible-use guidelines for AI use and attract investment on AI development in The Gambia.
- **Digital Transformation Strategy:**
 The Digital Transformation Strategy will focus on a whole-of-Government Approach to Digital Transformation and a whole-of-Society approach to digital transformation.

This strategy will also focus on guiding the overall digitalization efforts of The Gambia across various sectors. It will include targets for digital adoption, plans for building digital infrastructure, and strategies for capacity building and digital governance.

- **Digital Export Promotion Policy and Strategy:**

The Digital Export Promotion Policy seeks to support and facilitate the growth of digital exports from The Gambia to the outside world. It will also involve strategies or initiatives to promote e-commerce exports, enable cross-border e-commerce, and support digital entrepreneurs in accessing global markets.

- **Digital-Energy Nexus Policy and Strategy:**

The Digital and Energy Sector reinforces each other in terms of development, growth and efficiency. Today, most global activities, more so economic activities depend on the digital and energy sector. As such, The Government of The Gambia should develop a Digital Energy-Nexus Policy and Strategy that will focus on leveraging digital technologies to enhance energy efficiency, renewable energy adoption, and overall sustainability in the energy sector and ensure cross-sector infrastructure sharing between the digital and energy sectors, so as to improve internet connectivity coverage and access to digital services in the country.

- **Digital or Online Media Policy and Strategy:**

Today, almost all traditional media activities have transitioned to digital, which has brought about a paradigm shift in media communications and development and open new frontiers of opportunities and development, more so economy opportunities and the advancement of democracy and human rights through digital platforms. The Government of The Gambia should develop or ensure the Development of Digital or Online Media Policy and Strategy that will promote the growth and responsible use of digital media platforms.

- **Digital & Online Media Regulation:**

The Digital & Online Media Regulation involves setting guidelines and standards for digital media platforms for the Gambia Digital Space to ensure responsible content sharing and protect users from harmful or inappropriate content and provide guidelines for content creation, distribution, and addressing issues related to fake news and misinformation.

In conclusion, developing and implementing effective policies, strategies, legal and regulatory frameworks, standards, protocols, and guidelines will be crucial to unlocking the potential of the digital economy in The Gambia. By taking the steps outlined above, the country can create an enabling environment for digital innovation and investment while ensuring that the needs and interests of all stakeholders are protected.

3.9 Digital cooperation and partnership

The Gambian government successfully collaborates with international organizations such as the World Bank, the African Development Bank, and the United Nations Development Programme and other international partners and institutions to enhance the country's digital infrastructure development. The presidential Office, Ministry of

Finance, Ministry of Foreign Affairs many other institutions in The Gambia have shown excellent leadership in building and maintaining great international relations and cooperation. As a good example, the EU and the African Union, together with The Gambia, are collaborating on digital transformation that includes accelerating the digitalization of public administration, improving connectivity through digital solutions, and utilizing digital transformation to enhance education and skills. The government is leveraging these partnerships to access funding and technical support to improve the country's digital infrastructure. **The partnership also provides knowledge transfer and capacity-building opportunities**, enabling The Gambia to develop the skills required to maintain and improve its digital infrastructure.

As noted in all previous chapters, digital cooperation and partnership are vertical aspects of all the national and international pillars. Therefore, the Gambia can further partner with regional and international organizations to leverage their expertise, resources, and networks. For instance, The Gambia can partner with the African Union Commission on issues related to digital transformation, such as e-government, e-commerce, and cybersecurity. The Gambia can also join regional initiatives such as the West Africa Regional Communication Infrastructure Program (WARCIP) to improve the country's telecommunications infrastructure and reduce the cost of internet connectivity.

Participating in international fora and programs is an important aspect of digital cooperation and partnership for The Gambia. These platforms provide opportunities for The Gambia to learn from other countries, exchange best practices, and showcase its achievements in the digital space. In addition, by engaging with international organizations and partners, The Gambia can access funding, technical assistance, and knowledge resources supporting the country's digital development goals. To effectively participate in international fora and programs, The Gambia should **establish clear objectives and priorities to engage with international partners**. This could include identifying areas where the country needs support and technical assistance and areas where The Gambia has a competitive advantage and can offer expertise and knowledge resources to other countries.

In addition to previously noted cooperation and partnership opportunities The Gambia can participate in international programs to share experiences, learn best practices, and showcase its digital development progress. For instance, The Gambia can participate in the World Summit on the Information Society (WSIS) Forum, which brings together stakeholders worldwide to discuss digital transformation issues. The Gambia can also participate in programs such as the Digital Development Partnership (DDP), which provides technical assistance and financing for digital development projects or with International Telecommunication Union (ITU). Further cooperation with the World Bank Group on its Digital Economy for Africa (DE4A) initiative can be expanded, which aims to accelerate Africa's digital transformation through investments in digital infrastructure, digital skills, and digital entrepreneurship.

The Gambia can also leverage regional initiatives such as WARDIP and related regional projects or programs to improve its telecommunications or Digital infrastructure and build on cooperation with the Economic Community of West African States (ECOWAS) and the West African Economic and Monetary Union (UEMOA) to deepen collaboration with neighboring countries. The government should also establish precise mechanisms for monitoring and evaluating the outcomes of its participation in international programs and fora to ensure that the country derives optimal benefit from these partnerships, as governmental human resources are limited in tapping into all the available opportunities.

The Gambia should also **consider hosting and organizing events to showcase its digital progress and engage with international partners**. These events could include

international conferences, workshops, and training programs on e-commerce, digital entrepreneurship, and cybersecurity. By hosting such events, The Gambia can position itself as a leader in the digital space and attract investment and technical expertise from international partners.

