



WORLD BANK GROUP
Digital Development



DIGITAL ECONOMY DIAGNOSTIC

Guinea-Bissau



**DIGITAL
DEVELOPMENT
PARTNERSHIP**

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Digital Economy
for Africa Initiative



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ACRONYMS

ACE	Africa Coast to Europe	G2G	Government-to-government
ARN	National ICT Regulator (<i>Autoridade Reguladora Nacional das TICs</i>)	HR	Human resources
ASYCUDA	Automated System for Customs Data	ICT	Information and communication technologies
BCEAO	Central Bank of West African States (<i>Banque Centrale des États de l'Afrique de l'Ouest</i>)	IFC	International Finance Corporation
BDAP	Public Administration Database (<i>Base de Dados da Administração Pública</i>)	ISP	Internet service provider
CCIAS	Chamber of Commerce, Industry and Services (<i>Câmara de Comércio, Indústria, Agricultura e Serviços</i>)	ITMA	Technological Institute for the Modernization of the Administration (<i>Instituto Tecnológico para a Modernização Administrativa</i>)
CEVATEGE	Center for Technological Appreciation and Electronic Governance (<i>Centro de Valorização Tecnológica e Governação Electrónica</i>)	ITU	International Telecommunication Union
CFE	Center for the Formalization of Businesses (<i>Centro de Formalização de Empresas</i>)	IXP	Internet Exchange Point
CVRS	Civil registry and vital statistics	KYC	Know your customer
DE4A	Digital Economy for Africa	MEN	Ministry of National Education (<i>Ministério da Educação Nacional</i>)
DFS	Digital Financial Services	MFI	Microfinance institution
DRE	Regional directorate of education (<i>Direção regional de educação</i>)	MICS	Multiple Indicator Cluster Survey
EAGB	Electricity and Water Utility of Guinea-Bissau (<i>Electricidade e Águas da Guiné-Bissau</i>)	MoF	Ministry of Finance
ECOWAS	Economic Community of West African States	MSME	Micro and small and medium enterprises
EDGI	E-Government Development Index	MTC	Ministry of Transport and Communication
EMIS	Education management information system	NFIS	National financial inclusion strategy
GDP	Gross domestic product	NGO	Non-governmental organization
GNI	Gross national income	NIF	Unique taxpayer identification number (<i>Número de Identificação Fiscal</i>)
GoGB	Government of Guinea-Bissau	OADI	African Intellectual Property Organization (<i>Organisation Africaine de la Propriété Intellectuelle</i>)
G2B	Government-to-business	ODG	Democracy and Governance Observatory (<i>Observatório da Democracia e Governança</i>)
G2C	Government-to-citizen	OHADA	Organization for the Harmonization of African Business Law



OMVG	Gambia River Basin Development Organization	SIGFIP	Integrated Financial Management Information System (<i>Sistema Integrado de Gestão das Finanças Públicas</i>)
PALOP	Portuguese-speaking African countries (<i>Países Africanos de Língua Oficial Portuguesa</i>)	SIGRHAP	Integrated Human Resource Management System of the Public Administration (<i>Sistema Integrado de Gestão de Recursos Humanos da Administração Pública</i>)
PFM	Public financial management		
PKI	Public Key Infrastructure		
PPP	Public private partnership		
P2P	Person to Person		
RCCM	Commercial and Property Credit Registry (<i>Registo do Comércio e do Crédito Mobiliário</i>)	SSA	Sub-Saharan Africa
RWI	Regulatory Watch Initiative	STAR-UEMOA	System for Real-Time Gross Settlement (<i>Système de Transfert Automatisé et de Règlement de l'UEMOA</i>)
SCGB	Cable Society of the Guinea- Bissau (<i>Sociedade de Cabo da Guiné-Bissau</i>)	TVET	Technical and vocational education and training
SICAF	Integrated Administrative and Financial Control System (<i>Sistema Integrado de Controle Administrativo e Financiero</i>)	UNCTAD	United Nations Conference on Trade and Development
SICA-UEMOA	Automated Interbank Clearing System (<i>Système Interbancaire de Compensation Automatisé dans l'UEMOA</i>)	UNDP	United Nations Development Program
SIGADE	Debt Management and Financial Analysis System (<i>Sistema de Gestão e Análise Financeira da Dívida</i>)	UNESCO	United Nations Educational, Scientific and Cultural Organization
SIGAT	Integrated Tax Administration Management System (<i>Sistema Integrado de Gestão da Administração Tributária</i>)	UNICEF	United Nations Children's Fund
SIGE	Education Management Information System (<i>Sistema de Informação e Gestão de Educação</i>)	USF	Universal Service Fund
SIGEF	Integrated Fiscal Management System (<i>Sistema Integrado de Gestão Fiscal</i>)	USSD	Unstructured Supplementary Service Data
		WAEMU	West African Economic and Monetary Union
		WARCIP	West Africa Regional Communications Infrastructure Program
		WBG	World Bank Group
		WDR	World Development Report
		XOF	West African francs





EXECUTIVE SUMMARY

Many Sub-Saharan African (SSA) countries—including Guinea-Bissau—lack the requisite enabling environment to capture a larger fraction of the global digital economy or benefit from its gains and are thus at increasing risk of being left behind. Rapid digital transformation is reshaping the global economy, driving financing inclusion, closing information gaps between buyers and sellers, and changing the way economies of scale are achieved. In many, although certainly not all, parts of the continent, access to and affordability of broadband internet remains low; for that matter, even access to electricity is low, preventing Africans from being able to go online. Most public services remain offline, and many Africans lack digital identity or mobile wallets to take advantage of digital financial or other services. Digital skills and literacy remain weak. Finally, although venture capital investment on the continent continues to grow—2021 witnessed 681 rounds of fundraising across 640 startups, totaling US\$5.2 billion in equity raised, according to the African Private Equity and Venture Capital Association—structural constraints prevent businesses from taking greater advantage of the digital economy. Of the 716 financial technology (fintech) companies currently operating in SSA, only 5 percent have scaled.

To address these constraints, the World Bank Group (WBG) has committed, through its <https://www.worldbank.org/en/programs/all-africa-digital-transformation>, to undertake country-level digital economy diagnostics across the continent. These Digital Economy Country Assessments take stock of challenges and opportunities across five foundational pillars (digital infrastructure, digital public platforms, digital financial services, digital businesses, and digital skills) and then propose specific, actionable, and prioritized recommendations to support countries develop vibrant, safe, and inclusive digital economies. The resulting synthetic country reports

serve to highlight key policy reforms and investments needed for African countries to achieve their digital transformation ambitions while also mitigating the risks of digitization. These reports have contributed to structuring policy dialogue between the authorities, the WBG, and other relevant actors around catalyzing action toward implementation and achievement of digital economy objectives; they have also directly informed WBG country strategy documents as well as downstream engagements.

In this context, the WBG has undertaken this digital economy diagnostic of Guinea-Bissau under the leadership of the Ministry of Transport and Communication and the Vice Prime Minister. Based on desk research, virtual and in-person interviews with a wide range of public and private sector stakeholders, and an April 2022 field mission to discuss preliminary findings and proposed recommendations, this report analyzes the constraints in each of the five foundational pillar and puts forward actionable recommendations categorized by priority level and sequencing. Overall, it aims to inform the national dialogue, as well as next steps, around Guinea-Bissau's digital transformation, a policy agenda in which the Government of Guinea-Bissau (GoGB) has expressed keen interest.

Guinea-Bissau's weak socioeconomic development and fragile nature were considered when analyzing its digital economy and in proposing the way forward. Significant political and institutional fragmentation and instability hamper the development and implementation of much-needed policy reforms in the country, including in the emerging digital economy. This fragility hinders political commitment to reform, effective decision-making, as well as policy and institutional coordination—all of which are prerequisites for the establishment of a strong policy and regulatory environment for the digital economy, much-needed infrastructure investments, and policy



reforms that can support the development of public platforms and flourishing of digital businesses. As such, a fragility lens was applied to the pillar-specific analysis, and recommendations were tailored to ensure they are feasible and appropriate for Guinea-Bissau. Likewise, the limited development of the country—it's GDP per capita is US\$728, two-thirds of the population live in poverty, and health and education indicators are amongst the lowest in the world—necessitates the establishment of realistic expectations and a focus on a limited set of core issues, or “quick wins,” that could be accomplished in the short term.

The analysis of the five pillars of the digital economy underscores the importance of ensuring the proper enabling environment for digital transformation in Guinea-Bissau. On most digital economy indicators, Guinea-Bissau lags its structural peers Burundi, Central African Republic, The Gambia, and Sierra Leone, as per the World Bank's latest Country Economic Memorandum). For example, 23 percent of Bissau-Guineans use the internet, compared to a global average of 63 percent, according to 2020 International Telecommunication Union (ITU) statistics (the latest for which country data is available). In terms of how the country is using information technologies to promote access and inclusion of its people, Guinea-Bissau was ranked 186th out of 193 countries on the 2020 E-Government Development Index, which incorporates access characteristics, such as infrastructure and educational levels. The next paragraphs detail findings by pillar of the country's enabling environment.

Significant gaps in the country's digital infrastructure are hampering progress in the other four foundational areas of Guinea-Bissau's digital economy. Limited international connectivity has led to elevated prices for internet access (and,

in turn, low adoption), although this should improve with the delivery of the country's Africa Coast to Europe (ACE) submarine cable connection, expected in November 2022. The fixed-line state-owned operator, GuineTelecom/GuineTel, is in need of restructuring. Regarding the middle mile of the broadband value chain, the country lacks a national fiber optic backbone to reach main cities and offer backhaul capabilities to improve the quality and reach of internet services (broadband internet penetration currently stands at 37 percent). To be sure, an internet exchange point (IXP) is expected to be in place also by November 2022. Regarding the last mile, broadband internet access and affordability, while they have improved significantly in the past three years, remain low, particularly in rural areas. A critical constraint to developing the last mile is the country's low electrification rates and high energy costs: the national electrification rate is 33 percent, (56 percent in urban areas and 15 percent in rural), according to 2020 World Bank figures. Sometimes uneven political commitment within the GoGB has contributed to delays in key sector reforms such as the privatization of the incumbent operator, and the national ICT regulator is still too weak to fulfill its regulatory mandate. The country's universal access fund (UAF)—an important instrument to incentivize private investment and encourage the deployment of digital infrastructure in underserved areas—is poorly regulated and underutilized.

Guinea-Bissau's digital public platforms are at a nascent stage, but promising initiatives for automated tax filing and payments as well as business registration demonstrate the potential for developing digital services. The country is lacking the appropriate legal and regulatory framework and there is no government-wide digital transformation strategy outlining a strategic vision and program to guide the country's ongoing digital transformation



efforts. The Institute for Modernization of the Administration (ITMA), formally established in 2020, has taken on the mandate for leading and coordinating GoGB's digital strategy and efforts; however, it currently lacks the financial and human resources to fully assume this mandate. The country's lack of a structured foundational identity system prevents the development of a digital identity scheme. Existing digital public platforms in Guinea-Bissau are not interoperable, and there is no comprehensive vision or policy on data sharing and the management of data and data infrastructure (services and data infrastructure are not shared and there is no government data center). Regarding core government functions, most are digitized (with the exception of public procurement); however, the country's integrated financial management information system, SIGFIP, has not been uniformly adopted by ministries and human resource information management is divided between two non-interoperable systems and maintained by two separate ministries: Civil Service and Finances. Few government-to-citizen or government-to-business platforms exist—although KONTAKTU shows promising signs of simplifying and digitizing the declaration, calculation, and payment of taxes. CivicTech also does not currently exist.

Digital financial services (DFS) have increased significantly over the past two years due to the boom of the mobile money industry. However, as of 2021, close to 43 percent of Bissau-Guineans (particularly women and rural dwellers) remain excluded from the formal financial system, the GoGB has not yet made DFS a national policy priority, access to Unstructured Supplementary Service Data (USSD) channels is not regulated, and significant market challenges impede further growth. Overall, the demand for and use of basic (first-generation) DFS is growing in Guinea-Bissau. The country's banking sector remains underdeveloped compared to the rest of the West African Economic and Monetary Union (WAEMU) region, with limited services offered outside of Bissau. The scarcity of bank

facilities in the country does not meet local demand for formal financial services. Yet, all six banks active in Guinea-Bissau recognize digital transformation as a key priority and now offer mobile banking solutions, which, given the geographic distribution of the country's vulnerable populations, has the potential to expand financial access to the unbanked. The microfinance sector remains in a dire state, although the pending creation of a reference microfinance institution is expected to boost the sector's growth. In this context, the country's mobile money sector has registered significant growth. In 2020, the mobile money activity rate grew by 77 percent and the value of mobile money transactions grew by 235 percent (the highest growth rate in the WAEMU region). The temporary measures taken by the Central Bank of West African States (BCEAO) to loosen regulations to open mobile money accounts in the face of the COVID-19 pandemic particularly contributed to this growth. In general, the use of digital payment services is gradually rising, and demand is increasing, but the number and volume of transactions remains small from a regional perspective. Furthermore, regional authorities have yet to secure the full interoperability of digital payment systems. Lastly, the lack of demand alongside regulatory constraints are limiting the development of the second generation of DFS such as digital loans or digital insurance products, and fintech companies still struggle to emerge in Guinea-Bissau. The country also lacks a national financial inclusion strategy as well as a financial education strategy, and, subsequently, has no financial education programs, which further undermines the growth of financial inclusion.

Guinea-Bissau's digital business landscape is embryonic. Its growth has been hampered by one of the most difficult and informal business environments in the world: more than 90 percent of the active and employed population works in the informal sector. Owing to years of chronic political and institutional instability, Guinea-Bissau has not been able to



catalyze significant domestic or international private sector investment due to key constraints associated with poor telecoms infrastructure and utility access (notably electricity), a very weak regulatory environment with uneven enforcement of laws and regulations, and limited access to finance and markets. The lack of a consolidated business reform agenda or MSME support agency, in addition to the absence of a structured public-private dialogue or coordinated mobilization of diaspora know-how and capital, also weighs on overall reform identification and momentum. The few existing digital startups present in the country are supported by a thin ecosystem made up of a small network of incubators (Innovalab being the most prominent, which recently helped GoGB develop and deploy an online registration and tracking platform for nationwide COVID-19 testing). Ad hoc business plan competitions and other innovation-related, call-for-proposal initiatives have been a useful launchpad for local entrepreneurs. Notwithstanding the existence of these digital start-ups, however, very few have been able to transition sustainably into the market due to very difficult access to funding and few avenues for continuous upskilling of developers. The establishment of a one-stop shop (Center for the Formalization of Businesses, CFE) has streamlined the business registration and formalization process, although coverage is limited to Bissau and usage and support to CFE has fallen flat. Critical updates to legislative and regulatory decrees are needed to enable digital entrepreneurship, including reforms around consumer protection, intellectual property enforcement, data protection and privacy, data use and reuse, e-signature, regulations on e-commerce and e-procurement, access to and sharing of information, and cybersecurity.

GoGB is committed to boosting the country's digital skills, however, it does not have the capacity to invest in the necessary ways to make this a reality.

The Government does not possess a digital skills policy or national strategy. The Ministry of National

Education struggles with very limited capacity and low digital competency amongst education ministry officials, which complicates the adoption of digital solutions. Inconsistent leadership has led to fluctuating institutional arrangements within the education sector and, ultimately, its weak performance. Overall, the sector suffers from ineffective administrative data collection and management, which leads to inefficient sectoral planning and execution. Furthermore, the lack of infrastructure required to support the development of digital skills in the education sector is a significant barrier, as only 17 percent of schools have regular access to electricity (much less the internet). Additionally, students' acquisition of skills—including digital skills—is hampered by untrained teachers, pervasive teacher strikes, and limited school resources. There is a significant gender gap in digital skills, with almost three times more men (37 percent compared to 13 percent for women) reported having ever used the internet. A small private sector and limited tertiary education institutions result in an inadequate supply of digital literacy training opportunities. The resulting low foundational skills further impede the development of a digitally enabled workforce; it also negatively impacts the other four foundational pillars. However, forthcoming updates to the school curriculum can be a window of opportunity for embedding plans for the systematic development of digital skills across the school system.

Across these five pillars, four crosscutting issues stand out.

These include the need for reliable electricity, the need for increased affordable broadband access, gaps in the country's legal and regulatory framework, and limited strategic leadership and intergovernmental coordination on digital transformation. A core challenge across all of these issues, as well as the pillars, is the country's extreme political instability and fragmentation.

Going forward, GoGB will need to undertake concerted reform efforts across the five pillars,



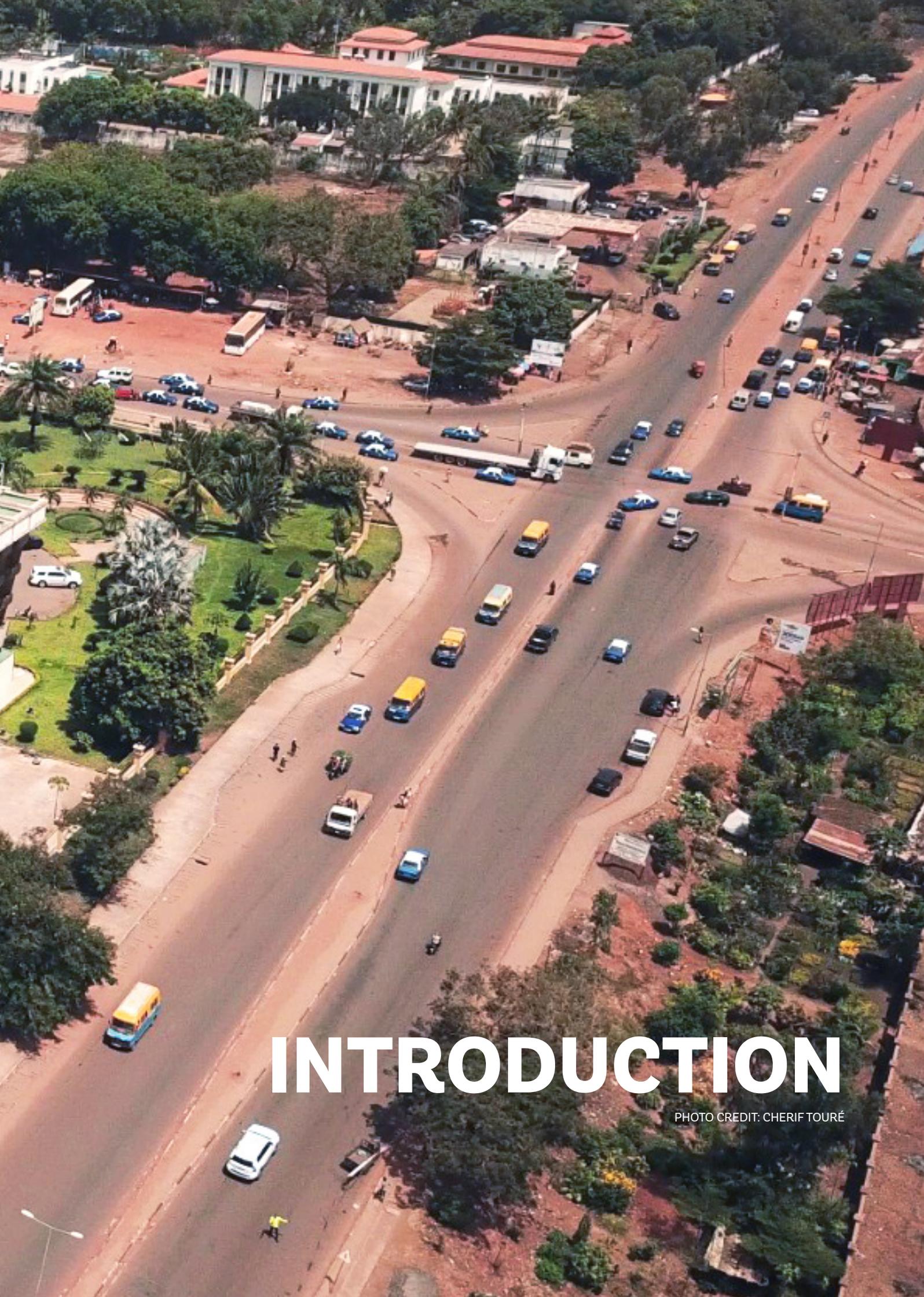
while acknowledging the fragility-related constraints, in order to support the development of a vibrant, safe, and inclusive digital economy.

The table below presents prioritized, short-term recommendations from the five pillars, taking into account the many ways in which political fragmentation and instability affect policy-making and implementation in Guinea-Bissau: lack of

clear and credible commitment to reform, low institutional effectiveness (including poor institutional coordination), subpar capacities among high-level officials and the civil service to make and implement policies, mismanagement and capture, and donor dependence. Annex Table 4 presents a prioritized and sequenced table of recommendations for the short-, medium-, and long-term.