The number of key flagship projects that needs to be invested or develop for the Digital Cooperation and Partnership Pillar of this Digital Economy Master Plan are as follows:

- **International Partnership on Submarine Cable Infrastructure Development:**

The Gambia Government and local partners will collaborate with international partners to enhance its submarine cable infrastructure. This will involve connecting the country to other undersea fiber optic cables, improving internet connectivity, and reducing digital divides. By establishing strong partnerships with global players in the telecommunications industry, The Gambia can access better international bandwidth, facilitate faster data transfer, and promote digital inclusion for its citizens and businesses.

- **Virtual International Exchanges:**

This initiative will seek to foster cross-cultural learning and collaboration through digital platforms. The Gambia will partner with educational institutions, governments, and organizations from different countries to facilitate virtual exchange programs. This will enable students, professionals, and researchers to interact, share knowledge, and develop a deeper understanding of different cultures, fostering global cooperation and building lasting partnerships.

- **Digital Cultural Heritage Preservation:**

Under this flagship initiative, The Gambia will digitize and preserve its rich cultural heritage. Collaborating with international organizations, museums, and cultural institutions, the country will use advanced technologies like 3D scanning, Virtual and Augmented Reality Technologies and digital archiving to safeguard artifacts, historical sites, and traditional knowledge. This initiative will promote cultural diversity, enhance tourism, and facilitate the exchange of cultural heritage with other nations.

- **Digital Trade Facilitation Program:**

This program will streamline international trade processes through digitalization. The Gambia will collaborate with other countries to establish a digital trade platform, allowing for seamless customs procedures, electronic documentation, and efficient cross-border transactions. By reducing trade barriers and simplifying procedures, this initiative will enhance economic cooperation and attract foreign investment.

- **Digital Education for Refugees:**

In collaboration with international humanitarian organizations and educational institutions, The Gambia seeks to provide digital education opportunities for refugees within its borders. This initiative will empower refugees with access to quality education through digital learning platforms, enabling them to acquire valuable skills and knowledge, fostering self-reliance, and enhancing their potential for integration into society.

- **Cyber Peacekeeping Corps:**
 The Cyber Peacekeeping Corps will be a joint effort between The Gambia and international partners to address cyber threats and promote cybersecurity. This initiative will train and deploy cybersecurity experts who can assist other countries in building robust cyber defense capabilities, sharing best practices, and responding to cyber incidents. The project aims to promote digital trust and create a safer cyberspace for all nations.
- **Global Digital Art Collaboration:**
 This program will facilitate collaborations between Gambian artists and artists from around the world through digital platforms. By leveraging technology, artists can exchange ideas, create joint artworks, and showcase their talent on an international stage. The initiative will foster cultural diplomacy, promote artistic expression, and encourage intercultural understanding.
- **AI Ethics Council:**
 The Gambia will establish an AI Ethics Council, in partnership with global experts and organizations, to guide the ethical development and deployment of artificial intelligence technologies. The council will formulate policies, strategies, guidelines, and best practices for AI application, ensuring that AI benefits society while minimizing risks and ensuring privacy and human rights protection.
- **Digital Sports Development Program:**
 This initiative aims to leverage digital technologies to support the development of sports in The Gambia. Collaborating with international sports organizations, the project will focus on enhancing athlete training through virtual coaching, promoting online sports events, and engaging sports enthusiasts through digital platforms. The program will contribute to the growth of sports talent, encourage healthy lifestyles, and create opportunities for international sporting events.
- **Oceanic Data Collaboration:**
 The Oceanic Data Collaboration initiative is to collaborate with international partners to collect, analyze, and share oceanic data for sustainable marine resource management. By leveraging digital tools and technologies, The Gambia can participate in global efforts to monitor ocean health, combat illegal fishing, and address environmental challenges. This cooperation will contribute to preserving marine ecosystems and promoting international maritime collaboration.

These flagship projects under the Digital Cooperation and Partnership Pillar will empower The Gambia to harness the potential of digital technologies while fostering international collaboration, knowledge exchange, and mutual growth among nations.

3.10 Digital advocacy and policy dialogue

The government of The Gambia **must develop a comprehensive digital advocacy and policy framework and strategy that outlines the digital economy's fundamental principles, goals, and strategies.** The framework and strategy should be informed by extensive consultations with stakeholders, including the private sector, civil society, and academia. The framework and strategy should also provide a clear direction for developing the digital economy in The Gambia. It should ideally cover all pillars of the Digital Economy Master Plan. The government should create a continuous best practice of engaging in regular consultations and dialogue with stakeholders from non-profits to industry associations to SMEs to ensure that policies and regulations are responsive to the needs of the digital economy. This ultimately includes **engaging with the private sector, civil society, academia, and international organizations.** In addition to standard dialogue, these could take the form of workshops, seminars, roundtables, or task forces in which The Government of The Gambia has shown good standards already.

The government should establish a **multi-stakeholder digital economy advisory group** to foster dialogue and provide advice, guidance, and feedback on policy issues. The group should be composed of government, private sector, civil society, and academia representatives. These stakeholders can provide valuable insights and perspectives on the needs and priorities of different communities, including marginalized groups. To ensure the effective implementation of various policies, it will be necessary to establish clear accountability and progress mechanisms for society and other relevant stakeholders. The government foresight body should create dedicated monitoring and evaluation mechanisms for tracking progress on implementation and reporting on results. The foresight body should also coordinate with other stakeholders to ensure effective collaboration and coordination on implementation efforts. Regular reports should be published to society and stakeholders, highlighting progress on key indicators and outlining challenges or obstacles.