#	RECOMMENDATION	RESPONSIBLE
Digital Infrastructure		
1	Improve international connectivity by completing the delivery of the ACE submarine cable link and the Suro-Antula backbone.	SGCB WARCIP PIU
2	Privatize the incumbent operator GuineTelecom/GuineTel and determine what to do with its assets and existing infrastructure.	MTC
3	Strengthen the transparency of the sector through the publishing of the annual audit reports of the UAF and the establishment of a telecom observatory that includes key sectoral data and publish it on the telecom regulator's website.	ARN
Digital Public Platforms		
4	Build institutional leadership and coordination to spearhead necessary measures, including development of sector strategy, preparation for the undertaking of legal and policy reforms, and development and enforcement common IT standards.	VPM
5	Develop a countrywide, digital transformation strategy with a whole-of-government and citizen-centric approach with an eye towards harmonizing existing and pipeline initiatives.	VPM
6	Reinforce the supremacy and use of SIGFIP by rolling out the system to more budgeting entities, issuing a circular requiring its use for budget preparation and execution, and boosting IT support and change management to ensure proper usage.	MoF
Digital Financial Services		
7	Design and adopt a financial inclusion strategy that takes into account DFS and includes a specific focus on women, rural dwellers and MSMEs.	MoF
8	Enhance financial capabilities and resilience by designing a national financial education strategy with a specific focus on women and on digital literacy (in line with BCEAO's financial education-related projects).	MoF
9	Adopt a regulation to ensure fair and equitable access to the USSD channel (including fair pricing and quality of access to USSD channels).	MoF
Digital Businesses		
10	Conduct a mapping exercise to identify sectors or start-ups with high potential for digital leapfrogging in the Guinea-Bissau economy.	MCI
11	Develop a functional framework for Public-Private Dialogue which would gather key stakeholders to enable troubleshooting and overview of private sector needs and business environment priorities on a regular basis.	MCI
12	Design and deploy a short-term publicly supported seed capital pilot program in cooperation with existing ecosystem stakeholders, enabling quick support to promising start-ups and emerging businesses in the ICT space.	MCI
Digital Skills		
13	Conduct sensitization campaigns for education sector leadership and teachers' unions on the importance of technology and digital skills for smoother education sector management and service delivery as well as for employability of youth and participation in society for students.	MEN
14	Undertake a digital skills needs assessment and develop a basic digital skills development section of the Education Sector Plan that caters to skill building across all levels of Guinea-Bissau's education and skilling ecosystem.	MEN
15	Design a mass digital skilling initiative for women and youth that leverages mobile-friendly platforms, with a focus on women, to address the skills gap found in the needs assessment.	MEN



INTRODUCTION

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GUINEA-BISSAU AND ITS NASCENT DIGITAL ECONOMY

1. Guinea-Bissau is a small, West African state, rich in untapped natural resources. With a population of around 1.9 million, the country is highly diverse and characterized by a wide range of ethnic groups, languages, and religions. Guinea-Bissau consists of a mainland, a large archipelago of islands, and various coastal islands. It has the highest proportion of natural wealth per capita in West Africa, primarily from agricultural land, fisheries,

forests, and natural habitats. Guinea-Bissau's geographical position is also advantageous in terms of transport and trade; it is one of 15 countries in the Economic Community of West African States (ECOWAS), a regional group with the mandate of promoting economic integration (Figure 1). Yet, despite its enormous development potential, Guinea-Bissau remains one of the least developed countries in the world.

Figure 1: Maps of Guinea-Bissau and ECOWAS Member States



Source: World Bank.

2. Extreme political and institutional fragility hamper Guinea-Bissau's development.¹ The state is highly centralized and has a limited presence outside the capital. Weak state institutions, poor public financial management (PFM), and limited spending on service delivery (a large portion of public expenditure is absorbed by the security sector, even though the country is beset by no significant external threats or active internal conflicts) lie at the heart of the country's fragility (see Figure 2). This context severely weakens accountability and allows corruption to flourish:

Guinea-Bissau was ranked 162 out of 180 in the 2021 Transparency International Corruption Perceptions Index, with a score of 21 out of 100.² Further complicating matters is the fact that Guinea-Bissau is one of the most coup-prone and politically unstable countries in the world, with the latest coup attempt—the 17th since independence from Portugal in 1974³—occurring in February 2022. This fragility stems from several drivers, including elite fragmentation and rent seeking, a captured and poorly diversified economy vulnerable to shocks, security sector

¹ Guinea-Bissau is one of the most fragile countries in the world. According to the Fragile States Index, however, its fragility has slowly declined over the past decade: besides improvements to its aggregate score, it has increased its ranking, from the 15th most fragile country in 2013 to the 23rd in 2021.

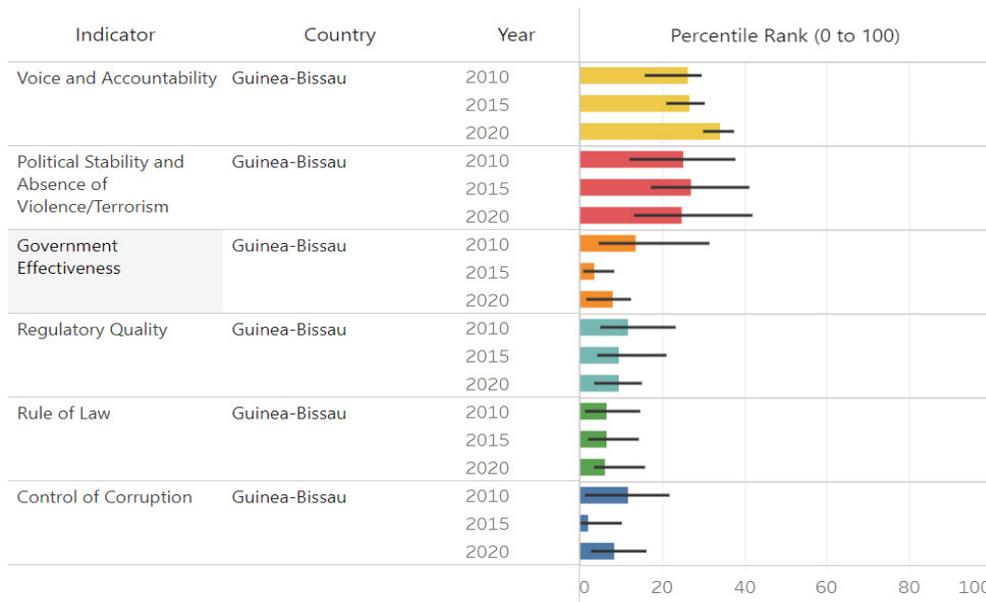
² According to the Mo Ibrahim Foundation, Guinea-Bissau ranks well below the African average rating of overall governance quality (41.4/100 vs 48.8/100) and has the worst score in West Africa – faring particularly bad on indicators relating to anti-corruption. The country also fares poorly on the World Bank's World Governance Indicators, with particularly low scores in the areas of government effectiveness, regulatory quality, rule of law and control of corruption.

³ In addition, there have been four successful coups d'état and a short but devastating civil war, from 1998 to 1999.

interference in politics and the economy, weak and inequitable administration of justice, social exclusion, drug trafficking, and the lack of natural resource governance (African Development Bank Group and World Bank Group, 2020). The economic cost of the

country's political instability from 1998-2018 was estimated by the World Bank to be approximately US\$1.1 billion, nearly the same as the country's gross domestic product (GDP) in 2018: US\$1.2 billion (World Bank, 2020a).

Figure 2: Worldwide Governance Indicators: Guinea-Bissau (2010-2020)



Source: Worldwide Governance Indicators (database).

3. Guinea-Bissau's economy is predominantly rural, agricultural, and highly dependent on a single cash crop. Economic growth has been low and volatile for decades, as periods of growth are frequently interrupted by adverse weather, declining international cashew prices, and political instability. Agriculture accounts for over 45 percent of GDP and employs about 80 percent of the labor force, the majority of which are smallholder subsistence farmers. The economy is reliant on the cashew nut, which makes up 85 percent of the value of the country's exports. Since 2020, the country has faced falling cashew prices (on a downward trajectory since 2018), rising food prices, contractions in global trade, restricted access to markets, and economic disruptions due to COVID-19 (as well as trade and value chain disruptions accompanied by increasing inflationary pressures resulting from the war in Ukraine), which lowered incomes and consumption

levels and touched off an acute food security crisis in 2021 (World Bank 2020a; World Bank, 2021a).

4. The country is characterized by high rates of poverty and low human development outcomes. Political instability, a public sector unable to fulfill its core functions, and weak economic diversity have combined to make Guinea-Bissau one of the poorest countries in the world. Two-thirds of the population live in poverty (i.e., on US\$1.90 a day), and one-third live in extreme poverty (i.e., on US\$1.25 or less a day), with poverty significantly higher in rural areas. The impact of the COVID-19 crisis is estimated to be reversing modest gains in poverty reduction, leading to a 2.4 percentage-point increase in poverty in 2020 and exacerbating food insecurity. Guinea-Bissau remains near the bottom of the Human Development Index, ranking 175th out of 189 countries in 2020. Education and health outcomes are weak. Child

and maternal mortality rates are among the highest in the world and more than one third of the population lacks access to safe water for drinking and bathing. Disruptions in basic service provision due to the pandemic is further

deteriorating human development outcomes, leading to a 12 percent increase in child mortality and 10 percent increase in maternal mortality in 2020 (Table 1; World Bank, 2020a; World Bank, 2021a).

Table 1: Socio-economic Indicators for Guinea-Bissau

INDICATOR	VALUE	SOURCE
DEMOGRAPHY		
Population (millions)	2.0	WB (2022)
Urban population (% of total population)	44.20	WDI (2020)
Youth population (% of total population, under 25)	61.7	UNDESA (2020)
Life expectancy at birth (years)	58.32	WDI (2019)
Infant mortality rate (per 1,000 live births)	51.40	WDI (2020)
Adult literacy rate (% of people ages 15 and above)	45.58	WDI (2014)
Youth literacy rate (% of people ages 15-24)	60.40	WDI (2014)
Labor force participation (% of total population, ages 15-64)	67.9	EHCVM (2018)
Employment in agriculture (% of total labor force)	>85	Paviot et al. (2019)
ECONOMY AND SHARED PROSPERITY		
GDP (current US\$, billions)	1.43	WDI (2020)
GDP per capita (current US\$)	793.9	WB (2022)
GDP growth (annual %)	3.8	WB (2022)
Poverty headcount ratio at \$1.90 a day (2011 PPP) (% of population)	66.2	PLR (2020)
Poverty headcount ratio at national poverty lines (% of population)	47.7	EHCVM (2018)
Gini index (World Bank estimate)	50.7	WDI (2010)
Access to electricity, national / rural (%)	31.04 / 12.90	WDI (2019)

5. Guinea-Bissau suffers from stark gender inequalities, although relevant data is hard to come by. A majority of the Bissau-Guinean population (at 50.6 percent), women are also the main economic agents in the primary and secondary sectors, responsible for 55 percent of agricultural production and a large share of the non-formal economy (associated with economic activities linked to commerce). Notwithstanding, women are vulnerable in terms of access to the means of production, goods, services, education, health, and training. In education—boys are 1.5 times more likely than girls to start general secondary education and, while the overall illiteracy rate in Guinea-Bissau is just under 50 percent, it is above 60 percent for

women (MICS, 2018). Women also face barriers in terms of economic inclusion, access to land and other assets, and access to agriculture inputs and training. Life expectancy for a Bissau-Guinean woman is almost three years less than a man. The country has an overall Women, Business, and the Law score of 42.5 points, which is significantly below the regional (69.9 points) and global (75.2) averages as Bissau-Guinean women enjoy less than half of the legal rights enjoyed by their male counterparts, hampering their participation in the economy through the workforce and entrepreneurship. They are also frequent victims of human rights violations: early and forced marriage, domestic and sexual violence, and sexual harassment



in the workplace. Over half of girls and women aged 15-19 have undergone female genital mutilation. However, gender-disaggregated data for Guinea-Bissau is lagging. As of December 2020, the United Nation's Women Hub's SDG Dashboard illustrated that only 27.9 percent of indicators needed to monitor

the Sustainable Development Goals from a gender perspective were available, with just 1 percent of the indicators scoring high, 8 percent scoring medium, and 19 percent scoring low; this is lower than the SSA averages, at 7 percent, 10 percent, and 21 percent, respectively.

Sector Context

6. **Guinea-Bissau's digital economy is nascent and constrained by significant bottlenecks.** A digital economy refers to the part of economic output derived from information and communication technologies (ICT) and digital technologies with a business model based on digital goods or services. More specifically, it incorporates all economic activity reliant on, or significantly enhanced by the use of digital inputs, including digital technologies, digital infrastructure, digital services, and data. It refers to all producers and consumers, including the government, that are utilizing these digital inputs in their economic activities⁴. Significant constraints in the areas of digital infrastructure and digital public platforms have stifled wider development, leading to the limited provision of digital public and financial services, a still nascent digital business environment, and dampened supply of and demand for digital skills.

7. **Guinea-Bissau's still nascent digital economy exacerbates its binding constraints, identified in the World Bank Group's (WBG) 2016 Systematic Country Diagnostic as lack of inclusiveness and low rural productivity, low and unstable economic growth, fragility and weak governance.** Weak information systems, poor human resource management, and the lack of platforms to increase citizen participation and engagement contribute to poor service delivery.

Deficiencies in Guinea-Bissau's digital (and physical) infrastructure have limited the volume of internet traffic, as well as access to and affordability of internet services; this has hampered access to markets and services (particularly for women), limited export opportunities for businesses, decreased job opportunities, dampened efficiency (including through higher labor productivity), and kept marginal costs and prices of final goods and services high (Minges, 2016). Limited ICT is contributing to low processing capabilities in the cashew economy, complicating the country's move to higher value chain segments. The lack of ICT harms not only the government's performance but especially those most vulnerable; for example, smallholders cannot obtain daily pricing data via mobile phones or easily coordinate to strengthen their bargaining power and gain higher margins on the sales of cash crops. The relative absence of low-fee, digital financial services has kept bank account penetration low, as Guinea-Bissau has just 1.8 commercial bank branches per 100,000 adults; women particularly suffer when financially excluded. Finally, ineffective public financial management (PFM)—including, particularly, back-office information management systems—contribute to fragility by perpetuating weak governance through regressive public spending, continuation of corrupt practices, and cronyism.

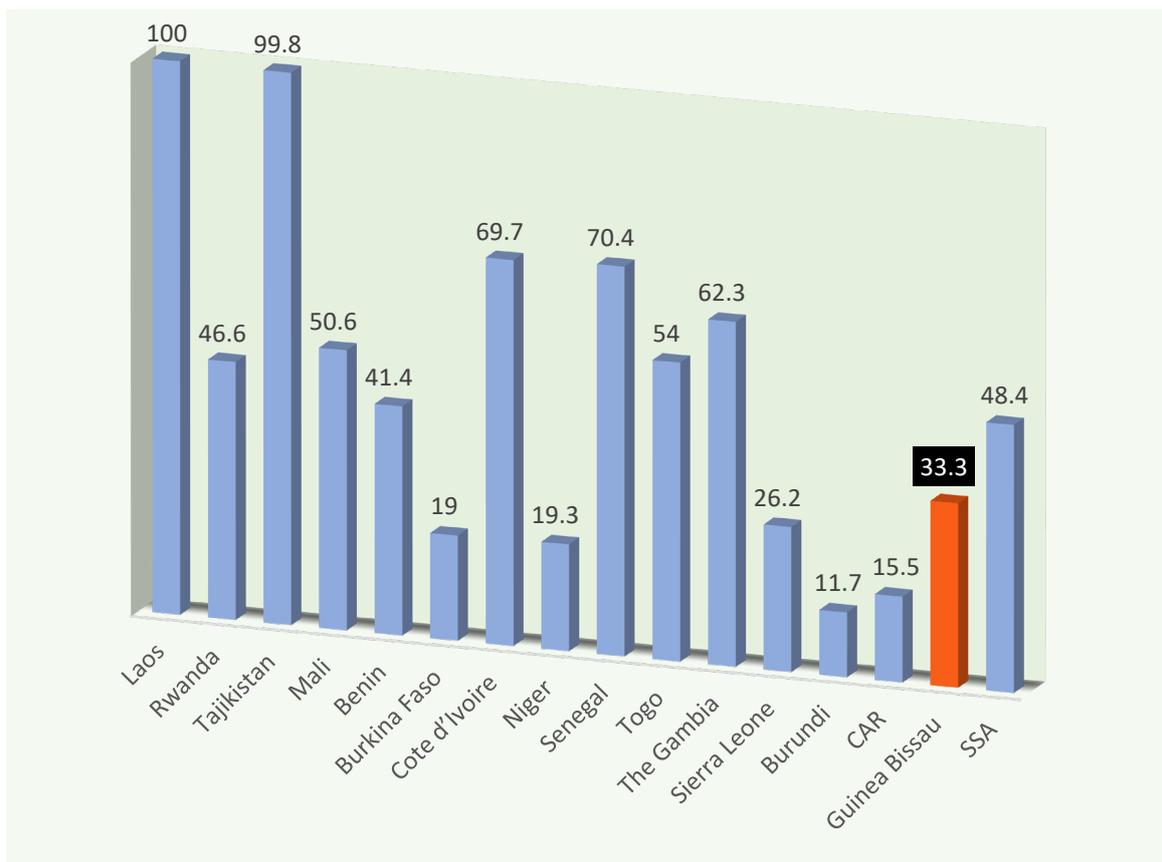
⁴ The distinction from the broader measure of the "traditional" economy is that the digital economy does not include outputs from firms that are non-digital in nature and produced using minimal digital inputs. OECD (2020).

Access To Electricity

8. **Reliable access to electricity is particularly low.** At 33 percent, Guinea-Bissau has one of the lowest electrification rates in SSA—and, outside of Bissau, this rate falls to 15 percent (the figure is over 56 percent for urban areas). Guinea-Bissau’s access to electricity is actually higher than three of its structural peers (Sierra Leone, Burundi, and CAR), and two of its WAEMU fellow countries (Burkina Faso and Niger), but much lower compared to the average SSA rate of 48.3 percent and other aspirational and WAEMU peers (Figure 3). The country is characterized by severe electricity shortages (particularly outside of

Bissau), resulting in reduced activities for companies and households. Currently, there is limited capacity to supply affordable and quality power to most of the population as the electricity grid remains limited to the capital, causing large disparities in energy access across regions. Secondary cities rely on diesel generators for electricity supply (for a few hours a day) while other smaller cities increasingly rely on solar power mini grids and rural households on individual solar systems (a minority of affluent individual or private-sector consumers rely on expensive back-up generators).

Figure 3: Electrification Rates (2020): Guinea-Bissau vs. Aspirational, Structural, and WAEMU Peers



Source: World Bank (2020a).

9. The cost of electricity in Guinea-Bissau is among the highest in SSA. The lack of reliable grid electricity supply, coupled with low returns, render services not commercially viable on their own. Furthermore, as a result of limited generation (30 megawatts), many consumers rely upon gasoline or diesel generators, even though these may cost up to four times the national electricity tariff (of US\$0.39/kWh), according to USAID data. This leads to inflated costs of electricity, making the critical service out of reach for many.

10. Many of the constraints keeping electricity generation low and prices high are currently being addressed and results should start becoming apparent. Reasons for the country's lack of electricity generation capacity and unreliability of power supply include political instability, lack of planning, fragmented donor assistance, high levels of technical and commercial losses of energy produced, political interference and poor management of the state-owned utility (Electricidade e Aguas da Guine-Bissau, EAGB), non-payment for services (EAGB has a collection rate of 69 percent and 33 percent total network losses), high dependency vis-à-vis a single energy provider (i.e., Karpower), and the participation of public officials in the theft of gasoline and diesel

(for power generation) for resale and or use in private vehicles (World Bank, 2016a; World Bank, 2019a). In February 2021, GoGB approved the adoption of the Least Cost Development Plan,⁵ promoting a mix of hydro-based imports and domestic renewable energy resources. In line with this plan, the WB-financed Gambia River Basin Development Organization (OMVG) energy project is focused on expanding the electricity grid in the capital and on connecting Guinea-Bissau to the hydropower of Guinea-Conakry (box 1). While gains have been made in boosting access to electricity (particularly in Bissau), expanding access in rural areas has been slower to come by (World Bank 2021). The World Bank is also financing US\$50 million of a US\$113.15 million Solar Energy Scale-up and Access project, whose objective is to increase access to electricity and enable solar power generation, negotiations for which were completed in April 2022. The World Bank's Global Electrification Platform can help the government plan for the least-cost electrification, proposing different Nationwide Least Cost approach scenarios for electrification of Guinea Bissau, for 2025 and 2030 (Figure 4). The scenarios are based on assumptions of (i) bottom-up demand target (Poverty-GDP), (ii) social and productive uses demand, (iii) estimated on-grid cost (US\$0.078/kWh).

⁵ Through a ministerial decree dated February 23, 2021 (Despacho No. 01/GMRNE/2021).



Box 1: Addressing Energy Constraints in Guinea-Bissau: Recent Actions

In 2015, GoGB approved two action plans and an investment plan (Plano de Ação Nacional para a Eficiência Energética, Plano de Ação Nacional para as Energias Renováveis, and Plano de Investimento para a Energia Sustentável). These were aligned with the SEforALL Action agenda to set 2030 energy policy objectives and strategies to increase energy access both on grid and off grid, exploit renewable energies, and improve energy efficiency and reliability. The Government's strategy is focused on three main objectives:

- At least 80 percent access to electricity (from a 2012 baseline of 12 percent), most of which is to be produced by renewable energy sources (from a 2012 baseline of around 2 percent) by 2030 (at least 50 percent penetration of renewables in the national grid in 2030 and 80 percent penetration of renewables in energy generated in off-grid systems network);
- At least 75 percent of the country's population has access to safe and modern sources for cooking (from a 2012 baseline of 7 percent); and
- Energy efficiency through the adoption and internalization of rational and efficient practices of energy production and consumption.

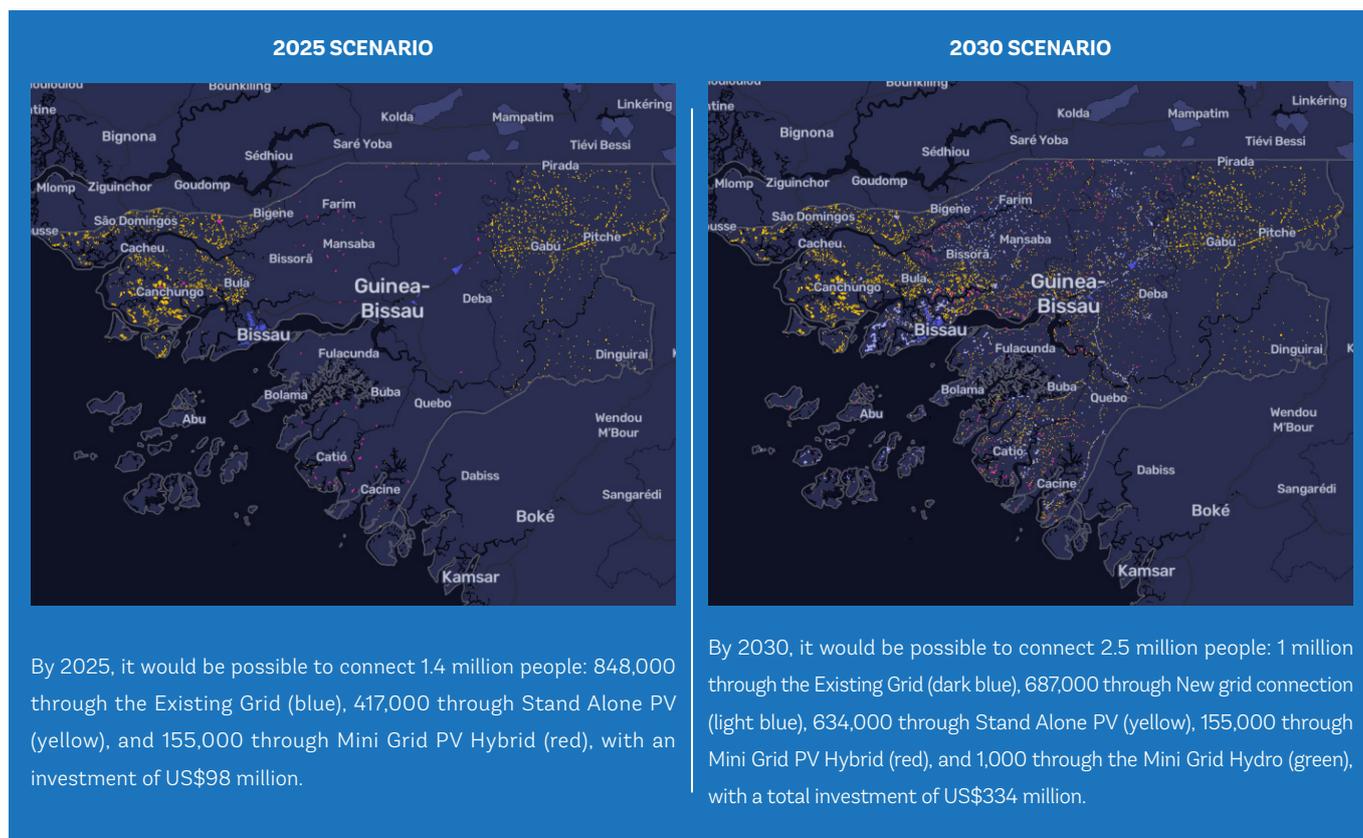
Since February 2019, Guinea-Bissau has experienced the transition and complete transformation of its power generation mix from diesel to heavy-fuel oil, following the commissioning of a 17-30 MW power barge. This milestone is expected to decrease fuel theft, double the installed electricity capacity, and reduce generation costs by over 34 percent. A consortium led by Electricidade de Portugal took over EAGB's key management positions under a service contract started in May 2019, which appears to be slowly improving the company's operational and financial performance. In February 2021, GoGB adopted the Least Cost Development Plan, promoting a mix of hydro-based imports and domestic renewable energy resources.

The WB-financed OMVG Interconnection project is focused on expanding the electricity grid in the capital and on connecting Guinea-Bissau to the hydropower of Guinea-Conakry. The US\$711 million project extends the West African power pool transmission by means of financing transmission lines and substations.

The Global Electrification Platform can help the government plan for the least-cost electrification, proposing different Nationwide Least Cost approach scenarios for electrification of Guinea Bissau, for 2025 and 2030.

Sources: Government of Guinea-Bissau, 2017a; Government of Guinea-Bissau, 2017b.

Figure 4: Nationwide Least Cost approach scenarios for electrification of Guinea Bissau, for 2025 and 2030



Source: GEP platform at <https://electrifynow.energydata.info>.

11. Low electricity availability and reliability in Guinea-Bissau has a negative impact on broadband internet access both in terms of increasing the price and slowing down the penetration rate. This poses a serious constraint to the connectivity of schools, hospitals, businesses, households, and government institutions, undermining the digital transformation efforts and consequently the digital economy. Sustainable Development Goal 7 calls for ensuring universal access to affordable, reliable, and modern energy services. Besides being an essential part of all

aspects of modern life, access to electricity is a core requirement for the development of a digital economy. Governments therefore need to simultaneously increase electricity and broadband access otherwise it would impede the creation of effective digital payment solutions and gateways, constrain government efforts to provide efficient and effective services, delay the digitalization of existing enterprises and the development of innovative digital startups, and slow down the process of acquiring skills and competencies needed for the digital economy.



AFRICA'S DIGITAL TRANSFORMATION

12. **Leveraging the digital economy can be transformational for Sub-Saharan African (SSA) countries.** Rapid digital transformation is reshaping the global economy, driving financing inclusion, closing information gaps between buyers and sellers, and changing the way economies of scale are achieved. Africa's internet economy is poised to reach US\$180 billion by 2025 (up from US\$115 billion in 2020), accounting for 5.2 percent of the continent's GDP (Google and IFC, 2020). There is increasing evidence of the positive impact of access to internet and mobile technologies in SSA on growth (Katz and Callorda, 2019), jobs (Hjort and Poulsen, 2019), innovation (Georges, Mensah, and Traore, 2021), firm productivity (Karim Abreha et al., 2021), agricultural productivity (Ordu, Cooley, and Goh, 2021), and, critically, household consumption levels (Bahia et al., 2020). These "digital dividends" can include (i) greater inclusion thanks to an expansion of the information base, (ii) greater efficiency thanks to lower information costs, and (iii) greater innovation as information goods help bring transaction costs down toward zero (World Bank Group, 2016).

13. **The COVID-19 pandemic has accelerated the digital transformation worldwide, as many countries have been able to leverage digital technologies to ensure business and education continuity, prevent service interruptions, and otherwise cope with social distancing.** Country-level policies and interventions have facilitated digital connectivity and the deployment of digital platforms to help

citizens, governments, and businesses cope with the pandemic. According to the Bank's Business Pulse Surveys, shortly following the shock of COVID-19, one third of firms increased or started to use internet, social media, and digital platforms for business purposes (World Bank, unpublished). On the public sector side, in Malawi, the Government rolled out the Thandizo health system app, which supports the testing, tracking, isolating, and treating of suspected COVID-19 patients as well as shares public health information in English and Chichewa. In Benin, the Government launched an e-learning platform for online courses at public universities, allowing students to continue their tertiary studies without endangering their health. In Rwanda, fees on mobile money transfers, bank account to mobile money transfers, and on payment for all contactless point of sale transactions by merchants were removed to help minimize face-to-face interactions. In Ghana, the Ministry of Health partnered with Zipline to pilot the delivery of emergency public health supplies, including COVID-19 testing kits, to remote areas. For the most part, however, Guinea-Bissau has been limited in leveraging digital technologies in its response to the pandemic, as it does not possess the core foundations necessary to leverage the digital economy.⁶ The Bank's latest Country Economic Memorandum for Guinea-Bissau acknowledges this: "Unlike the case in many SSA countries, lack of basic digital technologies means that Guinea-Bissau is missing out on remote learning which would have helped mitigate the loss of learning caused by the pandemic."⁷

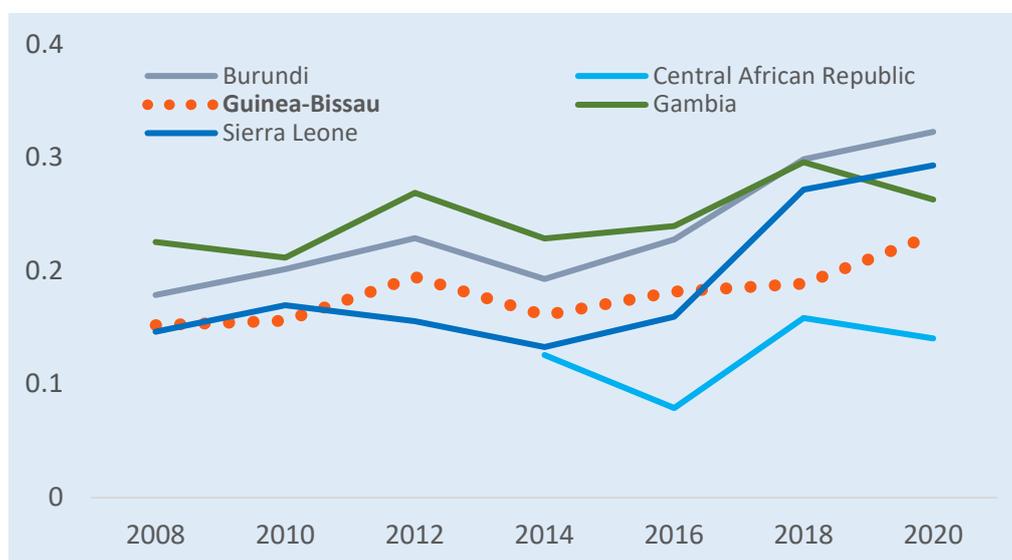
⁶ As part of the West African Economic and Monetary Union (WAEMU), Guinea-Bissau has lowered fees on digital payments in line with measures taken by the Central Bank of West African States (BCEAO) in response to the pandemic.

⁷ World Bank (2020a) p 28. Incipient examples of the Government's leveraging of digital tools to respond to the crisis include the establishment of a public portal for COVID-19 (<https://gbsive.hispmoz.org/>), modeled after an identical one for Mozambique, which offers citizens the ability to register for a COVID-19 exam online and then obtain the results.

14. While many SSA countries are participating in the digital revolution, the continent as a whole—and Guinea-Bissau, in particular—is not yet prepared to capture a larger fraction of the global digital economy or benefit from its gains. Detailed below, access to and affordability of broadband internet remains low; for that matter, even access to electricity is low—just 48 percent of SSA has access to electricity, which hampers the digital transformation. Most public services remain offline, and many Africans lack digital identity or mobile wallets to take advantage of digital financial or other services. Digital skills and literacy remain weak. Finally, although venture capital investment on the continent continues to grow—with US\$493.5 million received for the first half of 2020 (Google and IFC, 2020) and, according to Disrupt Africa, even more was expected for 2021⁸—structural

constraints prevent businesses from taking greater advantage of the digital economy. Of the 716 financial technology (fintech) companies currently operating in SSA (none of which are based in Guinea-Bissau), only 5 percent have scaled⁹. Focusing in on Guinea-Bissau, the country lags its structural peers (Burundi, Central African Republic, Gambia, and Sierra Leone)¹⁰ on most digital economy fronts. Just 23 percent of Bissau-Guineans were reported to be using the internet in 2020, compared to a global average of 63 percent, according to ITU statistics;¹¹ in terms of how the country is using information technologies to promote access and inclusion of its people, Guinea-Bissau was ranked 186th out of 193 countries on the E-Government Development Index (EGDI), which incorporates access characteristics, such as infrastructure and educational levels (Figure 5).¹²

Figure 5: eGDI Score: Guinea-Bissau and Structural Peers (2010-2020)



Source: e-Government Development Index (UN, 2020).

⁸ Disrupt Africa (2020). According to the latest data from Disrupt Africa, 303 African tech startups have raised a combined total of US\$1.1 billion in 2021 up to August 11, significantly higher than the US\$700 million estimated for 2020.

⁹ Wheeler Institute for Business and Development at the London Business School and the UK Foreign, Commonwealth and Development Office (2021). Companies were considered "scaled" based on four criteria: number of end users (be it consumers or businesses), revenue, total funding, and employees.

¹⁰ Guinea-Bissau's latest Country Economic Memorandum (World Bank 2020) identified structural peers based on the following criteria: (i) population size; (ii) GDP per capita; (iii) dependence on agriculture; (iv) life expectancy; (v) trade-to-GDP ratio; and (vi) government revenue (percent of GDP). In addition to these criteria, aspirational peers represent countries that had a similar GDP per capita of +/- 30 percent of Guinea-Bissau's GDP per capita in 2000-2005, but that grew 2 ppts faster than the country in 2005-2018; these include Laos, Rwanda, and Tajikistan.

¹¹ The ICT Development Index monitors progress towards a global information society, with performance ranked based on ICT infrastructure, use, and skills.

¹² The EGDI is a composite measure of three important dimensions of e-government, namely: (i) provision of online services, (ii) telecommunication connectivity, and (iii) human capacity.



15. Digital transformation could help leverage Guinea-Bissau's resilience factors and support increased access to quality basic services, expanded economic opportunities, and enhanced resilience. A larger digital economy could lead to greater financial inclusion, the development of new jobs, greater service delivery, access to new markets, lower transaction costs, higher productivity, and a work force better able to take advantage of new opportunities. Indeed, ITU (2020) estimates that a 10 percent increase in mobile internet penetration in Africa is estimated to increase GDP per capita by 2.5 percent. According to recent research from Nigeria, increased mobile broadband coverage reduces the proportion of households below the poverty line, driven by an increase in labor force participation and employment—particularly among women—that allowed for higher food and non-food consumption in rural areas (Bahia et al., 2020).

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16. Digital transformation could also help address the country's gender gap. While primary data around the digital gender divide is not available, estimates suggest that women's use of the internet is much lower than that of men. According to the Digital 2022 April Global Statshot Report, the proportion of individuals who own a mobile telephone is 60.7 percent for women and 87.2 percent for men. The proportion of youth and adults with ICT skills, depending on the skill, varies from 1.3 to 2.4 percent for women, and from 1.5 to 13.0 percent for men (MICS, 2018). Similarly, the multiple indicator survey indicates that 20 percent of men have access to media information as opposed to 5 percent of women,

and 37 percent of men have access to internet as opposed to 13 percent of women.

17. To be sure, without the proper analog complements (including robust policy and regulatory frameworks as well as risk-mitigation strategies), embracing the digital economy—particularly in a fragile country such as Guinea-Bissau—can amplify elite voices, hollow out the labor market, or lead to even more concentrated markets. The WBG Strategy for Fragility, Conflict and Violence 2020-2025 highlights the potential that digital transformation can play in promoting the transition out of fragility but warns that it can also widen economic gaps and drive exclusion. Indeed, digital transformation is increasing risks around cybersecurity, data privacy, and market concentration. The digital divide can aggravate exclusion and inequality; if designed and implemented properly, ICTs have the potential to support a country's transition out of fragility (Kelly and Souter, 2014; United Nations and World Bank, 2018). That being said, the economic potential of digital transformation— including opening up and reusing data, unleashing digital entrepreneurship, and enabling a digital workforce—is too large to ignore; rather, what is needed is to mitigate the downside risks (African Development Bank, 2017). Ensuring that Guinea-Bissau's digital divide is not further widened, and that data leads to better lives will require supporting regulations that allow firms to connect and compete, skills development that augments rather than replaces, institutions that are capable and accountable, and a new social contract for data use that promotes the public good (World Bank Group, 2016; 2021).

THE WORLD BANK’S DIGITAL ECONOMY FOR AFRICA INITIATIVE

18. This diagnostic of Guinea-Bissau’s digital economy is part of the WBG’s Digital Economy for Africa (DE4A) initiative,¹³ stemming from the WBG’s recognition that the digital economy can help accelerate achievement of the Sustainable Development Goals (SDGs) and the World Bank Group’s twin goals. Through the DE4A, which supports the operationalization of the African Union’s Digital Transformation Strategy for Africa (2020-2030), the WBG has committed to undertaking country-level digital economy diagnostics across the continent in order to take stock of challenges and opportunities across the five foundational pillars of the digital economy and then propose specific, actionable, and prioritized recommendations to support countries to develop vibrant, safe, and inclusive digital economies. The resulting country reports serve to highlight key policy reforms and investments needed for African countries to achieve their digital transformation ambitions while also mitigating the risks of growing

digitization. These reports have contributed to structured dialogue between authorities, the WBG, development partners, the private sector, and non-state actors around concentrating efforts, catalyzing action, and enabling progress toward implementation and achievement of digital economy objectives; they have also directly informed World Bank systematic country diagnostics and country partnership frameworks, as well as downstream engagements.

19. This diagnostic is based on a widely tested methodology focused around the five foundational, building-blocks of a vibrant, inclusive, and safe digital economy. These pillars are briefly described in Table 2, below. Chapters 2-6 detail (i) the importance, (ii) diagnostic findings, and (iii) recommendations along the five foundational pillars and a sequenced and prioritized list of recommendations is found in Annex Table 4.

Table 2: Digital Economy Foundational Pillars

PILLAR	DEFINITION
Digital Infrastructure	Provides the way for people, businesses, and governments to get online and link with local and global digital services, thereby connecting them to the global digital economy.
Digital Public Platforms	Offer public products and services through digital channels for all aspects of life, allowing for access to public services and support increased efficiencies of core government operations.
Digital Financial Services	Allow individuals and businesses to conduct transactions—such as paying, saving, borrowing, and investing—electronically or online, thereby expanding financial inclusion.
Digital Businesses	Enable the creation of a digital economic ecosystem and allow traditional “offline” businesses to adopt new technologies and business models.
Digital Skills	Enhance the adoption and use of digital products and services, as economies require a digitally savvy workforce to build digital economies and competitive markets.

¹³ <https://www.worldbank.org/en/programs/all-africa-digital-transformation>



20. Across these five pillars, four crosscutting issues stand out: the need for reliable electricity, the need for increased affordable broadband access, gaps in the country's legal and regulatory framework, and limited intergovernmental coordination on digital transformation. Addressing these four issues, alongside the country's political economy challenges, is critical for progress along the five foundational pillars.

- **Reliable electricity:** low electricity availability and reliability in Guinea-Bissau has a negative impact on broadband access—and thus, the digital economy—both in terms of increasing the price and slowing down the penetration rate. Electricity is a critical aspect to ensuring the country's enabling environment for digital transformation.

- **Broadband access:** Issues of access—including international connectivity, the lack of a fiber optics backbone, and the weak capacity of the national telecoms regulator—slow Guinea-Bissau's digital transformation. The country's fragility has shortened time horizons, undermined infrastructure reforms, and

dampened private sector investments.

- **Legal and regulatory framework needed for the digital economy:** many critical policies and regulations are either missing or outdated in Guinea-Bissau. Of particular concern is the lack of cybersecurity policies and measures. GoGB needs to be more proactive in improving the security and resilience of national infrastructure and services to protect its country's digital sovereignty, as well as personal, business, and state rights.

- **Strategic leadership and intergovernmental coordination on digital transformation:** Limited political leadership and inter-ministerial coordination—exacerbated by high levels of political fragmentation and instability (and related political economy issues), not to mention the institutional division of the sector's leadership among government entities—complicates digital initiatives requiring more than one agency and the use or reuse of government data. This limited coordination also negatively impacts coordination on the donor side, which contributes to duplication of efforts and the development of siloed systems.



1. DIGITAL INFRASTRUCTURE

PHOTO CREDIT: CHERIF TOURE



IMPORTANCE

21. Key indicators defining digital Infrastructure are access, quality, and affordability of broadband internet.

Digital infrastructure is conceptually broken down into four parts that comprise the broadband value chain. The First Mile covers international connectivity: ensuring that the internet enters a country (i.e., through undersea international or cross-border terrestrial links)—the international gateway—and other necessary infrastructure (such as landing stations). The Middle Mile is how the internet passes through a country: the national backbone, intercity networks, IXPs, and local hosting of content. The Last Mile is where the internet reaches the end-user: network components (such as local access networks) and other mobile and fixed broadband infrastructure. Finally, the Invisible Mile consists of the hidden elements vital for ensuring the integrity of the entire value chain: radio spectrum, network databases, and laws and regulations to ensure market dynamism and an open and fair competition. This chapter's findings are structured along these four segments.