Engaging in advocacy and policy dialogue, stakeholders can ensure that policies are developed that are responsive to the needs of the dialogue partners and the digital sector and that they are effectively implemented. Building strong partnerships between government, civil society organizations, private sector entities, and development partners is necessary. Strengthening collaboration and dialogue is a continuous process that requires ongoing stakeholder engagement and commitment. By working together, stakeholders can ensure that the digital economy is developed in a way that is inclusive, transparent, and responsive to the needs of all Gambians, leading to the successful implementation of all strategic initiatives.

The number of key flagship projects that needs to be invested or develop for the Digital Advocacy and Policy Dialogue Pillar are as follows:

- **Annual National Digital Advocacy Forum:**

Annual National Digital Advocacy Forum will be a high-profile event that brings together key stakeholders from government, private sector, civil society, academia, and the general public within and outside The Gambia to discuss and promote digital initiatives, projects, programs and other policies or strategic interventions. This forum will serve as a platform to share best practices, present research findings, and engage in dialogue on various digital issues and opportunities and future digital for development in The Gambia.

- **Creation of an Online Advocacy Platform:**
 To facilitate ongoing digital advocacy efforts, The Gambia will develop an Online Advocacy Platform. This platform will serve as a hub for information, resources, and engagement opportunities related to digital initiatives, projects, programs, policies or strategic interventions and policy dialogue. It will enable citizens, organizations, the Gambia Diaspora and policymakers to collaborate, share ideas, and access up-to-date information on digital policies and initiatives in The Gambia or regarding The Gambia.
- **National Digital Policy Dialogue Forum:**
 The National Digital Policy Dialogue Forum will be a recurring event aimed at fostering constructive discussions between government representatives, industry leaders, the Gambia Diaspora and civil society groups on developing and refining the country's digital policies and digital future. The forum will seek to create a collaborative environment where stakeholders can provide input, address concerns, and shape the future of the nation's digital landscape.
- **Digital Inclusion Campaigns:**
 To bridge the digital divide, The Gambia will launch Digital Inclusion Campaigns targeted at marginalized and underserved communities. These campaigns will focus on promoting digital literacy, providing access to affordable devices and internet connectivity, and encouraging participation in the digital economy.
- **Digital Rights and Net Neutrality Advocacy:**
 This initiative will focus on and also emphasize the protection of digital rights and advocate for net neutrality principles. Through awareness campaigns, consultations, and stakeholder engagements, The Gambia will work to ensure that citizens' digital rights are respected, and policies are in place to guarantee an open and fair internet ecosystem.
- **Digital Awareness Campaigns:**
 The implementation of Digital Awareness Campaigns will focus on educating the public about the benefits and risks associated with digital technologies. These campaigns will promote responsible digital citizenship, cybersecurity best practices, and the importance of safeguarding personal data.
- **Public-Private Partnerships for Digital Advocacy:**
 To leverage expertise and resources, The Gambia will foster public-private partnerships for digital advocacy initiatives. Collaborations between government, private companies, and civil society organizations will enable more effective advocacy efforts and the development of innovative solutions to digital challenges.
- **Data Privacy Advocacy and Sensitization:**
 The Gambia will prioritize data privacy advocacy and sensitization programs. These efforts will involve educating individuals and businesses about the importance of data protection and complying with relevant data privacy regulations to ensure the responsible handling of personal information.

- **Open Data Advocacy:**
 To promote transparency, innovation and the use of data for better policy/decision making and development, The Gambia will advocate for the adoption of open data policies, strategies and open-source initiatives including Open AI. The government will work to make non-sensitive data accessible to the public, researchers, and entrepreneurs to encourage the development of data-driven solutions.
- **National Forum on Universal and Affordable Internet Access and Connectivity:**
 The initiative will focus on organizing a National Forum on Universal and Affordable Internet Access and Connectivity. This forum will bring together stakeholders from the telecommunications sector, policymakers, and regulatory bodies to address challenges and identify strategies for expanding internet access across the country at affordable rates.
- **E-Government Services Enhancement:**
 The initiative will focus on creating advocacy mechanisms including program to promote the enhancement of e-government services in The Gambia to improve efficiency, transparency, and accessibility. This will also focus on streamlining processes, implementing secure digital identification systems, and promoting citizen engagement through digital channels within the Gambia Digital Space.
- **Digital Accessibility for Persons with Disabilities:**
 This program will incorporate policies and initiatives to ensure digital accessibility for persons with disabilities in The Gambia. This will involve advocating for inclusive design practices in digital services and technologies, making sure that no one is left behind in the digital transformation process of the country or Government.
- **ICT Infrastructure Development Policy Dialogue and Advocacy:**
 This program will focus on engaging in continuous dialogue with relevant stakeholders to advocate for the development and maintenance of robust ICT infrastructure in The Gambia. This advocacy effort will emphasize the importance of a reliable and high-speed digital infrastructure to support economic growth and innovation.
- **International Digital Advocacy Collaboration:**
 The Gambia will seek to collaborate with other nations and international organizations to strengthen its digital advocacy efforts. Through partnerships, knowledge exchange, and joint initiatives, the country can learn from global best practices and advocate for its digital interests on the international stage.

If all these projects, programs, and initiatives in this pillar of the Digital Economy Master Plan are Implemented, this will greatly help The Gambia to create an inclusive, accessible, and thriving digital economy that benefits all its citizens and contributes to the overall development of the nation based on the principles of sustainability and leaving no one behind.

4 Cross-cutting themes

Cross-cutting themes are critical in enabling The Gambia to build a thriving digital economy. The following four cross-cutting themes must be integrated into The Gambia's comprehensive national digital strategy to create a digital society, achieve economic growth, and create jobs.