22. Accessible, reliable, and affordable broadband internet is the backbone of an inclusive and sustainable digital economy. Improvements in digital infrastructure can drive the emergence of new job opportunities, lead to substantial socioeconomic benefits, and promote gender equality, particularly in industries that rely heavily on ICT such as information, professional, scientific, and technical services, as well as management and administrative services. Studies (Lehr et al., 2006; Kolko, 2010; Katz and Koutroumpis, 2012; Gilchrist, 2015) have established a clear and positive correlation between broadband penetration and its impact on GDP growth. An increase in broadband internet penetration can lead to a significant increase in GDP, most significantly in

Africa. According to the ITU, a 10 percent increase in broadband penetration could lead to a GDP growth of 2.5 percent in Africa, or 5.2 percent according to Google and IFC (2020). Guinea-Bissau's relatively small ICT sector provides a modest contribution to the country's GDP (2.4% in 2020¹⁴) compared to other sectors, such as agriculture and services; however, it's underlying potential is substantial. ITU modeling for Africa has demonstrated that the potential gain of a 10 percent increase in broadband penetration in Guinea-Bissau could lead to an additional GDP of US\$189 million and US\$32.6 million more in tax revenue, enabling the country to achieve a 17.3 percent tax-to-GDP ratio.

23. Guaranteeing access to affordable and good quality broadband internet has increased substantially since the onset of the COVID-19 pandemic. Reliance on digital services has proven to be the determining factor for the continuity of social and economic activity in the face of the public health crisis and resulting social distancing measures. The pandemic has shed further light on the impact of the digital gap on our quality of life, our ability to earn a living, and our access to vital public services. Recent data from Mckinsey (2020) show that economies have jumped five years forward in consumer and business digital adoption in a matter of weeks. Banks have transitioned to remote sales and service teams have launched digital outreach to customers, helping boost finance access—to the digitally connected, that is. In many countries, schools pivoted to online learning, as the pandemic response has convinced governments to amend relevant regulations in order to keep up with changing needs. Given the societal and economic changes over the past two years, digital connectivity—including, critically, accessible, reliable, and affordable broadband internet—is more important than ever before.

¹⁴This contribution is calculated based on the different taxes imposed on the telecom sector (VAT, profit, customs etc.)

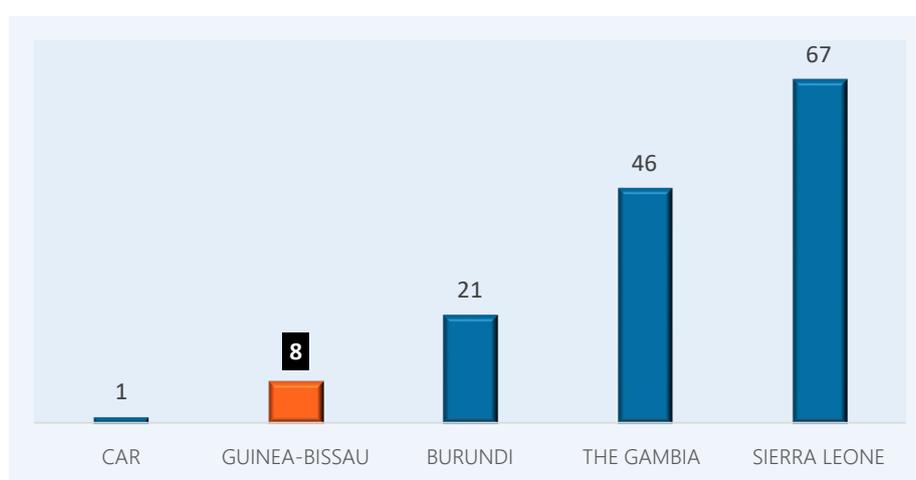
DIAGNOSTIC FINDINGS: CURRENT STATE OF DIGITAL INFRASTRUCTURE

International Connectivity (First Mile)

24. Despite being a coastal country, Guinea-Bissau did not have a direct connection to a submarine cable until recently, relying instead on costly terrestrial links and satellite service for international capacity. As a result, international bandwidth in Guinea-Bissau is below most of its peers (Figure 6). In 2017, Guinea-Bissau joined the Bank-financed West Africa Regional Communications Project (WARCIP), under which the country is establishing a direct connection to the ACE submarine fiber optic cable that landed in Suro (23km from the capital Bissau) in February 2018. The GoGB established a Special Purpose Vehicle (SPV), the Sociedade de Cabo da Guiné-Bissau (SCGB), which is a member-owned Public-Private-Partnership (PPP), of which 51 percent is owned by the private sector (the two telecom operators Orange and MTN) and 49 percent by the state. The SCGB owns and operates the submarine cable landing station and provides landing station access to its members and will provide the ACE capacity once the cable becomes operational in November 2022. Additionally, the ACE

cable landing station in Suro will be linked to the entry of the OMVG project in Antula through a 33km fiber optic backbone, currently under construction and expected to be operational by November 2022. This link will allow redundant fiber optic connectivity through the interconnection of Bissau with the OMVG network, which incorporates fiber optic capacity for telecommunications and will eventually be connected to the submarine cable stations in the Gambia, Guinea, and Senegal. This strategic interconnection will place Guinea-Bissau in a better position at the regional level, allowing for better exchange of excess capacity and of digital goods and services with neighboring countries. When complete, the combined key infrastructure is expected to significantly decrease the cost of international connectivity, leading to annual savings to mobile operators of approximately US\$5 million, according to World Bank projections (World Bank, 2017), which will then be passed on to consumers in the form of lower prices, while offering much higher data throughput capacity.¹⁵

Figure 6: Comparison of International Bandwidth in Guinea-Bissau and Peer Countries, 2020 (in Gbps)



Source: Telegeography.

Note: Sum of all capacity deployed by internet backbone providers, content providers, research and education networks, and enterprises.

¹⁵ Similar Bank projects have seen significant decreases in the retail price for internet access and usage following reductions of the wholesale price; for example, following connection to the ACE cable, the average retail price for internet in The Gambia dropped from US\$5,000 in 2012 to US\$500 in 2014.

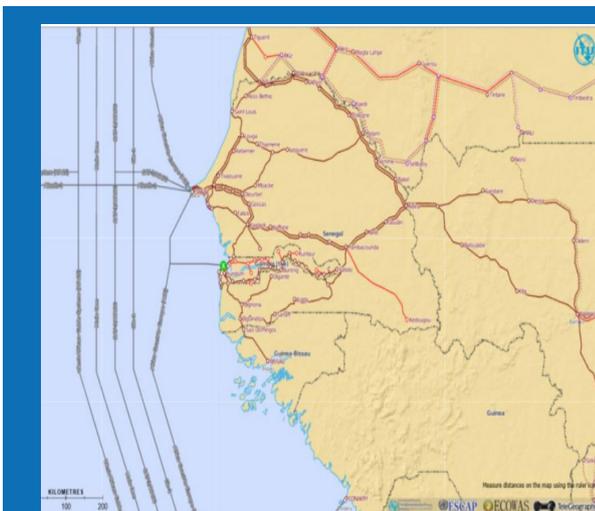


25. The continued reliance on costly terrestrial links for international capacity, until now, has caused elevated prices for internet access and, in turn, depressed usage. Both Orange and MTN—the country’s only two active private telecoms providers (detailed more below)—have relied on the connection to the Sonatel/ Orange Network in Senegal to which Orange connects through a fiber optic terrestrial link between Bissau and Contuboeil, and MTN through a terrestrial link between Bissau and São Domingos (where Sonatel has onward connections to the SAT-3 submarine cable landing in Dakar, as well as through satellite access, via Intelsat). In addition, Orange and MTN also have terrestrial links to Guinea-Conakry where they can both access the ACE submarine cable. This purchase of international connectivity at high wholesale costs translates into high retail prices of broadband internet services, making Guinea-Bissau’s prices among the highest in the region. The wholesale price for 1 megabyte (MB) of international bandwidth in Guinea-Bissau is, on average XOF160 (US\$0.26) through the Senegal link, XOF210 (US\$0.34) via the Guinea-Conakry link, and XOF1,500 (US\$2.41) via satellite¹⁶. As detailed below, the cost of a data-only 1.5GB mobile broadband basket is a greater percentage of Bissau-Guineans’

gross national income (GNI) than that of its structural peers. These high prices have depressed usage, with the country registering significantly less international capacity requirements than its peers.

26. The operationalization of the ACE submarine cable (expected in November 2022) is a major advance that is set to improve the country’s international connectivity and allow it catch up with other countries that have received similar support.¹⁷ The GoGB is also planning to strengthen international connectivity by joining a second submarine cable: it is currently assessing the opportunity to join the Amilcar Cabral Submarine Cable Project. Part of the ECOWAS Broadband Backbone Infrastructure Program INTELCOM II, this project aims at strengthening the international connectivity of the island nation of Cape Verde and its nearest mainland neighbors—Senegal, Guinea, Guinea-Bissau, Liberia, Sierra Leone, and The Gambia—by linking them to the submarine Cable Ella Link, which connects Brazil to Europe (Figure 8). The cable, estimated at 2,000km, will run from Cape Verde to Liberia, with three branching units to Guinea-Bissau, Guinea, and Sierra Leone, and two stubs for future expansion to the North and South, respectively.¹⁸

Figure 7: Submarine cables passing along Guinea-Bissau’s coast



Source: ITU (<https://www.itu.int/itu-d/tnd-map-public/>).

Figure 8: Amilcar Cabral Submarine Cable Project



Source: PIDA, Priority Action Plan for the period 2021-2030.

¹⁶ Compared to a monthly pricing of \$43 for 1Mb/s international bandwidth in Mauritania following the deployment of a submarine cable and an average of \$50 to \$60 a month for the same bandwidth in Africa.

¹⁷ The delays in the operationalization of this connection are a result of delays in the disbursement of the Government’s and telecom operators’ contribution to the budget of the SCGB and delays in the appointment of representatives, which held back for long periods critical decisions over the landing station. The other countries that received similar support are indicated in figure 7.

¹⁸ The pre-feasibility study for the project was conducted by Deloitte two years ago, and the project is currently preparing to launch the feasibility study, which is expected to be finalized by February 2023.

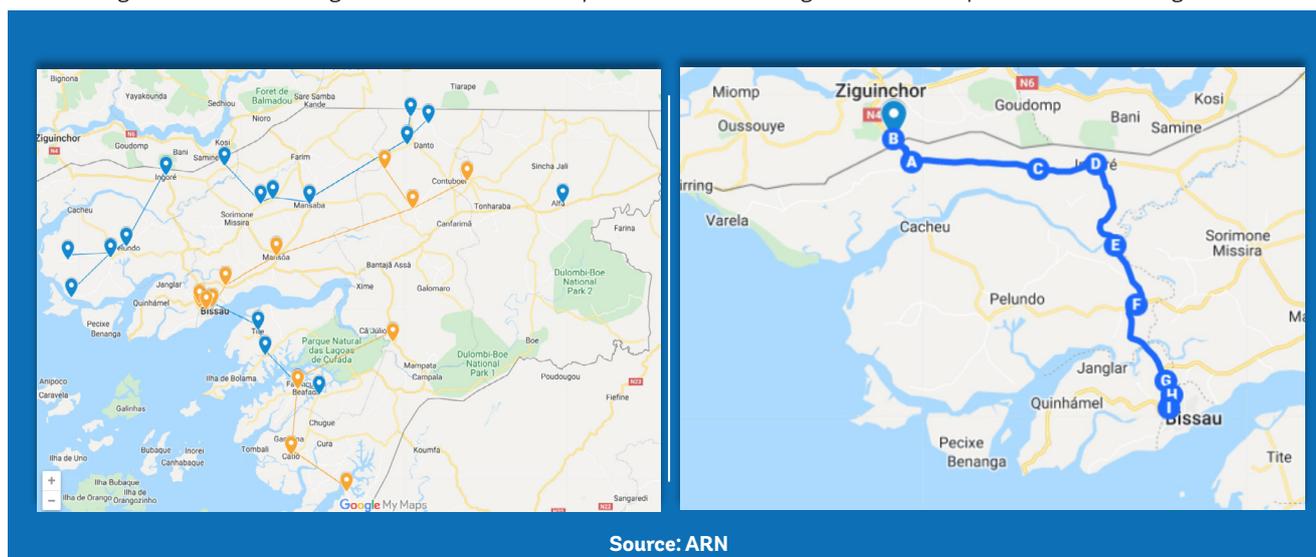
Backhaul Network (Middle Mile):

27. Guinea-Bissau's limited middle mile infrastructure consists mainly of microwave mini links, an embryonic fiber optic metropolitan network inside Bissau, and a transport link to the Sonatel network in Senegal to provision international capacity. Largely based on mobile technology, the backhaul¹⁹ network is supported by radio towers with microwave links connecting the available access network sites to the central network. The microwave mini link network is composed of 357 microwave sites covering over 2,500km (Figure 9). This backhaul capacity is not only insufficient to serve demand but also costly to operate, very energy-demanding, and only capable of limited bandwidth. The fiber optic transport network is restricted to small links

deployed independently by the two telecom operators, Orange and MTN, inside Bissau to connect some radio towers and exchange traffic with the central network. This very limited metropolitan transport network consists of 16 service sites for MTN and 15 for Orange, which allows them to commercialize high speed fixed broadband but only for some specific customers and a limited number of institutions. To provide international capacity, the telecom operators are connected to the Sonatel network in Senegal through a terrestrial fiber optic transport link which allows them to access international capacity of the submarine cable in Senegal, albeit at a high cost: \$0.26 for every 1MB (Figure 10).

Figure 9: MTN and Orange microwave network map

Figure 10: FO transport network to Senegal

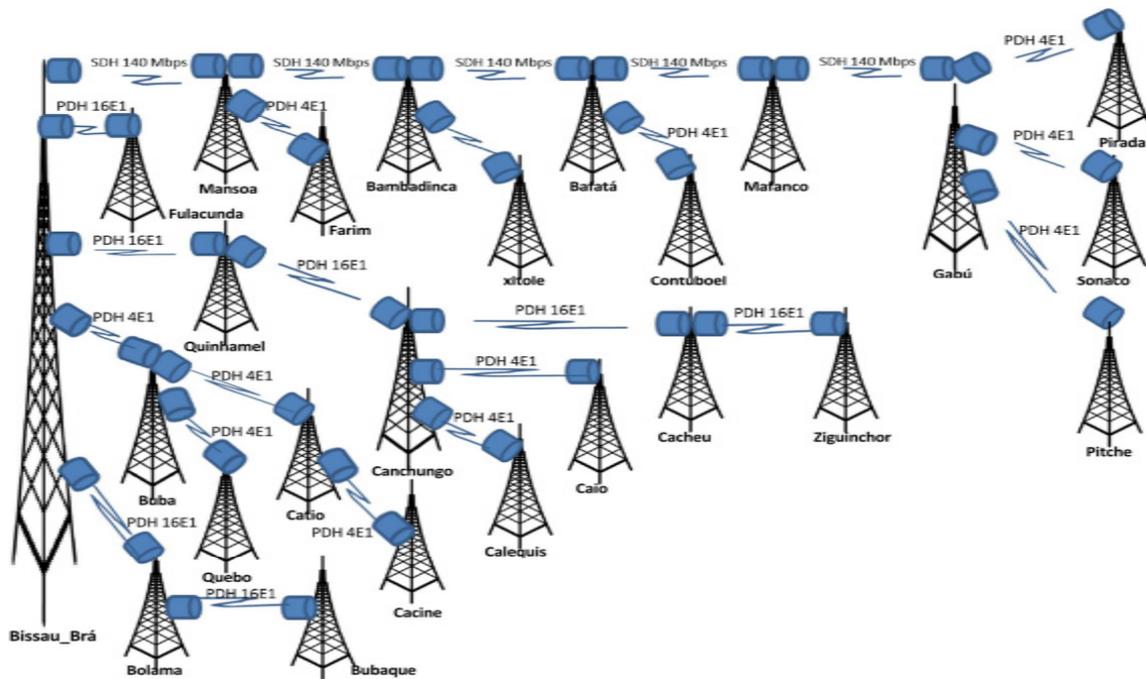


28. The country's incumbent operator GuineTelecom/ GuineTel went bankrupt in 2014, but it still has assets deployed. The history and status of the operator is detailed below (see Box 3). These comprise a backhaul network based on microwave technology linked in a modest Plesiochronous Digital Hierarchy (PDH) in the north, east, and south of the country, as well as a more capable Synchronous Digital Hierarchy (SDH)

linking the cities of Bissau (Brá), Mansôa, Bambadinca, Bafata, Mafanco, and Gabú.²⁰ Communications with the rest of the country and with neighboring Senegal through radio beams are carried out via a 110 meters master tower in Brá supporting different antennas (Figure 11). The incumbent's cable backhaul and access infrastructure was mostly lost due to acts of copper theft and vandalism after the companies closed.

¹⁹ The term backhaul refers to telecom transmission of data. It implies a high-capacity line: high-speed line capable of transmitting high bandwidth at very fast speeds.
²⁰ PDH has a lower implementation cost but is limited to a capacity of 1.544 Mbps but can reach a maximum of 566 Mbps through multiplexing. SDH cost more to implement but has a basic capacity of 97.928 Mbps and can reach up to 40 Gbps.

Figure 11: Microwave backhaul network of GuineTelecom/GuineTel

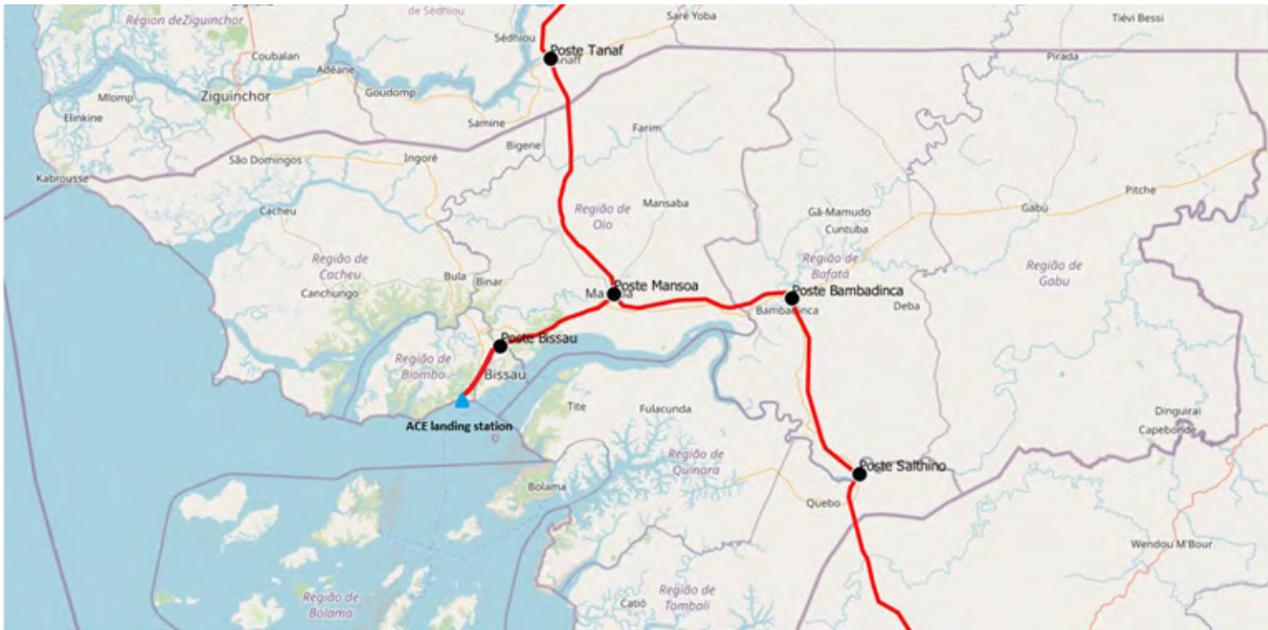


Source: Lynx, 2019.

29. There are several ongoing efforts to improve the country's middle mile. The GoGB is currently conducting studies for a national fiber optic backbone to reach the country's main cities and offer the necessary backhaul capabilities to improve the quality and reach of broadband internet services. This is crucial, as the lack of a strong backhaul network has had significant implications on the capacity of telecom operators to provide affordable and high-quality broadband internet services across the country. In October 2020, GoGB approved a project relaunching GuineTelecom/GuineTel, transforming the former into the state's ICT operator for fixed line, internet, and television; GuineTelecom will be responsible for the national backbone. The backbone was planned to be delivered under a PPP with support from the WB-financed WARCIP project, but the plan was eventually dropped due to a lack of political commitment. Moreover, the WB-financed OMVG energy project (Figure 12), includes a 1,750km fiber optic backbone that links the cities of Salthino, Banbadinca, and Mansoa to Bissau (Antula). The

OMVG project is planning to commercialize 60 fibers (out of the 72 available), providing high throughput and a better and more affordable alternative for backhaul capacity between those cities. The OMVG infrastructure has already been deployed and the feasibility study on commercializing excess capacity is complete. Finally, there are also regional efforts to support the middle-mile through the aforementioned ECOWAS INTELCOM II program. The program includes a component dedicated to the development of a national broadband backbone for Guinea-Bissau and Liberia and is currently preparing to conduct an independent assessment of the status of the national backbone projects in both countries. This effort is in-line with regional trends witnessed in different countries in West Africa to strengthen regional integration and allow for the free transition of data, and digital goods and services between countries, with the aim of supporting regional exchange and promoting e-commerce and digital entrepreneurship at the regional level.

Figure 12: OMVG fiber optic backbone



Source: Feasibility study for the commercialization of excess capacity of the 225kV Interconnection Network Fiber Optic Guard Cable of the OMVG.

30. While Guinea-Bissau does not yet have a national IXP, the GoGB has finished conducting the feasibility study and will soon begin the implementation of an IXP, which should be operational by November 2022. IXPs are an important part of the middle mile. They improve the quality of connectivity (since traffic does not have to take unnecessary detours), reduce cost (as local traffic no longer uses international capacity), create value (through a reduction in the latency of transmissions between Internet access providers) and open new prospects for growth and development (considering the servers of Internet service providers (ISPs) are installed in good connectivity conditions; Box 2). The upcoming IXP in Guinea-Bissau will be deployed with the support of the World Bank and will be owned and managed

by the SCGB and hosted in the landing station of the ACE submarine cable. Consequently, the IXP will benefit from good national and international connectivity, as well as an efficient and simplified maintenance and will have a high resilience against incidents and outages (Marpij, 2022). The implementation of the IXP in Guinea-Bissau follows the successful example of other countries in Africa under WB-financed projects such as Mauritania and Togo. This milestone will provide a strong incentive for private investment by allowing content providers to establish themselves in the country and encouraging and improving the deployment of digital public platforms and digital financial services, allowing for better e-commerce and data exchange at the regional level.



Box 2: Lessons from Sub-Saharan Africa's IXP Growth

In Africa, too much internet traffic has to travel overseas, an inefficient way of handling the exchange of local internet traffic that results in higher costs and slower speeds. This has led to several initiatives aiming at establishing national and regional IXPs, including the African Internet Exchange System project, initiated by the African Union Commission. In 2010, the Africa peering and interconnection community set a 2020 goal of locally exchanging 80 percent of internet traffic consumed in Africa, with only 20 percent routed from outside the continent. While the 80/20 goal was not reached, South Africa, Kenya, and Nigeria are examples of well-managed, trusted by local stakeholders, and widely used IXPs that handle at least 80 percent of localized traffic in the first country, followed by 70 percent in the latter two countries (as of 2020). Furthermore, the number of IXPs founded in Africa (47) has tripled since the launch of the goal in 2010; six of those are in South Africa (four are in Tanzania and three in Nigeria).

The growth of African IXPs has enabled cost savings for the 50 or more connected networks now exchanging traffic locally rather than using expensive international transit. In Kenya, KIXP grew from carrying a peak traffic of 1 Gbps in 2012 to 19 Gbps in 2020, with cost savings quadrupling to US\$6 million per year. In Nigeria, IXPN grew from carrying just 300 Mbps to peak traffic of 125 Gbps in 2020, with cost savings increasing forty times over, to US\$40 million per year. Following the establishment of the IXP in Namibia, latency was reduced from 300ms to 2ms, saving the country US\$1.8 million in one year.

20

There have been however, less successful experiences for IXP deployment in Africa. The Gambia launched its first IXP in July 2014, located at Gamtel's Serekunda Exchange and is thus referred to as Serekunda IXP or SIXP. However, the SIXP has suffered from insufficient international capacity (1Gbps through ACE) and a technical weakness of the team in charge of its maintenance leading to repeated failures and high downtime. This situation led to the SIXP being barely used, and telecom operators choosing to turn to their excess international capacity to exchange traffic elsewhere instead of locally through the available SIXP. This is a concrete example of the impact of the efficiency of the IXP on its usage and in turn its profitability.

Source: Kende 2020a; Kende 2020b; The Program on Infrastructure Development in Africa (PIDA) project for African Internet Exchange System (AXYS)

31. However, to guarantee the efficiency of the IXP and ensure its full positive impact on the digital economy of Guinea-Bissau, the GoGB will need to commit to a number of critical improvements and reforms. First, sufficient capacity will have to be provided to allow the IXP to host not only the actors available in the market today, but any future prospects, such as content providers and new entrants to the market. The GoGB will also need to make sure effective and strong market regulation is in place, and that includes incentives for the interconnection of

all actors to the IXP. Finally, the SCGB will need to resolve any governance issues and show consistent and untethered commitment to the productive and timely functioning of the PPP and the infrastructure it manages, including the IXP, in order to reassure future interconnected operators and present a competitive offer to attract the interest of foreign investors. These reforms will ensure high buy-in from all actors in the sector and avoid Guinea-Bissau a scenario of unsuccessful IXP deployment such as the one witnessed in the Gambia (see box 2).

Access Network And Market Structure (Last Mile):

COMPETITION & MARKET STRUCTURE

32. Guinea-Bissau's telecom market has a good history of liberalization, but the market today has limited competition, with no active players in the fixed segment and a mobile segment that is evenly split between two private MNOs. Today's mobile telecom market in Guinea-Bissau is a duopoly of two active private operators: Mobile Telecommunications Network (MTN, a subsidiary of the South African group MTN), and Orange (a subsidiary of Senegal's SONATEL, both belonging to the French telecommunications mother company Orange Group). The third mobile operator, GuineTel, belonging to the state-owned incumbent, was the first to start a mobile network in 2004; however, it has ceased operations since the bankruptcy of the parent company GuineTelecom in 2014 (Box 3). Orange and MTN compete for the country's mobile market with equal market share and similar network coverage (Figures 13 and 14). Both Orange and MTN have seen

growth in recent years, with Orange outperforming MTN in 2020 partially thanks to technology upgrades that Orange introduced to its network, and which has allowed it to provide more appealing offers to customers (more on that in the following paragraphs). The ISP segment in Guinea-Bissau however has not seen much success, with several ISPs²¹ present but remaining nonoperational due to high costs and limited profitability. The entry of ISPs is also not facilitated by regulation, requiring them to have a specific license to be able to operate within Guinea-Bissau as opposed to the general authorizations regime applied in other countries of the subregion (such as Mauritania). Finally, the fixed line segment in Guinea-Bissau is residual and has not seen any development since being brought to a standstill in 2014 following the bankruptcy of the incumbent operator GuineTelecom/GuineTel which held a monopoly over the segment.

²¹ Cajutel bissau, Tagara telecomunicações, Intersat, Eguitel telecomunicações, and MSB/net sem fios.



Box 3: GuineTelecom/GuineTel's Current Status and Next Steps

The fixed-line state-owned operator GuineTelecom was privatized in 1989, with a 51 percent stake taken by Portugal Telecom and the remaining 49 percent held by the GoGB. The GoGB subsequently created GuineTel, a mobile subsidiary, which was awarded a global system for mobile communication license to operate in the mobile segment launching its services in 2004. However, following market liberalization in 2003 and the entry of the two private operators Orange and MTN, the two companies were plagued by poor performance and low profits, leading to the withdrawal of Portugal Telecom in 2010. This withdrawal caused severe financial difficulties for the two companies and ultimately led to their bankruptcy in 2014. The poor performance of the incumbent can be explained by two main factors: (i) a failed policy of market liberalization which did not grant GuineTelecom and GuineTel enough time to implement the necessary restructurings and modernizations to be able to compete in a liberalized market; and (ii) insufficient investments from shareholders, which left the two companies exposed and unable to match multinationals with superior investment capacities (Orange and MTN).

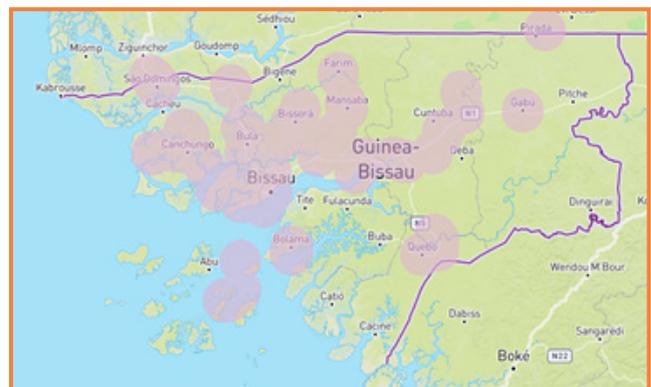
After six years of inactivity, GoGB decided in 2020 to liquidate 80 percent of the shares of GuineTelecom to the private sector to allow the incumbent to resume operations. The GoGB is contemplating selecting IFC as a transaction advisor to advise the Interministerial Commission in this important transition. Consequently, the Government has undertaken actions to increase the value of the incumbent in preparation for the anticipated international bid to sell some of its shares, including the granting of licenses to both GuineTelecom and GuineTel in September 2021, effectively allowing them to start operating immediately after privatization. The Government has also financed the interconnection of the GuineTelecom/Guinetel network to the Suro-Antula backbone deployed under the WARCIP project (under construction and expected to be operational in September 2022), granting the incumbent direct access to the ACE international capacity and to the OMVG fiber optic backbone.

Figure 13: Network Coverage Map for MTN



Source: 2021 GSM Association.

Figure 14: Network Coverage Map for ORANGE



Source: 2021 GSM Association.

33. In light of the current situation of the telecom market, market performance and competitiveness are suboptimal. A market concentration assessment using the Herfindahl-Hirschman Index (HHI)²² for the active

players, as well as the mobile and fixed broadband segments, shows the extent to which Guinea-Bissau market is still underdeveloped and registers lower performance than peers in all three aspects (Table 3).

Table 3: Market concentration Index and market rating in Guinea-Bissau and peers

Herfindahl-Hirschman Index (HHI)	Gambia	Burundi	Sierra Leone	Guinea-Bissau	Rwanda	Senegal	Uganda
MNO (GSMA, 2020)	2957	4044	4181	5048	5176	4094	4110
Mobile Broadband (GSMA Intelligence, 2020)	3612	4124	4404	5084	5448	4404	4029
Fixed broadband (Telegeography, 2020)	n/a	4254	n/a	7073	1846	9742	n/a

Highly under-developed (HH>8000) / Under-developed (5000<HHI<8000) / Moderately developed (3000<HHI<5000) / Highly Developed (HHI<3000)

Source: The HHI was calculated based on market data from the GSMA and Telegeography.

BROADBAND ACCESS AND USAGE

34. Broadband access for individuals/households, businesses, and government offices is based on mobile-broadband or fixed wireless broadband using Worldwide Interoperability for Microwave Access. There is essentially no fixed line telephone network. Although at 97.2 percent, Guinea-Bissau has one of

the highest rates of household mobile penetration in SSA. However, internet access and affordability remain a serious concern (Table 4, Figures 15 and 16) due to the technical limitation of the network and the high prices of connectivity outlined in the middle mile section.

Table 4: Core Digital Infrastructure Indicators: Guinea-Bissau and Structural Peers

INDICATORS	BURUNDI	CAR	GUINEA-BISSAU	SIERRA-LEONE	THE GAMBIA	
ACCESS						
Population	2G (ITU WTID 2020)	55	56	96	80	98
Coverage	3G (GSMA Q4 2020)	40	40	93	68	70
by network signal %	4G (GSMA Q4 2020)	25	18	63	75	54
Fixed broadband subscriptions per 100 inhabitants (ITU, 2020) ²³	0.04	0.01 (2017)	0.12	-*	0.21	
Fixed broadband household subscriptions (Telegeography, Dec 2021)	0.2	0.0	3.4	5.6	1.9	
“Unique” mobile-broadband subscriptions per 100 inhabitants – 20 (GSMA, 2021)	20	9	21	35	33	
International bandwidth, in Mbit/s (ITU, latest value)	8.42	1.10	5.76	26.30	23	
ADOPTION						
Mobile-cellular telephone subscriptions - % (ITU, 2020)	55.8	37.9	97.3	86.3	110.8	
Used International Bandwidth (Gbps) (Telegeography, 2020)	21	1	8	67	46	
International bandwidth per Internet user (bit/s) (ITU WTID 2020)	20.37	5.51	36.49	12.54	N/A	
QUALITY						
Average download speed in Mbps (cable.co.uk, Q3 2021)	2.82	0.84**	1.24	2.19	2.04	
AFFORDABILITY						
Cost of data-only 1.5GB mobile broadband basket (% of GNI per capita) – (ITU, 2020) ²⁴	14.9	24.4	24.7	15.6	8.4	

* No data available for Sierra Leone

** Average download speed for CAR was based on tests from less than 100 distinct Ips

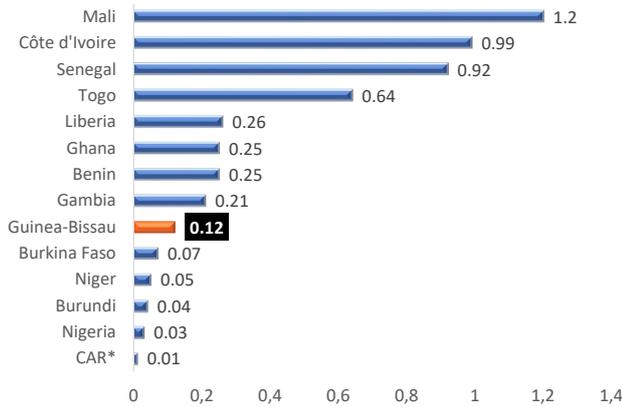
²² The Herfindahl-Hirschman Index (HHI) is a common measure of market concentration that is used to determine market competitiveness.

²³ Fixed broadband subscriptions refer to fixed subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s. This includes cable modem, DSL, fiber-to-the-home/building, other fixed (wired)-broadband subscriptions, satellite broadband and terrestrial fixed wireless broadband.

²⁴ The data-only mobile broadband basket is based on the cheapest data plan with a monthly allowance of at least 1.5 GB, regardless of the device used, over a 3G or higher network, offered by the operator having the largest market share

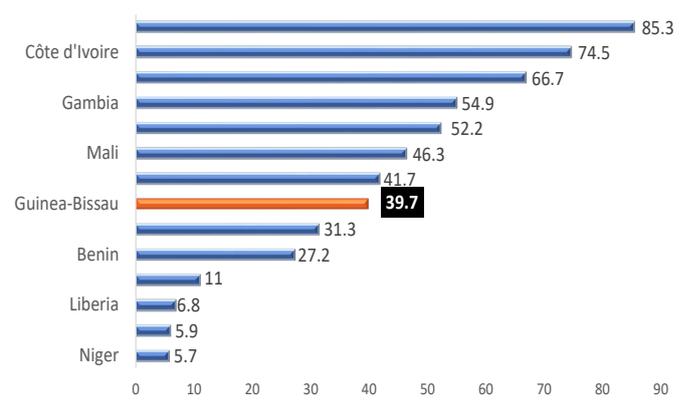


Figure 15: Fixed-Broadband Subscriptions per 100 Inhabitants



Source: ITU 2020. – Data for CAR is from 2019 (latest available).

Figure 16: Mobile-Broadband Subscriptions per 100 Inhabitants

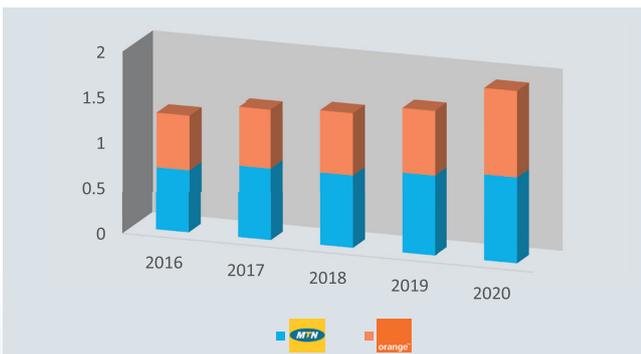


Source: ITU 2020.

35. Overall, access to internet services in Guinea-Bissau has soared from 17 to 58 percent over the past three years, but mostly in urban areas.²⁵ While a very positive development, it still underlines a considerable gap in internet coverage: close to half of the population, mostly in rural areas, still do not have access to the internet (due, to be sure, not only to access and energy, but cultural reasons as well). As of January 2021, 48 percent of the access network in Guinea-Bissau was composed of 2G technology;

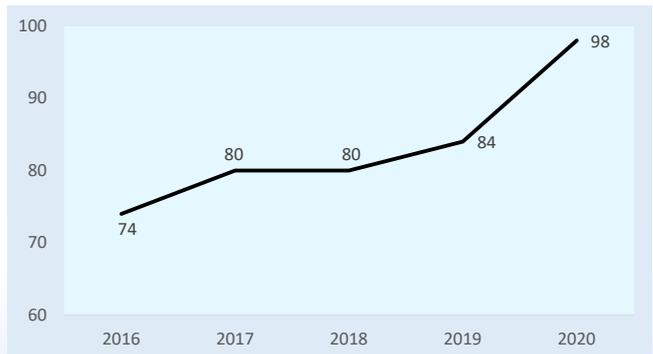
36 percent of subscribers have access to 3G and 16 percent—mostly in Bissau—to 4G. The mobile market experienced significant growth as a result of having operators backed by technically and financially strong international mobile groups, reaching 1.89 million subscribers²⁶ at the end of 2021 (Figure 17), or a 97.25 percent penetration rate (Figure 18), 96 per cent in urban areas and 86 per cent in rural areas, although most people use two phones with two different numbers: one for each company.²⁷

Figure 17: Number of mobile subscriptions by operator (in millions)



Source: ARN data from the preliminary ICT strategy report – December 2021.

Figure 18: Internet penetration rate – mobile (per 100 inhabitants)



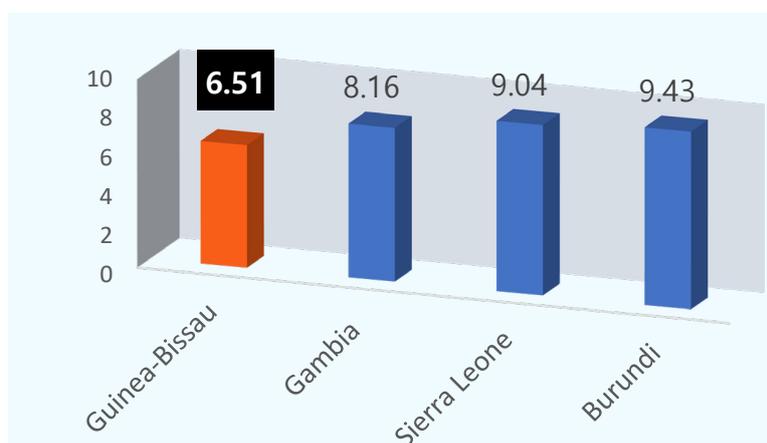
²⁵ Latest data available comes from June 2021. Data derived from WARCIP indicators, developed through a joint effort between ARN, the telecom operators, and the World Bank.
²⁶ The “Unique” mobile-broadband subscriptions per 100 inhabitants stands at a mere 21 percent in Guinea-Bissau. This indicates a strong usage of multiple SIMs (see footnote 28).
²⁷ This is mainly due to high interconnection prices imposed by both telcos; it was also the reason behind the ongoing dispute—and fine—with the regulator, which is accusing both of overcharging customers and imposing interconnection prices greater than what is regulated.

36. In terms of quality, internet connectivity presents high latency and downtime, causing unavailability of service, and the bandwidth provided for internet subscribers is modest and expensive. Given constraints in the first and the middle miles, telecoms operators have sought other solutions to make their services more competitive. This has been particularly important since 2020, with the surge in internet subscribers resulting from the shift to COVID-19-related remote activity. As an example, over the past several years, Orange has transitioned to an Internet Protocol link for international traffic, allowing it to increase bandwidth from 620 megabits per second in 2018 (using the legacy E1 link) to 12 gigabits per second in 2021. The change allowed Orange to review its services catalog and double the bandwidth of commercialized internet offers to end users without changing the price, and in turn increased its subscriber base by a relatively significant margin (33 percent in 2020 compared to 7 percent for MTN for the same period). However, the speed of internet to end user has not seen any major improvements; with 2G as the prominent mobile technology available to the population, the average mobile download speed in Guinea-Bissau (Table 4) is amongst the lowest in the world.²⁸

37. Regarding affordability, the retail price of internet services in Guinea-Bissau is considerably high.

The most affordable data offers available to end users stood at US\$4.41 for 1 GB of internet in 2021 (Figure 19). The price of a 2 GB top-up is as high as US\$60 in purchase power parity in Guinea-Bissau, representing 51 percent of monthly GNI per capita, compared to US\$40 in Mauritania, US\$19 in Nigeria, or US\$18 in Senegal, representing respectively 14 percent, 4 percent and 10 percent of monthly GNI per capita (in purchase power parity). But despite being high, this value does not fully reflect the excessive prices imposed on low bandwidth offers that rely on shortwave technology and are used to provide internet services in certain areas. When included in calculations, the average price of all available landline and mobile offers in Guinea-Bissau jumps to US\$86.5 for 1Mb of internet per month, according to the National ICT Regulator (ARN) data.²⁹ In addition to the constraints on the first and the middle miles explained above, several other factors contribute to these high costs such as (i) the difficult terrain—for example, swamps and mangroves—and the lack of routes and basic infrastructure (particularly access to the electric grid) make it difficult to implement and operate network equipment to backhaul traffic to the central network; and (ii) the elevated operating expenses of radio equipment due to the lack of reliable electricity. Table 5 presents the different data packages from the two mobile operators based on time and volume of data.

Figure 19: Mobile broadband average price of 1 GB data (absolute price of service in USD)



Source: Cable.co.uk 2021.

²⁸ Countries with slower internet include Yemen (0.68Mbps), Ethiopia (1.20), and Equatorial Guinea (1.30Mbps), according to cable.co.uk (<https://www.cable.co.uk/broadband/speed/worldwide-speed-league/#:-:text=Global%20average%20broadband%20speed%20continues%20to%20rise%20sharply&text=The%20average%20global%20broadband%20speed,20.65%25%20over%20the%20previous%20year>).