Information security

As the government digitizes its operations, it must prioritize information security to protect digital assets and increase citizens' and businesses' confidence and adoption of digital services. Information security is a critical aspect of the digital economy as it also deals with the protection of data and information from unauthorized access, use, disclosure, disruption, modification, or destruction. The Gambia Government recognizes the importance of establishing robust information security measures to build trust and confidence in digital services. This theme focuses on several key areas:

Cybersecurity: Developing and implementing cybersecurity policies and strategies or enhancing existing ones to safeguard government and private sector systems from cyber threats, including cyberattacks, data breaches, and ransomware incidents.

Data Protection: Enacting and enforcing data protection laws and regulations or enhancing existing ones to ensure the privacy and security of citizens' personal information and foster responsible data management practices.

Incident Response: Establishing a coordinated incident response framework to handle and mitigate the impact of security breaches and cyber incidents promptly and effectively.

Capacity Building: Training and upskilling professionals in information security practices to build a skilled workforce capable of managing and responding to emerging threats.

Emerging technologies

The public sector must be prepared to leverage new and emerging technologies to increase efficiency and effectiveness in service delivery. This requires clear policy, legal, and regulatory frameworks to empower public servants to adopt and implement automation and other technologies.

This theme focuses on harnessing the potential of cutting-edge technologies to drive economic growth and innovation in the Gambia. Key elements include but not limited to:

Artificial Intelligence (AI) and Machine Learning: Identifying and investing in AI applications and development to enhance government services, improve decision-making processes, and foster innovation in industries such as healthcare, agriculture, and finance.

Internet of Things (IoT): Integrating IoT devices and infrastructure to optimize resource management, streamline public services, and support data-driven decision-making.

Blockchain: Exploring the potential use of blockchain technology to increase transparency and security in various sectors, such as supply chain management, land registry, and financial transactions.

Policy, strategy, legal, and regulatory frameworks

Foundational themes that address the gaps in policy, legal, and regulatory frameworks to ensure the successful implementation of digital services in the public sector. This cross-cutting

theme is crucial for establishing a clear roadmap and supportive environment for the digital economy. It involves :

Policy Development: Formulating policies that support the growth of digital technologies, foster innovation, and address challenges like digital divide and access to digital services in rural areas in the Gambia.

Strategic Planning: Creating a long-term vision for the digital economy, outlining specific goals, objectives, and milestones for achieving digital transformation in the Gambia.

Legal and Regulatory Frameworks: Developing and updating laws and regulations that govern the digital economy, ensuring compliance with international best practices, and protecting the rights of citizens/businesses.

Human capital and capacity-building

To build a strong digital economy, it is essential to have the necessary human capital and capacity-building to provide valuable training and research opportunities. Collaboration with local universities and learning institutions can help to achieve this. The success of the digital economy depends on having a skilled and adaptable workforce. This theme focuses on:

Education and Training: Strengthening educational programs to equip students with relevant digital skills from an early age and providing continuous training opportunities for professionals to keep up with technological advancements.

Digital Literacy: Promoting digital literacy among citizens of all ages to enable them to use digital tools effectively and safely.

Entrepreneurship Support: Encouraging entrepreneurship and innovation in the digital sector through mentorship programs, access to funding, and business development support.

Retaining Talent: Creating an attractive environment that retains skilled professionals and prevents brain drain by offering competitive salaries, conducive working conditions, and a supportive ecosystem for startups and tech companies.

5 Critical enablers

The Gambian digital economy master plan aligns well with Smart Africa Manifesto. It is founded upon five cross-cutting themes: information security; emerging technologies; policy, legal and regulatory frameworks; human capital, and capacity-building.

The Critical Enablers section of The Gambia's Digital Economy Master Plan 2023-2033 plays a vital role in facilitating the successful implementation of the plan. These enablers includes innovation, enhancing communications and advocacy, building capacity, and mobilizing resources, which are as follows:

Innovation:

Innovation is a cornerstone of any digital economy. It refers to the creation and adoption of new technologies, processes, and business models to improve existing services and develop entirely new ones. The Gambia's Digital Economy Master Plan places significant emphasis on

fostering a culture of innovation to drive economic growth and societal progress. Some key aspects include but not limited to the following:

- a. **Research and Development (R&D):** Encourage public and private investment in research and development to spur technological advancements and new product development in various sectors, including ICT, agriculture, healthcare, education, and more.
- b. **Startup Incubators and Accelerators:** Establish and support innovation hubs, incubators, and accelerators to nurture young entrepreneurs and startups with mentorship, funding, and access to resources.
- c. **Intellectual Property Protection:** Strengthen intellectual property laws and enforcement mechanisms to protect innovators' rights and incentivize further innovation.
- d. **Collaboration with Academia:** Foster collaboration between government, industry, and academia to bridge the gap between research and practical applications, leading to technology transfer and knowledge exchange.
- e. **Open Data Initiatives:** Promote open data initiatives that provide access to valuable datasets, encouraging developers, researchers, and businesses to leverage data for innovative solutions.

Communications and Advocacy:

Effective communication and advocacy are essential to inform and engage stakeholders, including citizens, businesses, and policymakers. This critical enabler focuses on improving communication channels, enhancing public awareness, and creating a conducive environment for the digital economy to flourish. Key elements include but not limited to the following:

- a. **Public Awareness Campaigns:** Conduct targeted awareness campaigns to educate citizens about the benefits of the digital economy, digital literacy, and how they can participate in this transformation.
- b. **Stakeholder Engagement:** Engage with key stakeholders, including industry associations, civil society organizations, and international partners, to gather input and build consensus on policies and initiatives.
- c. **Policy Advocacy:** Advocate for policies that support digital infrastructure development, e-governance, data privacy, cybersecurity, and other relevant areas, ensuring a conducive regulatory environment.
- d. **Multi-Channel Communication:** Implement a multi-channel communication strategy that leverages traditional media, social media, websites, and other platforms to disseminate information effectively.

Capacity-building:

To drive the digital economy forward, it is crucial to equip the workforce with the necessary skills and expertise. Capacity-building initiatives aim to empower individuals, businesses, and institutions with the right knowledge to leverage digital technologies effectively. Key components include:

- a. **Digital Skills Training:** Provide training programs and workshops to enhance digital literacy, coding, data analytics, and other essential digital skills across all age groups.

b. **Professional Development:** Offer specialized training and certifications in emerging technologies and fields to equip the workforce with cutting-edge skills demanded by the market.

c. **Entrepreneurship and Business Training:** Support aspiring entrepreneurs with business training, mentoring, and access to funding, fostering a thriving startup ecosystem.

d. **Government Workforce Development:** Invest in training government employees to effectively utilize digital tools, implement e-governance solutions, and deliver public services efficiently.

Resource Mobilization:

The successful implementation of the Digital Economy Master Plan requires adequate financial resources. Resource mobilization strategies aim to attract domestic and foreign investment, secure funding, and efficiently allocate resources. Key aspects include but not limited to the following:

a. **Investment Promotion:** Promote the Gambia as an attractive destination for digital investments, showcasing its potential, market opportunities, and investor-friendly policies.

b. **Public-Private Partnerships (PPPs):** Foster collaborations between the government and private sector entities to jointly develop and finance digital infrastructure projects.

c. **Grant Funding and Development Assistance:** Seek grant funding and international development assistance from organizations, governments, and development banks to support specific digital initiatives.

d. **Venture Capital and Angel Investment:** Encourage the establishment of venture capital funds and angel investor networks to provide funding to promising startups and digital projects.

e. **Incentive Schemes:** Introduce tax incentives and financial support mechanisms to encourage private sector investments in digital infrastructure and innovation. Effective development of these four enablers (**innovation; communications and advocacy, capacity-building and resource mobilization**) will lead to digital infrastructure and skills development, leveraging technology, digital solutions, and services to connect the unconnected and under-connected, create jobs and with it the Gambia can achieve a thriving and inclusive digital economy that empowers its citizens, drives economic growth, and enhances the country's global competitiveness.

6 Ecosystem coordination

The coordination of the digital economy ecosystem is essential for The Gambia due to the intricate nature of the digital transformation process, which involves all stakeholders, such as the government, businesses, investors, entrepreneurs, and civil society. These stakeholders must collaborate to establish an environment that encourages the development and adoption of digital technologies and services. Efficient coordination of the ecosystem aligns the efforts of these stakeholders toward shared objectives and common goals. In addition, it facilitates the **exchange of knowledge, resources, and expertise while promoting collaboration and partnerships** that can foster innovation, enhance access to funding, and improve the overall competitiveness of the digital economy.

Moreover, **ecosystem coordination can address regulatory and policy challenges, promoting the establishment of a supportive legal and regulatory framework** for the digital economy. Additionally, it fosters the creation of digital skills and talent, ensuring that the benefits of digital transformation are widely and equitably shared across all The Gambia’s society.

To resolve the challenge of the need for clear institutional and operational roles and mandates, a comprehensive plan must be developed to allocate resources and capacities across government entities. MoCDE and The Gambia ICT Agency need to lead in coordinating the digital economy agenda and providing strategic guidance across multiple institutions with different needs and priorities. To strengthen coordination between MoCDE and other MDAs, the Gambia ICT Agency should work closely with MoCDE and other relevant government entities to establish clear roles and responsibilities for developing and implementing the e-Government agenda. This would require close collaboration with stakeholders and the development of a shared vision for the e-Government agenda.

To improve the capacity of the Gambia ICT Agency to effectively coordinate the digital economy agenda, it will be necessary to ensure that the agency has access to adequate resources and funding. This could include **developing partnerships with the private sector, civil society organizations, and international development partners** to mobilize the necessary resources and expertise to support the agency’s work. Additionally, the agency needs to **prioritize the development of digital skills and talent** within its own organization and across the broader public sector to ensure that it can effectively lead the e-Government agenda.

The Gambia Digital Economy Framework

The Digital Economy Framework is the overarching structure, policies, and technologies that will govern and facilitate economic activities in the digitalized environment of The Gambia. It will encompass the systems and strategies put in place to leverage digital technologies, data, and connectivity to drive economic growth, innovation, and efficiency. The figure 5 below depicts the Digital Economy Framework of The Gambia with associated components.