²⁹ The calculation was made as part of the WARCIP project indicators matrix.

Table 5: Packages available by volume and time from mobile operators

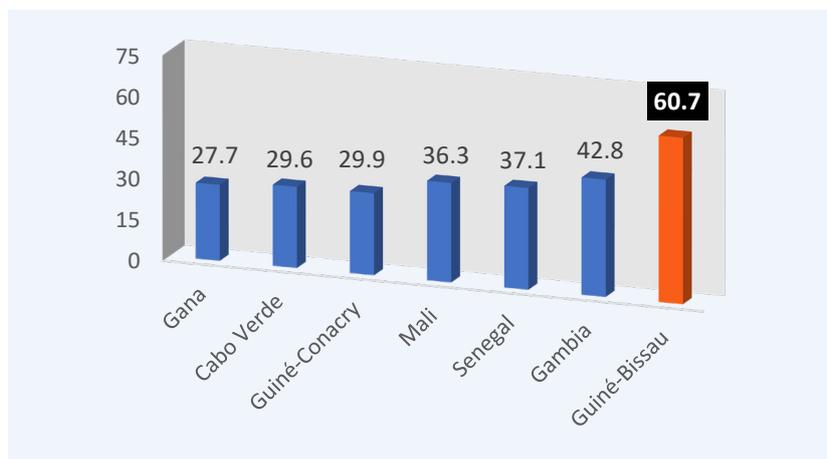
ORANGE PACKAGES			MTN PACKAGES		
DATA	TIME	PRICE (XOF)	DATA	TIME	PRICE (XOF)
40 MB	24 hours	200	50 MB	1 hour	100 F
			200 MB	1 hour	200 F
			unlimited	1 hour	500 F
			5 MB	24 hours	100 F
			50 MB	24 hours	300 F
			100 MB	24 hours	500 F
			500 MB	24 hours	700 F
			150 MB	7 days	1000 F
			1 GB	7 days	2500 F
			5 GB	30 days	10000 F
80 MB	24 hours	350	10 GB	30 days	15000 F
			20 GB	30 days	25000 F
			40 GB	30 days	35
			75 GB	30 days	50
			250 MB	3 days	650
			750 MB	7 days	2
			1.5 GB	30 days	4
			3 GB	30 days	7.5
			5 GB	30 days	10
			10 GB	30 days	15

Source: <https://prepaid-data-sim-card.fandom.com/wiki/Guinea-Bissau>.

38. Affordability of broadband services is even more problematic due to the high cost of computer and smartphone ownership. The lack of affordability of broadband-capable devices remains a critical challenge to get people connected and to close the digital divide. According to the 2020 Global Data Lab estimates, only 12.3 percent of Bissau-Guinean households possessed a computer and 2.94

percent had internet access; this is low compared to peers³⁰. On the other hand, the minimum price for a smartphone terminal in Guinea-Bissau is US\$37.94 (in general, the lower prices of smartphones on the market cost between US\$50-67 dollars), corresponding to 60.7 percent of GDP per capita per month, significantly higher than its neighbors (Figure 20).³¹

Figure 20: Price of Terminals: Guinea-Bissau versus Neighbors (in GDP per capita per month)



Source: Preliminary ICT strategy report 2022.

³⁰ Computer possession and internet access are as follows in peer countries (in % of the population): The Gambia (23.1 and 87), Ghana (16.1 and 31.2), Togo (13.8 and 50.3).
³¹ In 2018, the median cost of an entry-level Internet-enabled device in Africa was 40 percent of monthly income, and the mean average was 62 percent of monthly income. For the poorest 20 percent of the population, the average cost of a device in SSA was 375 percent of monthly income in 2018.

Sector Governance, Policies, And Regulations (Invisible Mile):

SECTOR GOVERNANCE & REGULATION

39. The digital sector in Guinea-Bissau is under the leadership of the Ministry of Transport and Communications (MTC), charged with setting and implementing sectoral strategic orientations and policy. The ICT sector operates under the guidance of two strategic documents: the strategic and operational plan Terra Ranka (2015-2025) developed in 2014, and which has as one of five pillars to improve digital infrastructure and digital services with the objective of making the ICT sector a real lever for digital transformation and economic growth (Republic of Guinea-Bissau, 2014). The current administration endorsed Terra Ranka and adopted a new three-year National Development Plan 2020-2023, which includes several telecommunications reforms aiming at: (i) the installation of the OMVG electrical network (including its fiber optic backbone); (ii) the availability of high-speed internet through the installation of the ACE submarine optical fiber cable; (iii) the installation and expansion of the national optical fiber telecommunications backbone; (iv) the rehabilitation, restructuring, and privatization of GuineTelecom and GuineTel; (v) the transition from analogue to digital technologies; and (vi) the transition to 3G and 4G mobile broadband services. However, despite these ambitious reforms and the participation of Guinea-Bissau in such structuring projects, sometimes uneven political commitment from GoGB has contributed to delays in key sectoral investments and reforms and hinders to this day the progress of the sector overall.

40. The legal and regulatory framework for the digital infrastructure in GB is largely outdated

and incomplete, and the regulator remains weak. The ICT regulatory framework in Guinea-Bissau is shaped by Law 5/2010 - the Fundamental Law of Information and Communication. Since then, several decrees were adopted to regulate the various aspects of the sector (Figure 21), but the operationalization of these legal texts remains partial, with their application yet to translate into roadmaps and operational procedures. The regulation of the sector is delegated to the ARN, which supports the Government in the coordination, oversight, and planning of the ICT sector, as well as in the sector's technical regulation, supervision, inspection, and representation. However, the regulatory mandate of ARN is not being fulfilled due to a lack of financial, technical, and political support.³² This is made obvious by the agency's low levels of autonomy and overall influence, not enabling it to effectively enforce existing regulation especially in the face of growing influence from the telecom operators Orange and MTN. Furthermore, ARN lacks the necessary legislation and technical capacity to be able to keep up with technology and market changes. The agency continues to operate under outdated texts that no longer reflect the particularities or needs of the sector, while lacking the training that would allow its staff to remain up to date with the latest market trends and acquire the necessary technical knowledge to keep up with an ever-changing sector. This was illustrated by the difficulties faced by the regulator to establish a much-needed telecoms observatory that would ensure the regular and updated publication of critical data on the sector.

³² It is also not clear the extent to which ITMA and ARN will coordinate their activities, nor is it clear whether there are overlaps of competences and attributions between the two agencies.



Figure 21: Key Policies, Regulations and Legislation of the ICT sector in Guinea-Bissau

YEAR	POLICY, LEGISLATION, AND REGULATORY DECREES
2010	Law n° 5/2010, of May 27 [Official Bulletin n°21] Relating to the Fundamentals Law of Information and Communication Technology (ICT).
2010	Decree n° 13/2010 On the regulation of interconnection schemes.
2010	Decree n° 14/2010 On the regulation of the monitoring, sanctions, and conflict resolution.
2010	Decree n° 15/2010 On the rules and procedures for public consultation.
2010	Decree n° 16/2010 On the regulation of the supply of connectivity and ICT Services.
2011	Decree n° 17/2011 Relating to the Universal Access Fund.
2011	Decree n° 18/2011 Relating to the regulation fees of telecommunications and information and communication technologies (ICT).
2012	Decree n°7/2012 On the regulation of the registration of Gateway domains.
2012	Decree n° 8/2012 On the regulation of Network Access, and the supply of services transmitted by submarine cables.
2013	Decree n° 21/2013 On the regulation of the sharing of passive infrastructure and other network resources. [Official Bulletin n°45 dated November 13].
2013	Decree n° 22/2013 On the regulation of the identification of subscribers to mobile telecommunications networks.
2013	Decree n° 14/2013 On the regulation of the management and control of traffic generated in networks and licensed operators in the country.
2013	Decree n° 15/2013 On the creation of a national commission for the Analog/Digital transition (CNTA/D).

41. The scope of responsibilities of the ARN is also limited, as the Fundamental Law of 2010 was never fully operationalized and the current mandate of ARN is restricted to only some of the aspects of market regulation. In contrast, the 2020 Digital Regulation Handbook (ITU, 2020) specifies broader areas of responsibilities for the regulator, stating that, “Under the first three generations³³ of regulation (G1-G3), and somewhat in G4, the telecom or ICT regulator’s areas of responsibilities center on setting and enforcing relatively stringent rules deemed necessary to protect competition and consumers as countries transition from monopoly telecommunication markets.” In order to reach this level of maturity, several remaining aspects of the Fundamental Law need to be implemented to allow the regulator to fulfil its mandate more effectively, that includes aspects related to (i) the monitoring and quality control of the services provided by the telecom operators; (ii) the monitoring of the national and international volume

of traffic, an essential requirement for the correct sizing of telecom equipment and the optimization of the quality of service; (iii) market deregulation and the simplification of the access to the ICT/telecom market, to allow for the establishment of a free and more competitive market with improved and more affordable services; and (vi) the improvement of spectrum management to drive competitiveness and draw more advantages from spectrum resources;

42. Due to the forementioned weaknesses Guinea-Bissau’s ICT legal and regulatory environment is incomplete and lacks the strength to be able to fully tackle all the aspects of effective market regulation. According to the ITU’s ICT regulatory tracker,³⁴ Guinea-Bissau’s regulatory environment has progressed insufficiently in the last decade, remaining among the 17 SSA countries where telecom regulation is considered to be still at Generation 2 (Figures 22 and 23).

Figure 22: Evolution of the ICT Regulatory score (2010-2020)

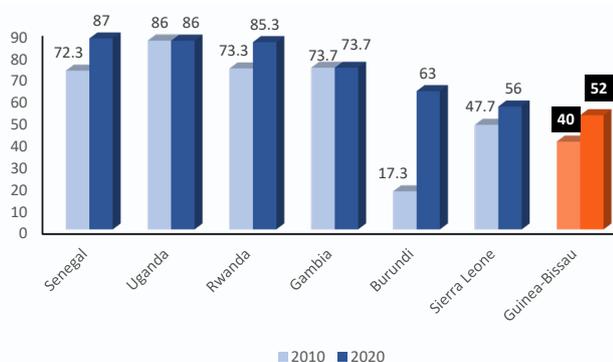
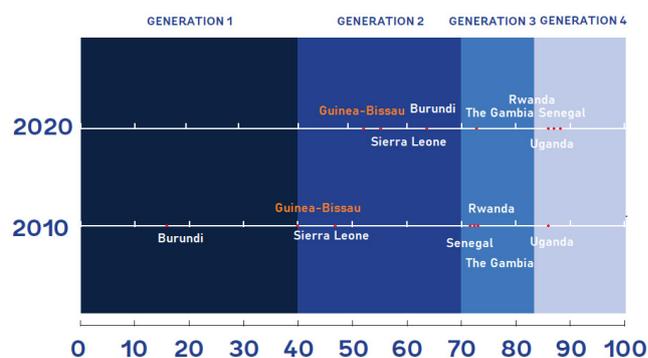


Figure 23: ICT Regulation by Generation in Guinea-Bissau



Source: World Bank.

43. This resulting weakness from the current state of regulation in Guinea-Bissau is reflected by its low position in key international regulatory indicators. The World Bank’s Regulatory Watch Initiative (RWI)³⁵ phase 2 compares Guinea-Bissau to 26 other countries in SSA and shows an obvious underperformance in several areas including licensing regime, market fairness, international gateways, and

spectrum management. Consequently, Guinea-Bissau lags behind selected peers in the overall score of RWI attainment and is ranked amongst the bottom 5 of the 27 countries analyzed within RWI in terms of regulatory governance (Figure 24 top left). Furthermore, the RWI ICT status (bottom left) assesses ICT development overall through a compound of 10 ICT indicators related

³³ The generations system is a comprehensive model developed by the ITU to assess regulatory evolution, based on a number of characteristics such as privatization and liberalization, the need to encourage investment, and the shift to meeting socioeconomic objectives.

³⁴ Available at: <https://app.gen5.digital/tracker/metrics>

³⁵ The RWI is a platform developed by the World Bank to assess the state of regulation based on a number of indicators. The initiative covers 27 countries and is meant to advise World Bank operations across sectors and guide regulatory reforms nationally and regionally.



to penetration, usage pricing and competition and shows that Guinea-Bissau processes an ICT status score that is amongst the lowest globally. The ITU's Global Regulatory Outlook for 2020 also reflects

the weaknesses in the various aspect of Guinea-Bissau regulatory framework and puts it behind both aspirational and structural peers on the regulatory benchmarks (Table 6).

Figure 24: RWI phase 2 findings on Key regulatory Indicators for Guinea-Bissau and peers

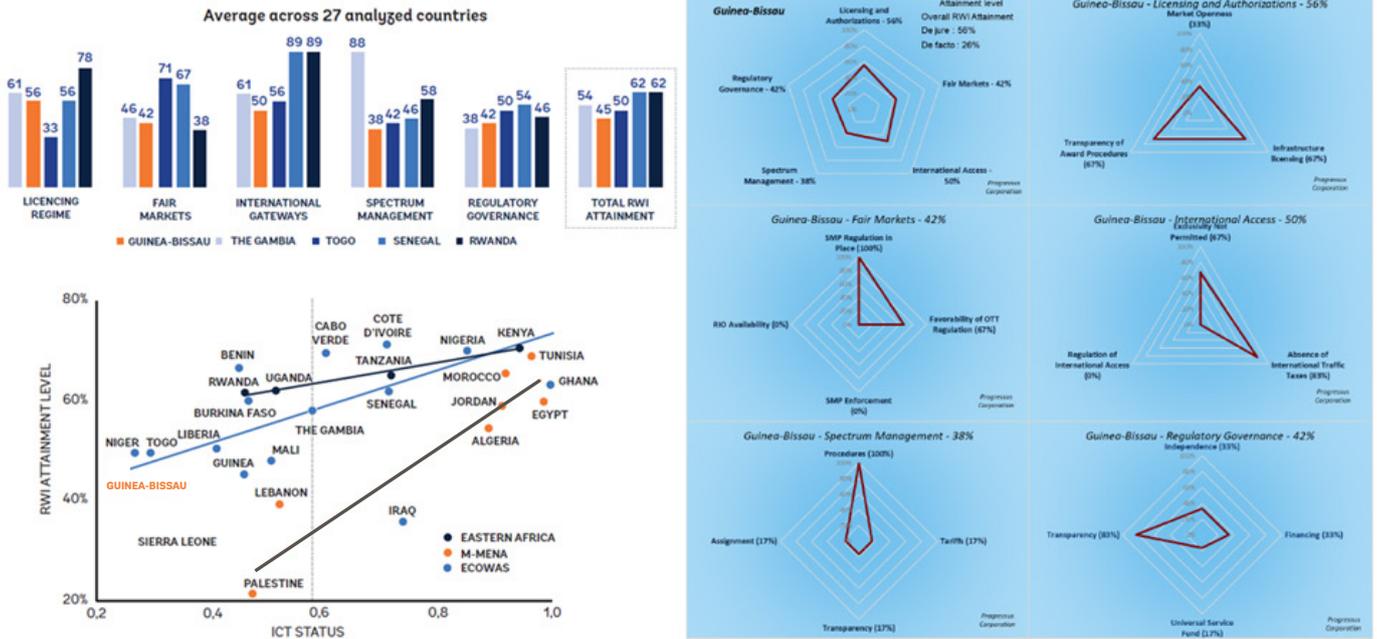


Table 6: Global ICT Regulatory Outlook for Guinea-Bissau and peers

ITU INDEX	GUINEA-BISSAU	STRUCTURAL AVERAGE	ASPIRATIONAL AVERAGE	GAMBIA	BURUNDI	SIERRA LEONE	RWANDA	SENEGAL	UGANDA
Regulatory Authority	10	16	19	20	11	16	20	19	17
Regulatory Mandates	10	19	20	19	18	19	20	19	20
Regulatory Regime	8	14	21	16	12	14	18	24	22
Competition Framework	18	16	23	18.7	23	7	24.3	18	27
Overall ranking	46	56	64	73.7	53	40	62.3	61	69

Source: ITU Global ICT Regulatory Outlook 2020³⁶.

SIGNIFICANT MARKET POWER (SMP) REGULATION

44. In view of the growing influence of the two telecom operators Orange and MTN, an effective competition policy is becoming essential as a mechanism to protect market dynamics. The connection to the ACE submarine cable will bring enormous benefits to the telecom sector in Guinea-Bissau, that should translate

into a more competitive market. To substantiate these gains, effective regulation needs to be put in place to mitigate any challenges of access to this Infrastructure's international capacity by younger and smaller players and ISPs. The current position of the active telecom operators Orange and MTN (jointly

³⁶ https://www.itu.int/dms_pub/itu-d/opb/pref/D-PREF-BB.REG_OUT01-2020-PDF-E.pdf

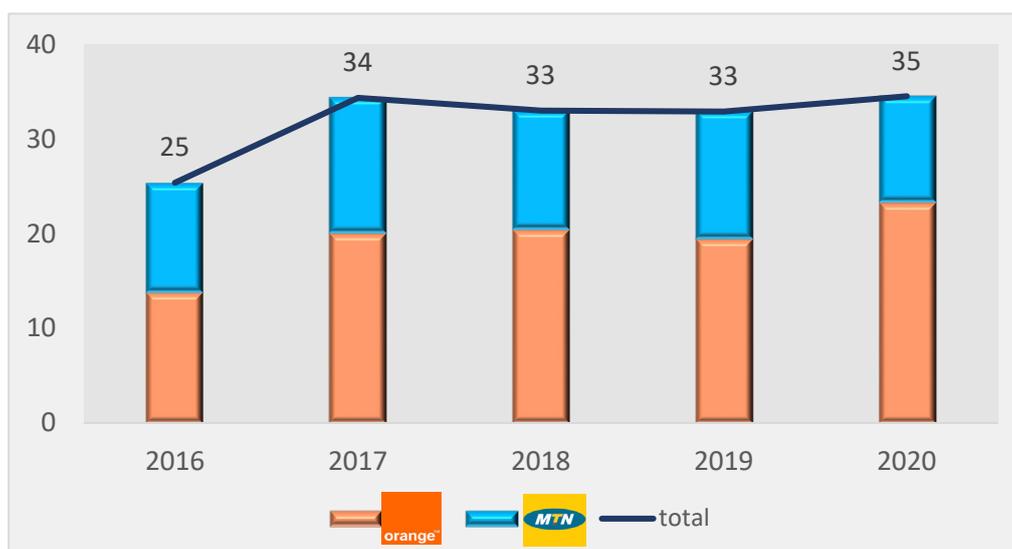
owning 51 percent of the SCGB and consequently of the ACE cable capacity and the Suro-Antula backbone), coupled with their investment possibilities as international companies, could present a challenge to any new entrant to the market. Additionally, the ongoing privatization of GuineTelecom and GuineTel and the plans expressed by the GoGB to include the deployment of the fiber optics backbone into the mandate of the incumbent could also tip the scales and present future challenges. To date, Guinea-Bissau's legal and regulatory framework does not have a clear competition policy and lacks the necessary mechanisms to be able to enforce it. The factors outlined above underscore the urgency of elaborating clear and enforceable guidelines to identify SMP and be able to assess when (and to which extent) this power has been abused by international telecommunications companies.

ICT SECTOR TAXATION

45. ICT sector taxation contributes significantly to the state budget, but, if not well-balanced, taxation could be counterproductive to the development of the sector. Most SSA governments, including Guinea-Bissau's, turn to the telecom sector as an

easy source for revenue. However as various studies (GSMA, 2011; GSMA, 2012a; GSMA, 2012b; ITU, 2013; ITU, 2015) have established, excessive taxation could stifle private investments and the adoption of digital services. The findings were corroborated by the most recent 2021 World Bank Africa pulse report, which underscored this particularly for countries with limited purchasing power such as Guinea-Bissau. In contrast, with mobile telephony being the main means of internet access for consumers, reducing the cost of service brings positive effects, particularly because a reduction in costs is often accompanied by higher levels of adoption. The contribution of the ICT sector taxation in Guinea-Bissau has significantly increased since 2016 and contributed over US\$34.5 million to the state budget in 2020 (Figure 25). However, this increase has not been so significant over the past 4 years. This is due in part to the telecom operators taking counter measures that include limited investments, and additional costs to retail prices, which has in turn impacted the growth of the sector. The rates of taxation in Guinea-Bissau are also slightly higher than other countries in the region, with the value added tax (VAT) at 19 percent and profit tax at 25 percent.