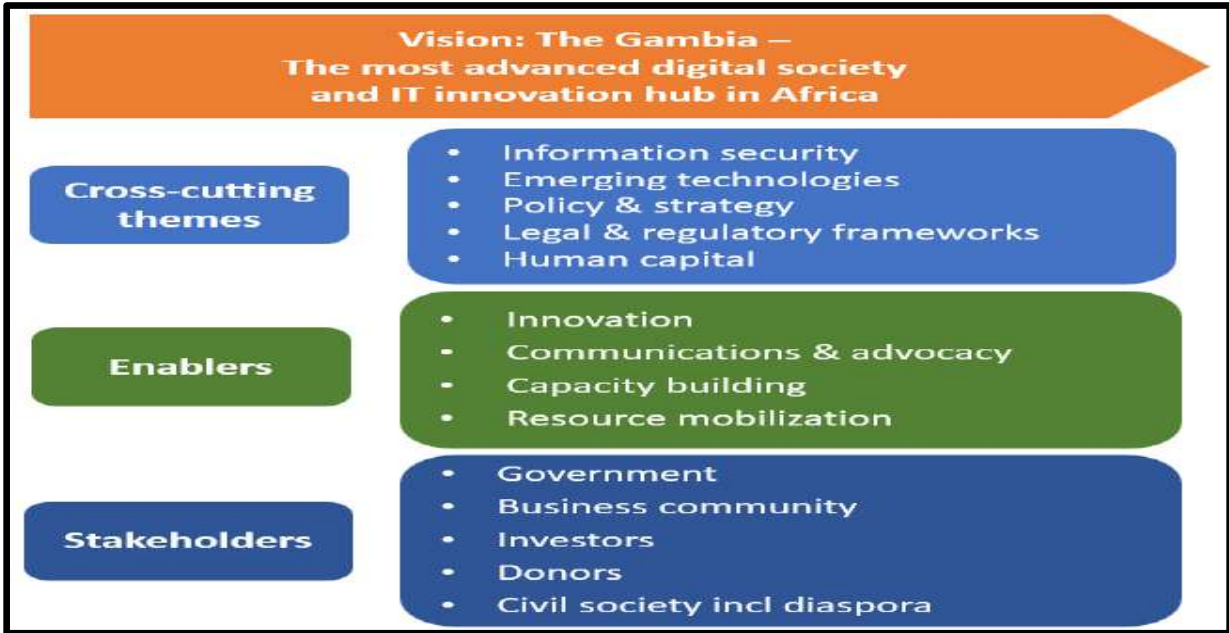


Figure 5: Digital Economy Framework

The Gambia Digital Economy Framework is dynamic and should evolve to address emerging challenges and opportunities in the rapidly changing landscape of technology and business. It serves as a guide for the government, businesses, and other stakeholders within The Gambia to navigate and harness the potential of the digital era for economic development.

7 Conclusion

In conclusion, developing a digital economy requires a comprehensive approach. The Gambia must prioritize all master plan pillars, from digital infrastructure development to digital skills development, to leverage technology, digital solutions, and services to connect the unconnected and under-connected, create jobs, and develop the economy. The world economy has gone through transformative industrial revolution to new age information technology revolution which changes the way people work, provide services and how industries operate.

The latest advancement to these changes is the evolvement of machine learning and artificial intelligence to empower governments, businesses, and citizens in their daily lives. Building the necessary infrastructure, digital skills, digitization of data in The Gambia, builds a solid foundation to harness these opportunities in the coming decades. At the same time digital skills will also provide an opportunity to build up a complex electronics industry where these skills can successfully be harnessed to develop its own advanced machinery and robotics industry. This can start from simpler electronics assembly functions and gradually move up the value chain by combining innovation, mechatronics, and IT.

The Gambia's transformation into a fully digital state with flourishing information technology innovation and entrepreneurship has its finest momentum. **In collaboration with private sector partners, the government must take bold and decisive action to accelerate the development of the digital economy and become the most advanced digital society and IT innovation hub in Africa.**

To learn more about Ministry of Communications and Digital Economy, The Gambia and its policy, projects and programs, please kindly visit its website:

<https://mocde.gov.gm/> or contact via email at: info@mocde.gov.gm



Digital Economy Master Plan – The Gambia 2024 – 2034

Key Flagship Projects	Timeline	Estimated cost (€)
<i>Digital infrastructure</i>	Target Year of Implementation	Estimated Cost for each Project or Activity
Investment in a Second International Subsea Fiber Optic Cable	Year 3	20,000,000
Investment in National Broadband Network Upgrade and Expansion	Year 5	32,000,000
Tier3/Tier4 Standard Data Center	Year 3	20,000,000
Cellular Network Taxation Policy Could Be Eased	Year 1	20,000
Deploying Community-based Fixed Broadband and or Wi-Fi Networks	Year 5	12,000,000
Cross-sector Infrastructure Sharing	Year 6	20,000,000
Investment in Internet of Things Initiatives or Projects	Year 3	12,000,000
National Satellite Communication System	Year 3	32,000,000
Upgrade and Enhance the Existing National Internet Exchange Point (IXP)	Year 1	5,000,000
E-Government Network (Single Government Wide Area Network) Enhancement	Year 1	500,000
Establishment of E-Health Network	Year 2	10,000,000
Establishment of Digital Education Connectivity	Year 2	10,000,000
Rollout IoT Connectivity for Agriculture Project(s)	Year 4	12,000,000
Deployment of Smart Grids for Energy Solution(s)	Year 3	25,000,000
Establishment of Digital Transport Infrastructure	Year 4	10,000,000
Establishment of High-Performance Computing Centers:	Year 7	15,000,000
Development and Deployment of Information Systems and Digitalizing services for all Ministries, Departments and Agencies (MDAs)	Year 2	10,000,000
National Assessment on The Establishment of Connectivity Infrastructure for Autonomous Vehicles and Smart Transportation Systems	Year 3	150,000
<i>Digital government, services, data, and data management</i>	Target Year of Implementation	Estimated Cost for each Project or Activity
Develop a Long-term ICT Budget Planning Strategy	Year 1	25,000
Establishing the Selection Process of e-services for Public Servants, Citizens, and Businesses	Year 1	25,000