Figure 25: Total tax (US\$ millions) and share of income from ICT Sector, 2016-2020

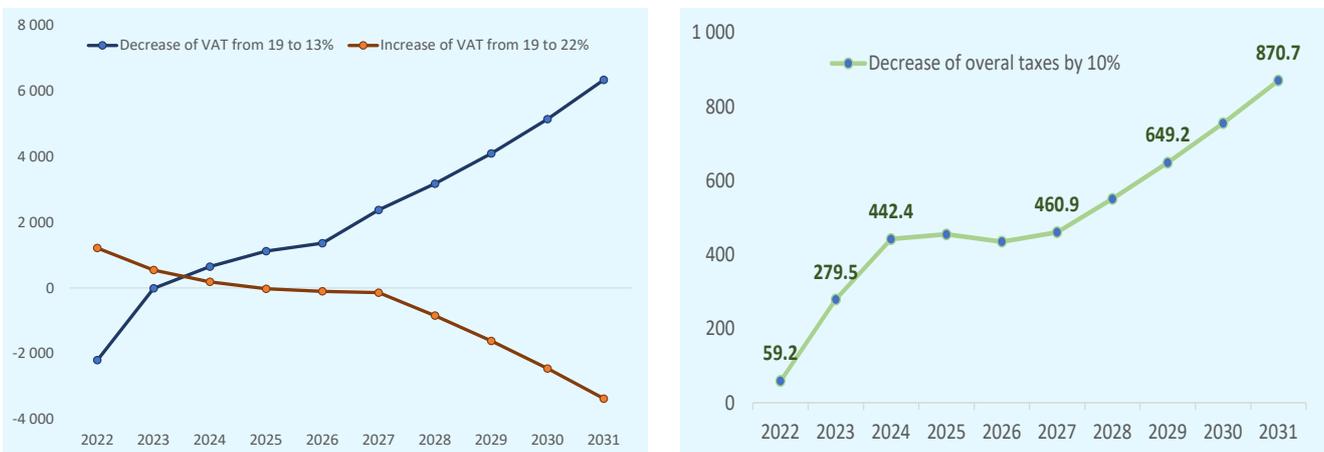




46. Reforms to telecom sector taxation would have a positive impact on the country's overall economic growth. A telecom sector taxation study in Guinea-Bissau was carried out by KPMG in 2021 and has conducted simulations of changes to sector taxation over a period of 10 years and analyzed their resulting impact on the economy. The findings clearly established that a decrease of taxation would have positive implications on the overall economic context of Guinea-Bissau in the medium to long term. For instance, a decrease of the

current VAT tax from 19 percent to 13 percent would not only be absorbed but would bring additional tax revenues to the state, while a 10 percent decrease of the sectoral taxes overall would also increase the overall state revenue by a significant amount over a period of 10 years (Figure 26). Finally, the study also recommended that the Government consider harmonizing its tax policies with the World Trade Organization Agreement on Information Technology, which seeks to eliminate import duties on technology products.

Figure 26: Impact of VAT and overall taxes increase or decrease on the global revenue



Source: KPMG, 2021.

Universal Service

47. The application of Guinea-Bissau's universal service policy has suffered from a lack of transparency and an operational roadmap with clear directives for the use of its financing instruments.³⁷ Universal service in Guinea-Bissau was established by Law 5/2010, with the objective of ensuring the existence and availability of universal access to communication services particularly in rural and urban remote areas exceeding a population of 500 inhabitants. The law also created through article 86 the Universal Access Fund (UAF), which has the objective of encouraging and completing private investments targeted at covering areas with limited return on investment for the private sector.

Subsequently, the two decrees 17/2011 and 18/2011 defined the governance, operational, and safeguard aspects of the UAF, particularly: (i) the structure and responsibilities of its governing body; (ii) the financial obligation of all entities licensed to operate in the telecom market to replenish the fund through the payment of 1 percent of their gross revenue; and (iii) the safeguard mechanisms to ensure the effective and transparent usage of the UAF. ARN shared during consultations a list of projects that benefited from UAF financing since 2015, albeit in a plain and internal document that cannot be attributed to any authority; furthermore, the list clearly reflects that,

³⁷ Universal Service Funds are paid for by contributions from telecoms providers to serve a specific purpose, generally to subsidize greater access or affordability to certain populations (or regions).

despite the existence of legislation, usage of the Fund remains limited and not accurately targeted towards structuring projects that effectively support universal access to communication services. This is due in part to the absence of a roadmap to direct the utilization of the fund, set objectives and coverage targets, and identify best suited projects to universal access financing, consequently allowing the UAF to be used to achieve its intended purpose. The UAF's transparency is also a major issue. Despite several consultations and engagement with ARN over the past years, there has been no information available (publicly or otherwise) as to the amount of funds available in the UAF to date, or of the frequency and volume of the telecom operators' contributions to the fund. Moreover, there is no indication that the transparency mechanisms put in place by the aforementioned decrees were ever implemented. This runs counter to the UAF's Article 15, which stipulates that an external audit of the UAF accounts needs to be carried out annually and publicly disclosed. There is no indication that the audit was conducted or disclosed since the UAF was established. This situation creates an enormous risk that UAF resources are being mismanaged or used for purposes other than the ones decreed by the Fundamental Law of 2010 and the subsequent decrees.

48. There has been growing international discussion on the effectiveness of universal service (or access) funds, as a mechanism to extend coverage in underserved or unserved areas, particularly in countries where the taxation imposed to feed these funds could impede the ability of the private sector to invest in the expansion

of internet access. This subject was thoroughly scrutinized in several studies: the ITU's (2013) Universal Service Fund (USF) and Digital Inclusion for All discussed the ability of the funds to meet coverage targets in countries across four continents, presenting challenges and success factors to the effective administration of such funds. The USF study prepared by LANDCOM for the GSMA (2013) also examined successful alternative approaches applied by some countries resulting from shortcomings of USFs, and that included imposing coverage obligations (bundle low demand and populous areas into the same license, ANATEL Brazil), developing mobile cellular networks enabled by private agents³⁸ (Village Phone Program, Bangladesh), or setting up a subscriber cooperative ("The Cooperatives," Argentina). The findings indicate that USFs can play a structuring role in the promotion of digital development and have been successful in meeting most of targets in a number of countries such as Uganda, Mongolia, Vietnam, Columbia, Paraguay, the Dominican Republic, Saudi Arabia, and the USA. However, such a success comes with strict pre-requisites that include closely following best practices, ensuring complete autonomy of the USF and its administrators, setting up measurable objectives and coverage targets, and adhering to regular and transparent reporting and auditing. Annex Table 1 provides a summary of best practices with use cases and experience shared from different countries that managed to implement good examples of universal service. Additionally, Box 4 discusses in detail one of these successful experiences, providing a description of pay or play mechanism implementation in Morocco.

³⁸The VP Program would select women from the Grameen Bank members to act as VP operators. The bank will then provide a loan to them to acquire the necessary equipment allowing them to extend coverage to underserved villages. The initial goal of the program was to install 40,000 village phones by 2004, however the program was so successful that by the end of 2006 280,000 phones were installed. The VP program allowed an increase of mobile coverage in Bangladesh from 6.4 percent in 2005 to 46.2 in 2010.



Box 4: Trends in Universal Service, the “pay or play” mechanism in Morocco

The ‘pay or play’ mechanism adopted in Morocco is one of a few examples of an attempt to motivate operators to identify, help plan, and ultimately deliver the facilities and/or broadband services to underserved areas. Since 2004, MNOs in Morocco can either carry out activities to comply with universal service obligations provided for in their licenses (i.e., “play”) or free themselves from them by paying the related contribution (in the amount of 2 percent of their annual turnover) into a special allocation account of the Fund (i.e., “pay”). Operators who carry out universal service programs (to extend network coverage in underserved areas), validated in accordance with the terms set by regulator, for the amount exceeding their annual contribution to the Fund may then receive the difference between the amount spent and the amount for which they are liable. Likewise, in the event of incomplete performance of the universal service program, operators have to pay the remaining difference to the Fund and can be subject to a fine. In practice this mechanism adopted in Morocco stimulated existing operators to deploy networks that they would not have otherwise deployed if they had not been compensated by a reduction in their contribution to the USF (“play” mechanism). According to the regulator, nearly 11,000 out of 14,000 localities eligible for mobile broadband coverage under the universal service policy and the National Broadband Plan have been connected by the operators as of 2021.

Since its inception, Morocco’s Universal Service Fund has financed multiple projects that not only allowed to improve broadband connectivity in the country but contributed to broader digital transformation of the public sector. More specifically, Moroccan USF financed projects to connect certain localities to internet by satellite links; create community access centers, facilitating the access of young people to ICT; dematerialize the process of issuing birth certificates and modernize and progressively computerize civil registration; strengthen emergency call services; promote the use of electronic signatures; etc. Nevertheless, the Fund still has significant undisbursed balances, although the mobilization and utilization of funds has significantly accelerated since 2016. In fact, the Fund’s income and expenditure recorded an average annual increase of 8.5 percent and 132.1 percent respectively for the period 2016-2018.

Summary Of Constraints To Digital Infrastructure Development

Constraint 1: Limited international connectivity

Delays in the operationalization of the connection of Guinea-Bissau to the ACE submarine cable (which was expected in April 2022 but is now expected in November 2022) limit international connectivity and force telecoms operators to rely on costly and unreliable terrestrial or satellite connectivity, causing elevated internet prices for customers.

Constraint 2: Fluctuating political commitment to reform

Fluctuating political commitment to key reforms has delayed the implementation of key infrastructure projects (e.g., the effective connection to the ACE submarine cable) and sectoral reforms, including the privatization of the incumbent operator GuineTelecom/GuineTel.

Constraint 3: Lack of a fiber optics backbone

The lack of a fiber optics backbone limits the backhaul capabilities of telecom operators who are forced to rely on a small network of microwave links instead. This in turn increases retail prices and depresses internet adoption and usage.

Constraint 4: Weak regulation authority and incomplete regulatory environment

The weak technical and financial capacity of ARN, coupled with the lack of essential regulation have limited the dynamism of the sector.

DIGITAL INFRASTRUCTURE RECOMMENDATIONS

Short Term (by 2023)

- Improve international connectivity by hiring the technical team and **completing the delivery of the ACE submarine** cable link and the construction of the **Suro-Antula backbone**.
- **Privatize the incumbent operator GuineTelecom/ GuineTel** and determine the best use of its assets and existing infrastructure.
- Strengthen **the transparency of the sector** through the publishing of the annual audit reports of the UAF and the establishment of a telecom observatory that includes key sectoral data and publish it on ARN's website.

Medium Term (by 2025)

- Develop a strategy for the **usage of the UAF** (under a pay or play approach) to catalyze private investment in digital infrastructure in the last mile.
- **Strengthen capacity of the regulator ARN**, including by increasing its financial, administrative, and

political autonomy to allow it to have the necessary means to fulfil its mandate.

- **Strengthen the country's regulatory environment**, by developing a stronger regulatory framework for the telecoms sector (including for SMP, licensing, infrastructure sharing and national roaming, and the regulation of the wholesale market).
- **Deploy a national fiber optic backbone** leveraging the private sector to improve backhaul capacity and support the deployment of next generation mobile connectivity such as 4G to end users.

Long Term (by 2028)

- Ensure the **redundancy of international connectivity links** by connecting Guinea-Bissau to a second submarine cable.
- Accelerate the realization of an **integrated and open regional ICT market** that would stimulate economic growth and enhance regional entrepreneurship and trade.



2. DIGITAL PUBLIC PLATFORMS

PHOTO CREDIT: CHERIF TOURE

IMPORTANCE

49. Digital public platforms are systems offered by governments and public institutions that virtually connect and digitally enable individuals and businesses as well as facilitate the digital exchange of information, goods, and services. Their objectives are to: improve access to, efficiency of, and quality of government services and core government operations; allow for arm's-length financial transactions; share government information and data for use/reuse, as well as transparency and accountability purposes; and facilitate channels for public engagement (including closing the feedback loop). To function, digital public platforms require proper institutions, leadership, and coordination; a robust legal and regulatory framework (especially regarding privacy and data protection); cybersecurity policies; and adequate digital literacy and data management skills within the public sector. Core enablers of these platforms are identification (ID) systems, trust services, and data exchange with shared repositories and protocols to increase transparency and reduce leakage and fraud by ensuring that public services reach their intended beneficiaries or suppliers.

50. Digital public platforms are a key foundation of the digital economy. They increase people's access to rights, administrative and public services, and government information and data. They enable financial inclusion and facilitate secure transactions between individuals and, through digitalization, allow for the reduction of inefficiencies. Platforms developed for the public sector or as a public good can help create economies

of scale and network effects within the private sector through the platforms themselves as well as the data they subsequently produce. They can also promote the creation of digital businesses and start-ups. Leveraging shared services and interoperable systems as part of a "whole-of-government" approach to the digital transformation of government³⁹ can transform the public sector's processes and services—be they government-to-government (G2G), government-to-citizen (G2C), or government-to-business (G2B).

51. Expanding the scope, reach, functionality, and interoperability of digital public platforms has the potential to greatly benefit Guinea-Bissau. Digital public platforms and the data they produce can serve as catalysts for developing new segments of the economy and reducing the cost of doing business through increased convenience and savings. If designed and implemented properly, digital public platforms can increase Bissau-Guineans' access to administrative and public services, amplify their voice, and bring the government closer to them, helping address one of the country's key drivers of fragility, social exclusion; this is particularly important given the country's gender gap and high level of fragility. Digital public platforms can also limit opportunities for rent seeking and minimize corruption by replacing human interaction with digital interfaces. This would be critical for Guinea-Bissau, a country that ranks at the extreme end of the World Governance Indicators Control of Corruption index, placing in the eighth percentile in 2020.

³⁹ Also known as "GOVTECH."

DIAGNOSTIC FINDINGS: CURRENT STATE OF DIGITAL PUBLIC PLATFORMS

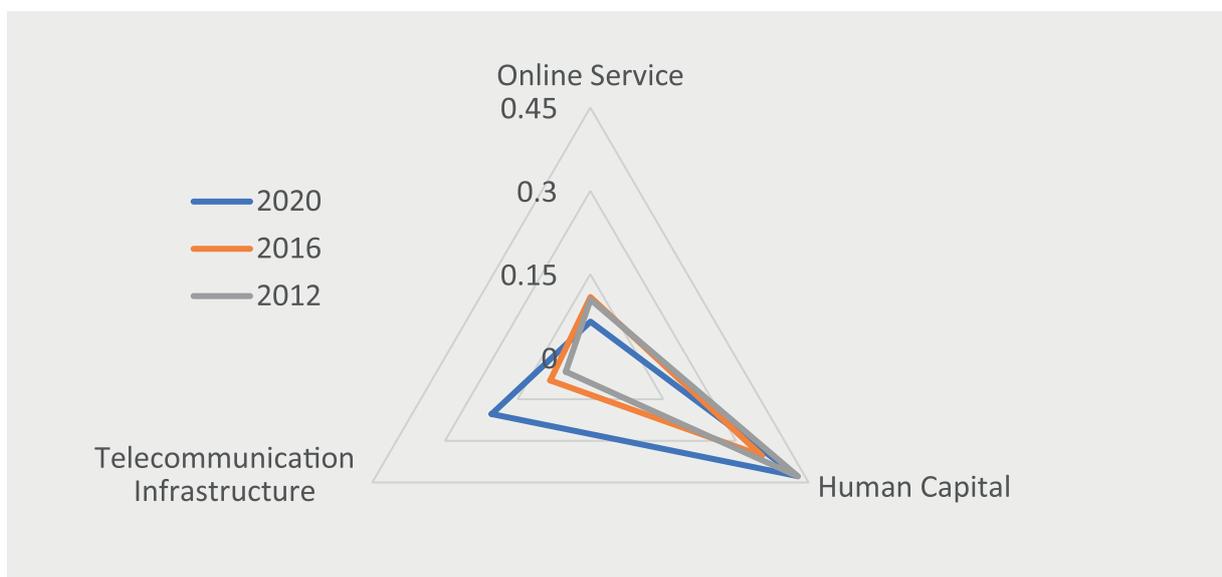
52. GoGB is convinced of the benefits of adopting electronic government (e-Government). According to its Global Rationalization Plan (2026), the implementation of e-Government is central to GoGB's ability to promote citizenship, drive change in public organizations, disseminate technology, and encourage the integration of systems and processes with a view to digital inclusion (ITMA, 2020). GoGB's e-Government program aims to increase inclusiveness, promote more efficient and effective services, deliver high impact services for citizens and businesses, ensure availability of essential functions such as identity management and interoperability, and enhance democratic participation and decision making of citizens.

53. Guinea-Bissau scores low compared to its peers on all core measures of e-Government and related indicators and progress is halting. Table 7 shows that Guinea-Bissau lags peers in terms of digital adoption, national online presence, open data, participation, and cybersecurity scores. A disaggregated analysis of the country's E-Government Development Index scores (Figure 27) reveals that (i) the country's e-government reforms have remained stagnant and (ii) what positive change did occur was largely due to a shift in the telecommunication infrastructure sub-index which, while an enabling factor for e-government, is peripheral to the heart of e-government.

Table 7: Core Digital Public Platform Indicators : Guinea-Bissau vis-à-vis its Structural Peers

Indicators	Burundi	CAR	Guinea-Bissau	Sierra Leone	The Gambia
E-Government Development Index – Online Services (UN, 2020)	0.35	0.13	0.06	0.31	0.03
Open Government Data Index (UN 2020)	0.30	0.00	0.28	0.63	0.00
E-Participation Index (UN 2020)	0.33	0.14	0.08	0.40	0.04
Global Cybersecurity Index (ITU, 2020)	1.73	3.24	9.85	25.31	32.12

Figure 27: eGDI Index Subscores for Guinea-Bissau (2012-2020)



Source: UN E-Government Development Index (2010-2020).

Legal, Policy, And Regulatory Framework

54. Guinea-Bissau is lacking the appropriate legal and regulatory framework needed to underpin a digital transformation and those laws that do exist are generally outdated, with some dating back to colonial times. The country's Constitution recognizes the rights to personal identity, civil capacity, citizenship, and the protection of private and family life; however, its civil registration code dates back to the country's colonial period.⁴⁰ There is also a base Law on ICT (analyzed in the Digital Infrastructure chapter) and several relevant decrees.⁴¹ However, many of these legal instruments are over 20 years old and do not accommodate the main socio-economic, technological, environmental and policy challenges that the new era of digital transformation has brought to the country. There are no laws on data protection and privacy, interoperability, data use and reuse, e-signature, e-commerce, e-procurement (although a set of rules to regulate digital payment services is under development), access to and sharing of information, and no effective mechanisms in place to ensure cybersecurity or combat cybercrime.

55. Of particular concern to the country's digital transformation is the lack of cybersecurity policies and measures. As countries begin their digital transformation journey, they become increasingly

reliant on information and technology assets. Governments need to be proactive in improving the security and resilience of national infrastructure and services by developing and adopting a national cybersecurity strategy to protect the country's digital sovereignty and personal, business, and state rights. Cybercrime is becoming more frequent throughout SSA—especially after the shift from working in an office to working remotely from home due to the COVID-19 pandemic—increasing the need for robust cybersecurity institutions to protect government, private sector, and individual digital assets and data. Guinea-Bissau has no effective mechanisms in place to ensure cybersecurity or combat cybercrime (i.e., laws, governance frameworks, initiatives, etc.). Although Guinea-Bissau signed the African Union Convention on Cybersecurity and Personal Data Protection in 2015, as of February 2022, it has yet to ratify the convention into national law.⁴² The country scores near the bottom of the ITU's Global Cybersecurity Index, which measures a country's cybersecurity commitments in terms of legal, technical, organizational, capacity development, and cooperation measures. Developed more in the Digital Financial Services chapter, this gap runs the risk of derailing the country's overall digital transformation, as well as serving as a specific barrier to enabling further adoption and use of digital financial services.

Strategy

56. GoGB's national development plans give a prominent role to the need for digital transformation. Mentioned in the Digital Infrastructure chapter, Terra Ranka (2015-2025) prioritizes the strengthening of the digital sector, development of digital infrastructure, and the boosting of ITC; the current National Development Plan 2020-2023 has as its first

strategic objective the reforming and modernizing of political institutions.⁴³ This includes, among other expected results, the (i) digitization of records on individuals, properties, and firms; (ii) harmonization of human resource and payroll systems and databases; (iii) initiation of support services for small entrepreneurs (including incubators); (iv) installation of

⁴⁰ The Civil Registration Code is under review process.

⁴¹ Such as: Decree no. 16/2010 to regulate the Offer of Information and Communications Networks and Services; Decree no. 18/2011 to regulate Telecommunications and ICT fees; Decree no. 8/2012 to regulate the access to and offer of networks and services transmitted by submarine cables; a consumer protection law (Decree no. 7/2012, 23rd October); and an investment code (Law no. 3/2011 from July 6th).

⁴² While 18 African countries have signed the African Union Convention on Cybersecurity and the Protection of Personal Data (often called the Malabo Convention), just 8 have ratified it.



and rendering functional the OMVG electrical network; (v) availability of high-speed internet and installation of the national backbone; and (vi) increased adoption of digital skills.

57. Guinea-Bissau does not possess a government-wide digital transformation strategy outlining a whole-of-government, strategic vision and program for the development of a digital economy or guiding the country's ongoing digital transformation efforts.