Actionable and Measurable Action Plan Towards Launching New Public e-services, From Planning and Design to Deployment and Continuous Improvement	Year 2	75,000
Assign Chief Digital Officers (CDO) / Principal IT Officer to Every Ministry	Year 1	540,120
Expand the Number of External Experts Involved in Developing The E-government Strategy and Action Plans	Year 1	250,000
Establish Public Servants e-cabinet System	Year 1	1,200,000
Develop a Lean and Future-proof E-government Foundation	Year 2	6,000,000
Enable Existing Biometric National ID Cards to be Technically Used as a Personal Identification And Transaction Execution Method in Online Channels/Services	Year 2	2,500,000
Prepare Data Management Strategy and Action Plan to Coordinate the Area Across The Government and Plan Its Development	Year 1	50,000
Establishing a Digital Identity System, Interoperability System, and Public Services Line-up	Year 2	2,500,000
E-government Portal Development	Year 2	2,500,000
Digital Public Service Physical Delivery Centers	Year 3	1,500,000
Digital Records Management System	Year 2	1,000,000
Citizen Feedback and Grievance Mechanism	Year 2	75,000
E-Cabinet / e-Parliament System	Year 1	700,000
Government Chatbot	Year 2	75,000
Digital Health Records	Year 5	4,000,000
E-Justice System	Year 5	1,500,000
Digital Addressing System including Infrastructure	Year 3	18,000,000
Remote Government Services for Rural Areas	Year 5	1,500,000
Real-Time Data Analytics for Governance	Year 3	800,000
Smart Policing System	Year 5	6,000,000
Develop or Strengthen E-Procurement System	Year 2	600,000
Smart Traffic Management System	Year 5	4,000,000
Virtual Government Training Programs	Year 5	150,000
Disaster Management and Response System	Year 5	75,000
Establishment of Public Key Infrastructure (PKI)	Year 2	10,000,000

<i>Digital financial services & inclusion</i>	Target Year of Implementation	Estimated Cost for each Project or Activity
Develop a Digital Financial Services Strategy	Year 1	25,000
Collaborate, Monitor, and Evaluate Progress	Year 2	75,000
Expand Digital Payment Systems and Infrastructure	Year 3	200,000
Strengthen the Legal and Regulatory Framework	Year 2	100,000
Enable Financial Literacy and Financial Inclusion	Year 2	250,000
Strengthen Consumer Protection and Cybersecurity	Year 2	400,000
Foster Public-private Partnerships	Year 2	75,000
Enhance Cross-border Remittances	Year 5	350,000
Establish a Digital Financial Services Oversight Committee	Year 2	80,000
National Digital Payment Platform	Year 3	400,000
Mobile Banking for the Unbanked	Year 3	800,000
Mobile Money Agent Network Expansion	Year 5	120,000
E-wallet for Government Payments	Year 5	150,000
Mobile-Based Agriculture Insurance	Year 3	75,000
Women-Centric Financial Inclusion Program	Year 2	100,000
Blockchain for Financial Inclusion	Year 3	250,000
Digital Credit Scoring	Year 3	150,000
Open Banking Framework	Year 1	40,000
Financial Inclusion Research Center	Year 3	180,000
<i>Digital entrepreneurship and innovation</i>	Target Year of Implementation	Estimated Cost for each Project or Activity
Develop Regulatory Sandboxes	Year 5	80,000
Develop National Digital Innovation Hubs	Year 5	220,000
Establish a Digital Innovation Startup Fund	Year 5	3,000,000
Develop a Digital Entrepreneurship Curriculums and Training Programs	Year 3	1,000,000
Encourage Public-private Partnerships	Year 3	60,000
Digital Entrepreneurship Inclusion	Year 2	150,000
Digital Marketplace Platform	Year 3	30,000
Blockchain Innovation Initiative	Year 3	10,000
Rural Technology Outreach	Year 3	100,000
Artificial Intelligence Research Center	Year 3	240,000

Digital Health Innovation	Year 3	80,000
Fintech Innovation Lab	Year 3	80,000
Data Analytics Hub	Year 3	80,000
Virtual Reality/Augmented Reality Lab	Year 3	80,000
Green Technology Innovation Initiative	Year 2	80,000
Cross-Border Collaboration Program	Year 2	80,000
<i>Innovation and business ecosystems</i>	Target Year of Implementation	Estimated Cost for each Project or Activity
National Innovation Hub	Year 2	
Establish a National Startup Ecosystem Development Unit	Year 2	400,000
Digitalization Strategies and Programs for the Most Important Traditional Industries	Year 2	300,000
Local IT Entrepreneurs and Diaspora Powered Talent Growth Programs	Year 2	60,000
Triple-helix Cooperation Initiatives incl Innovation Advisory Council and National Innovation Network.	Year 2	40,000
Diaspora Fund of Funds incl State Seed	Year 2	60,000
Public Private Partnership Investment Promotion	Year 2	500,000
Fostering the Development of Industry Associations	Year 2	20,000
<i>Digital literacy and skills</i>	Target Year of Implementation	Estimated Cost for each Project or Activity
Boost Digital Literacy	Year 2	20,000
Invest in The Gambian Higher Education System	Year 1	6,000,000
Develop a Public-private Partnership Program Based on "École 42"	Year 1	300,000
National Digital Skills Assessment Program	Year 1	50,000
Digital Skills Training Centers	Year 2	150,000
E-Learning Platform	Year 1	200,000

Coding Bootcamps	Year 1	120,000
Digital Skills Scholarships	Year 1	120,000
Mobile Application Development Challenge	Year 1	20,000
Digital Skills for Teachers	Year 2	150,000
Community-Based Digital Literacy Programs	Year 2	120,000
Digital Literacy Curriculum in Schools	Year 2	180,000
Digital Skills for Farmers	Year 1	40,000
Social Media Marketing Training	Year 1	40,000
Digital Literacy Ambassadors Program	Year 1	40,000
<i>Cybersecurity and Data Protection</i>	Target Year of Implementation	Estimated Cost for each Project or Activity
National cybersecurity strategy update	Year 1	25,000
Develop Comprehensive National Information Security Standards, Baseline Requirements, and Procedures	Year 1	25,000
Develop Cross-border Cybersecurity and Data Protection Agreements	Year 1	25,000
gmSCIRT Leadership Development for the Nationwide Cybersecurity Implementation	Year 3	75,000
Develop a Cyber Lab for Training and Resilience Building	Year 2	80,000
Develop a National Incident Response Plan	Year 1	80,000
Awareness Programs to Protect Personal Data and Ensure Privacy	Year 2	25,000
Establish a Cybersecurity Center of Excellence	Year 3	80,000
Establish a National Cybersecurity and Data Protection Authority	Year 3	120,000
Develop a National Cybersecurity Workforce Development Strategy	Year 1	25,000
Strengthen The Capacity of Law Enforcement and Judiciary on Cybercrime	Year 2	25,000
Develop and Enforce Standards for Secure Software Development	Year 2	25,000
Reporting Platform for Cyber Incidents / Crimes	Year 2	25,000
Cybersecurity Standards for Critical Infrastructure	Year 2	25,000
Mobile App Security Assessment	Year 2	10,000
Cybersecurity Certifications for Products	Year 2	25,000
Cybersecurity Audits for Businesses	Year 2	40,000
Cyber Insurance Framework	Year 2	25,000
National Cybersecurity Drills or Exercises	Year 2	80,000
Cybersecurity Incident Database	Year 2	25,000
Create a National Cybersecurity Awards Program	Year 4	10,000

Data Breach Notification System	Year 2	10,000
Data Localization Policy	Year 2	25,000
Privacy Impact Assessments	Year 2	10,000
Digital policy, strategies, legal and regulatory matters	Target Year of Implementation	Estimated Cost for each Project or Activity
Continue to Develop a Legal Framework That Supports Digital Transformation and Outlines The Norms	Year 2	25,000
Develop and Adopt International Standards Related to The Digital Economy	Year 2	40,000
Develop an Open Data Policy	Year 2	25,000
Develop Protocols for Data Sharing, Digital Signatures, Digital Payments, and Other Critical Interoperable Components of Digital Services	Year 2	80,000
E-Commerce Policy and Strategy	Year 1	25,000
E-Commerce and Consumer Protection Law	Year 1	25,000
Digital Skills and Literacy Development Policy and Strategy	Year 1	25,000
Develop Intellectual Property Rights Protection Law for the Digital Sector	Year 2	25,000
Digital Location Address & Street Naming Strategy	Year 1	25,000
Open Data Policy	Year 1	25,000
Public Key Infrastructure (PKI) Policy and Strategy	Year 2	25,000
National Digital ID System & Services Policy and Strategy	Year 2	40,000
Digital Financial Inclusion Policy and Strategy	Year 1	25,000
Digital Content Creation and Distribution Policy and Strategy	Year 2	25,000
Smart City Policy and Strategy	Year 2	25,000
E-Government Interoperability Framework	Year 2	40,000
Digital Platform Taxation Policy and Strategy	Year 1	25,000
Digital Tourism Policy and Strategy	Year 2	25,000
Internet of Things Development Policy and Strategy	Year 2	25,000
Artificial Intelligence (AI) Development Policy and Strategy	Year 2	25,000
Digital Transformation Strategy	Year 1	40,000
Digital Export Promotion Policy and Strategy	Year 2	25,000
Digital-Energy Nexus Policy and Strategy	Year 2	25,000
Digital or Online Media Policy and Strategy	Year 2	25,000
Digital & Online Media Regulation	Year 2	25,000

<i>Digital cooperation and partnership</i>	Target Year of Implementation	Estimated Cost for each Project or Activity
International Partnership on Submarine Cable Infrastructure Development	Year 7	12,000,000
Virtual International Exchanges	Year 3	240,000
Digital Cultural Heritage Preservation	Year 8	400,000
Digital Trade Facilitation Program	Year 5	600,000
Digital Education for Refugees	Year 4	20,000
Cyber Peacekeeping Corps	Year 2	40,000
Global Digital Art Collaboration	Year 9	25,000
AI Ethics Council	Year 3	25,000
Digital Sports Development Program	Year 9	25,000
Oceanic Data Collaboration	Year 3	60,000
<i>Digital advocacy and policy dialogue</i>	Target Year of Implementation	Estimated Cost for each Project or Activity
Annual National Digital Advocacy Forum	Year 1	15,000
Creation of an Online Advocacy Platform	Year 1	10,000
National Digital Policy Dialogue Forum	Year 1	15,000
Digital Inclusion Campaigns	Year 2	20,000
Digital Rights and Net Neutrality Advocacy	Year 2	40,000
Digital Awareness Campaigns	Year 2	20,000
Public-private Partnerships for Digital Advocacy	Year 1	40,000
Data Privacy Advocacy and Sensitization	Year 3	40,000
Open Data Advocacy	Year 3	40,000
National Forum on Universal and Affordable Internet Access and Connectivity	Year 1	15,000
E-Government Services Enhancement Advocacy Mechanisms	Year 1	40,000
Digital Accessibility for Persons with Disabilities	Year 1	40,000
ICT Infrastructure Development Policy Dialogue and Advocacy	Year 1	40,000
International Digital Advocacy Collaboration	Year 1	15,000
Total cost		345,620,120