Such strategies and complementary action plans are key to coordinating different governmental initiatives on digital issues within a coherent framework. They generally include (i) a coherent vision, (ii) basic objectives, (iii) actions required to achieve those objectives, and (iv) metrics to ensure progress and support course corrections when needed. Such overarching strategies encompass all aspects of digital transformation, including public sector investments to create the necessary enabling environment, foster a robust private sector, and digitize the public sector (including support for e-governance); the latter should propose a unified methodological approach

to the modernization of public services through their reengineering and digitalization, as well as the creation of a public services portal as a single-entry point for service provision. Guinea-Bissau likewise does not possess an enterprise architecture.⁴⁴ As mentioned in the Digital Infrastructure chapter, WARCIP is financing MTC's development of a sector-specific strategy to promote access to and use of ICT and high-speed internet, including the promotion of technological innovation within the public sector and the use of the USF. Additionally, UNU (2021), with funding from UNDP, developed a road map of necessary interventions in Guinea-Bissau's e-governance sphere; however, the relevance of some of the recommendations (for instance, establishing an online portal to apply for scholarships for foreign study, in a country in which the mean years of schooling is 3.9) for the country context suggests that further prioritization might be needed. The Technological Institute for the Modernization of the Administration (ITMA) has recently developed and submitted for approval a Strategic Plan for Information Technology, referred to as the "Global Rationalization Plan 2026."⁴⁵

Leadership And Institutions

58. Guinea-Bissau does not yet have clear institutional leadership or coordination to develop, guide, and implement digital public platforms. The Center for Technological Appreciation and Electronic Governance (CEVATEGE) held the mandate for leading and coordinating the Government's digital strategy and efforts, but it possessed neither the human nor the financial resources to lead the agenda. The newly created ITMA has taken on this mandate for leading and coordinating GoGB's digital strategy and efforts, CEVATEGE. Furthermore, ITMA today only counts on one staff member and does yet not have

an institutional budget. It cannot yet be considered an ICT Agency, one which establishes and enforces ICT standards and frameworks; rationalizes and streamlines management of public sector platforms and other ICT initiatives; and promotes data literacy, sharing, and collaboration. National ICT agencies can help protect government entities from entering into poorly designed contracts that lead to problematic proprietary arrangements, oftentimes with limited and costly maintenance options (not to mention cybersecurity concerns). Box 4 provides regional examples from Kenya and Ghana.

⁴³ However, none of the seven central or strategic objectives of the new NDP focuses centrally on the digital economy. They are: combat Fighting COVID-19 as an opportunity for a new economic start; consolidate the democratic rule of law, reform and modernize public institutions; reform the economy and promote growth and employment; develop the country's productive and infrastructure sectors; value human capital and increase quality of life; reinvigorate foreign policy, promote regional integration and value the Bissau-Guinean diaspora; and preserve biodiversity, fighting climate change, and value natural capital

⁴⁴ An enterprise architecture is what explains how a government's information systems, processes, organizational units, and staff function as a whole; it should describe and explain the relationship between projects and activities, and helps government's acquire systems and undergo change management. Best practice is for the development of an enterprise architecture to serve as a comprehensive instrument for planning, aligning and implementing all digital initiatives, that should help defining building blocks, interdependencies, design principles, and standards to allow proper used as a comprehensive instrument for planning, aligning and implementing all digital initiatives, that should help defining building blocks, interdependencies, design principles, and standards to allow proper.

Box 4: Regional Examples of ICT Agencies: Kenya and Ghana

In line with its 2017 National ICT Plan, sectoral coordination in Kenya is largely led by the ICT Authority (ICTA), a newly established public company under the Ministry of ICT with an overall mandate to foster digital development by streamlining the management of all ICT functions and the oversight of the government's integrated digital projects. The ICTA is the result of the consolidation of three previously separate government agencies: the ICT Technology Council, the Directorate of Electronic Government and the Government Information and Technology Services. It works closely with relevant technical ministries and external actors (i.e., universities and the private sector) on a project basis to implement specific initiatives, functioning as a centralized coordination office.

Digital government development in Ghana is led by the Ministry of Communication, which oversees several key initiatives such as the National Identification System, ICT Infrastructure Development Program, Public Key Infrastructure (PKI), Open Data Initiative, and other digital government initiatives. The MOC implements the ICT policy through the National Information Technology Authority (NITA), whose mandate includes identifying, promoting, and developing innovative technologies, standards, guidelines, and practices among government agencies and local governments. NITA is also responsible for ensuring the sustainable growth of ICT via research and development, planning, and technology acquisition strategies to facilitate Ghana's prospect of becoming a technology-driven, knowledge- and values-based economy. NITA has implemented several e-GOV initiatives including the e-Government Infrastructure Platform Project, a tier-3 data center to host all government applications. Currently, NITA is also pursuing a PKI and is also working on developing a compliance policy for all the government institutions for third-party software licensing and usage.

59. It is unclear whether ITMA, as it is currently envisaged, can deliver upon its sweeping mandate in Guinea-Bissau's fragility context of extreme political instability and polarization. Its mandate is ambitious and considerably larger than that of CEVATEGE, whose mandate lacked clarity, and which was regularly sidelined and failed to deliver results. ITMA is under the authority of the Vice Prime Minister and is expected to have administrative and financial autonomy in the near future. While several steps have been taken to effectively institutionalize it (including publication in the Official Bulletin of the legislation establishing ITMA), the agency is not fully operational

to date. There may possibly be passive opposition—or, at least, low incentives—to full establishment of the entity. Globally, governments are often reluctant to establish or provide the necessary support for agencies mandated to coordinate, oversee and control digitalization efforts across the public administration, as this leads to a considerable transfer of power away from vested interests as well as the establishment of a new entity that could wield considerable influence over the public. Box 5 presents guidance on how to strengthen an ICT agency, based on a review of experiences in the developed and developing world (including Liberia, Ghana, Kenya, and Mozambique).

⁴⁶ The plan advocates 13 measures to support the Government's Rationalization Plan, including an ICT governance model; streamlining, organization, and management of the ICT function; ICT architecture, norms, and guidelines; national information security strategy (ENSI); sectoral action plans for ICT infrastructure streamlining; evaluation of ICT projects and costs; streamlining of communications, streamlining of data centers, platform for unified communication, streamlining of ICT transversal areas (i.e., human and financial resources), interoperability framework; cataloging, sharing, and standardizing of public sector software; and optimization of the ICT-related procurement of goods and services.



Box 5: Recommendations for how to Strengthen a National ICT Agency and Sector Governance

- Designate a champion within the Government structure with a strong and clear political authority;
- Revise the legal, regulatory, and institutional framework as necessary to ensure that the national ICT agency is under the champion's supervision and that it is recognized as the implementing agency of all public sector digital initiatives;
- Strengthen the agency's operational capacity in terms of human and financial resources and strengthen its ability to oversee and coordinate with institutions responsible for the implementation of the country's national digital strategy;
- Setup a National ICT Governing Board comprised of executive level representatives from key stakeholders (including ministries, mobile network operators, and civil society) in charge of digital transformation, chaired by the reform champion, and supported by the agency. This is to ensure effective, interministerial coordination in the development and execution of the digital components of the country's digital strategy, and to avoid conflicting responsibilities between the entities involved.
- Establish an Information Office Council under the National ICT Governing Board composed of ICT directors across the Government. This should meet regularly to make critical ICT policy decisions and interpret the vision of the ICT Governing Board.
- Provide capacity building to all individuals and entities involved in project management and the business side of ICT. Trainings should also help build interpersonal relations to facilitate coordination at the technical level.

Source: World Bank (2020b).

60. This current absence of strong leadership for digital transformation contributes to problems of interministerial coordination in the sector. Interministerial coordination in general is limited in Guinea-Bissau and this holds true for digital transformation processes as well. The political fragmentation of the ruling coalition translates into low levels of data and information sharing across ministries and public agencies and breakdowns in institutional coordination. In the current context, this lack of coordination is heightened by the divide between central ministries, including between the Ministries of Finance and the Economy, as well as by the coexistence of a Prime Minister's Office and a Vice-Prime Minister's Office – two institutions with overlapping mandates. In that context, locating the leadership nodes and networks is a challenging task, and reform leadership by one segment of the administration runs the risk

of being curtailed by competing segments. This is particularly problematic for reforms that require strong interministerial data and information sharing and institutional/policy coordination. Indeed, to date, efforts at digitalizing the public sector have been done in an ad hoc manner and at the entity-specific level. International experience has shown that a more holistic, whole-of-government approach yields better results (including, critically, enabling interoperability of government systems). This lack of interministerial coordination has decreased the efficiency in the use of GoGB's limited public resources and has also impacted donor coordination. While there are relatively few development partners active in Guinea-Bissau, overlap of support to digital transformation has occurred. A more common issue has been the bilateral partnering between donors and specific government agencies, without coordination across the government.

61. An additional factor preventing improved leadership and coordination within GoGB on the digital transformation agenda is the limited digital skills of the public sector that translates into limited institutional capacity. GoGB suffers from severe capacity constraints across the board. Most challenging from the standpoint of the country's nascent digital economy, however, is the lack of digital skills (further discussed in the Digital Skills Chapter). Although variations in human capital across and within institutions exist, many public decision-makers have low digital competence, and the digitization of government processes has been met with pushback from public servants averse to change and wedded to paper-based processes (over which they can

wield considerable authority). This lack of institutional capacity has political roots: it can be traced back to the depth of patronage, which results in the selection of high-level officials on a political rather than merit-based criteria, as well as to political instability, which leads to high levels of turnover, preventing the accumulation of knowledge and skills in the public administration and the building of institutional memory. Further, government administrations suffer from a lack of a data protection culture, resulting in poor personal data management practices and contributing to the loss of public confidence. Combined, these complicate the absorption and sustainability of digital public platforms and related digital initiatives.

Foundational Identity And Access To Digital Services

62. The country's foundational identity system is not well established. Civil registration is still paper based which is a major bottleneck to digital transformation. Civil registration and identity management are constrained by fragile institutional arrangements and outdated legal frameworks, low coverage of registration, ineffective business processes, lack of digitalization and interoperability, and financial and gender barriers to accessing legal proof of identity. Ongoing support in this area is coming from the Portuguese Institute for Registries and Notaries, which is supporting all Portuguese speaking African countries (PALOP) with its GESTDOC system, which allows for the digitalization of all books of civil registration. The Portuguese Cooperation is also supporting the implementation of a digital civil registration system, still in the conceptualization phase. In parallel, the United Nations Children's Fund (UNICEF) is supporting the Ministry of Justice and the National Statistics Institute with the creation of a civil registry and vital statistics (CRVS) system – RAPIDPRO.

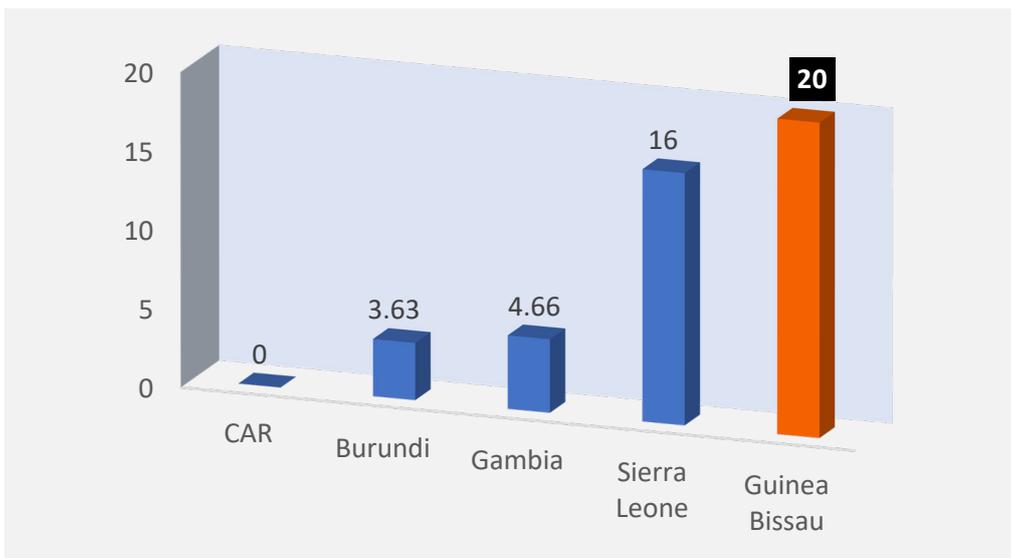
63. Guinea-Bissau's CRVS system benefits from strong political commitment and financial support, but vast structural improvements are needed. The civil registration system is under the rule of the Ministry of Justice and its services are provided by 55 Civil Registration Offices (including conservatories and decentralized posts) as well as 20 hospitals and health centers. In 2017, the GoGB conducted a holistic assessment of the CRVS system under the supervision of the Africa Program on Accelerated Improvement of Civil Registration and Vital Statistics (APAI-CRVS) which resulted in the approval of a national strategic plan and the creation of a steering committee; the review of the Civil Registration Code (1967), with revisions pending; a draft version of the annual vital statistics report, prepared by the National Institute of Statistics; the decentralization of civil registration services; and the digitalization of records and the implementation of a software application. The coverage of birth registration of children under 5 years of age had grown from 24 percent in 2009

to 46 percent in 2019 (the latest year for which data is available), according to the Multiple Indicator Cluster Surveys (MICS). Although the rate has been increasing, coverage remains low, reflecting poor logistics infrastructure (such as the lack of energy power and connectivity at CRVS centers), inadequate human resources, inefficient business processes, and poor institutional capacities. Cultural and societal factors also contribute to the country’s low rate: one requirement of birth registration is the formal identification of the child’s parents, which, in some cases, is difficult due to the reluctance of some fathers to accept paternal responsibility.

64. Guinea-Bissau’s identity management system is barely operational and not integrated with the CRVS system. A holistic assessment of the identity management system has not been undertaken and, although this system is managed by the same department within the Ministry of Justice as the CRVS system, it has not received the same level of attention. The country adopted the ECOWAS

biometric card model; however, the national legislation is outdated, the number of centers issuing national identity cards (Bilhetes de Identidade, BI) is limited, a unique identification number has not been defined, and there is no interoperability with civil registration or other functional identifications, such as the unique taxpayer number (Número de Identificação Fiscal, NIF). It is estimated that only 300,000 Bissau-Guineans have BIs, but the Government has no knowledge of the identification registry’s contents as the system is maintained by a private vendor that houses the data abroad. GoGB does not have access to the core data and has been in contractual fights with the current vendor.⁴⁶ Furthermore, the cards themselves cost the equivalent of US\$20, an amount far beyond the means of most citizens and approximately four times the average cost of an ID card across the region (Figure 28). GoGB received 400 biometric registration kits from the United Nations Development Program (UNDP), although it appears that these kits are being used for the Ministry of Territorial Administration’s national voter registry instead.

Figure 28: Cost of Formal Identification Cards in Guinea-Bissau vs. Structural Peers (US\$)



Source: World Bank Group (2017).

⁴⁶ There are discussions on the procurement of a new platform. After great efforts, the Government did receive a copy of the database in December 2021 but has not yet installed it due to a lack of necessary infrastructure.

65. The lack of a structured foundational identity system prevents the development of a digital identity scheme. A set of validated digital attributes and credentials for the digital world, digital identity is necessary to allow for the provision of public services online. There is currently no trust framework for the electronic authentication of individuals or businesses to be used for digital platforms, a key barrier to digital transformation. Besides preventing the development of digital identification, the country's limited identity

systems and platforms also lead to higher transaction costs of delivery and receipt of public services (particularly for the most vulnerable populations) and complicate the ability of micro and small and medium enterprises (MSMEs) to access financial opportunities. The ongoing example of Sierra Leone provides lessons for Guinea-Bissau (Box 6); Togo's digital identification work, while a work in progress that can benefit from greater strengthening to its legal and regulatory framework, is another promising example.

Box 6: Digital Identification in Sierra Leone

Sierra Leone's National Digital Transformation Roadmap (2021–2029) sets forth the establishment of a national digital ID system (e-ID) to mitigate a low level of trust in the digital economy. The Government is also planning to establish nationwide trust service through implementation of a PKI and certificate authority.

Emerging lessons from this experience include the need for a high level of trust in the e-ID issuing authority, system design, and technology leveraged for the e-ID system to be successful. Furthermore, the entity civil registration should participate in the development of the standards, including on authentication protocols, minimum data fields, deduplication protocols, biometric and other formats, model regulations, and other standards. Finally, the system should adopt open standards and incorporate strong security mechanisms.

66. Reforms are underway, although some are short-sighted. GoGB has expressed interest in building a national integrated identification system that allows for authentication of an individual's identity, although limited capacity, ministerial turn-over, vendor lock-in, and insufficient coordination between different relevant entities have limited progress on this front. GoGB also plans to establish a PKI to provide a digital identity scheme for an online authentication mechanism and electronic signature for digital platforms. It is unclear whether such infrastructure is being developed alongside the design of a trust framework for electronic authentication and the adoption of strong, data protection legislation; both would be necessary if the

Government is to avoid the vendor lock-in that currently affects its identity management system. Finally, there is growing momentum within the Government and certain parts of the development community to build an integrated registry in Guinea-Bissau using the latest voter registry managed by the Ministry of Territorial Administration as a starting point. This could be problematic, however, given the fact that: (i) this could signify a breakdown in the current efforts to strengthen the CRVS system, (ii) the Ministry lacks a role in the identity management system and the capacity to adopt the recommended integrated approach, and (iii) the political nature of voter registries runs the risk of excluding certain people from service eligibility.



Upstream And Downstream Use Case Systems

GOVERNMENT-TO-GOVERNMENT (G2G) PLATFORMS

67. Digital public platforms have been established to operate almost all of the Government's administrative systems, however their siloed nature and unreliable connection limit their functionality and use. Some functions (such as public procurement) are entirely paper-based, and the limited exchange of information is generally based on manual procedures. Digital public platforms rely heavily on affordable and reliable energy and connectivity to generate the promise of a whole-of-government and citizen-centric approach. Energy is not only required to ensure that services are made available to citizens throughout the country and that these citizens access them, but also to ensure that all supporting applications and ICT resources can be operationalized at central and local levels. Currently, most applications operate only at the central level and there is no centralized data center for the whole government. To change this scenario, energy and connectivity would need to be available not only to ensure a data center supporting all government agencies, but equally to allow all stakeholders to connect and work based on these shared resources. This would necessitate a combination of expanding the grid, establishing more mini grids, and/or installing solar panels on government buildings.

This results in delays and difficulties in calculating treasury balances or accounting reporting; the lack of a consolidated treasury single account (cash balances of public entities are scattered across more than 813 accounts in five different commercial banks) prevents the Ministry of Finance from exercising adequate oversight and control over the government's cash resources. Although SIGFIP allows for a decentralized operation, one of the biggest constraints is the fact that SIGFIP is only operational within the network of the Ministry of Finance. Therefore, all ministries are required to work in the internet room provided specifically for that purpose. Furthermore, unlike neighboring countries such as Benin, Guinea-Bissau does not possess the latest version of the software. Also, SIGFIP still uses many French terms, complicating its usage and contributing to the introduction and utilization of accounting concepts and expressions different from those formally established in the country's legislation (which is in Portuguese). In general, limited adoption of the platform can be traced in part to the political fragmentation of the ruling coalition, which impedes coordination, as well as entrenched resistance to transparency and accountability in a high-corruption environment.

Financial Management

68. The country's integrated financial management information system (SIGFIP) has not been uniformly adopted by ministries, meaning that a significant portion of actual current expenditure occurs outside the system. SIGFIP comprises a budget preparation module, a budget execution module, and an accounting module for recording cash operations; it does not include modules for asset management or treasury management.

69. Guinea-Bissau does not have a functioning aid information management system to track external donor-funded projects. The country's Aid Management Platform has been obsolete since 2015 due to lack of maintenance following expiry of the country's operations contract with the vendor, Development Gateway. Although the country is one of the world's most aid-dependent countries, aid is only tracked at the sectoral level and/or through Excel spreadsheets;

these databases are neither linked to SIGFIP nor the country's debt management system. Enhanced aid monitoring would improve GoGB's oversight, control, and management of public resources, allowing for more efficient planning, monitoring, and execution of expenditure (including, critically, contributing to more timely payments and potentially a reduction in expenditure arrears). A fully functioning system would also increase fiscal discipline and improve government transparency, as it would provide citizens with greater information on donor commitments and disbursements.

70. [The debt analysis management system manages internal and external debt and elaborates the country's debt strategy but is not linked to SIGFIP.](#) Developed by the United Nations Conference on Trade and Development, the Debt Management and Financial Analysis System's (SIGADE) functionality is not being completely utilized; however, it does allow the Ministry of Finance to produce biannual Debt Statistical Bulletins.

Revenue Management

71. [Tax revenue management is disjointed and the country's tax revenue management system, SIGEF, is not interoperable with SIGFIP.](#) Taxpayers submit tax declarations through SIGEF (detailed below), but tax payments are processed through SIGFIP, which causes discrepancies of treasury balances between the two systems as SIGEF is not interoperable with SIGFIP. Furthermore, it is an antiquated system whose continued functionality relies solely on the expertise of one foreign consultant. Tax activity is monitored by SIGAT, a transgressions system that analyzes all tax declarations and compares them with the fiscal reports of the taxpayers to detect discrepancies. The Integrated Administrative and Financial Control

System (SICAF) is yet another system to prepare monthly reports and statistics, based on information that resides within SIGEF from all the tax and levies issued and their respective payments. Paper reports are manually sent to relevant stakeholders. The lack of physical addresses in Guinea-Bissau complicates tax compliance and auditing, as the Service for Taxpayer Registration and Tax Collection reported ongoing difficulties finding and contacting delinquent taxpayers.

72. [Customs revenue management and management of import/export activities are conducted through the Automated System for Customs Data \(ASYCUDA\), which likewise is not interoperable with SIGFIP.](#) ASYCUDA used to receive data from SIGEF for all import/export operators, although this process has fallen into disuse. There is no interaction between ASYCUDA and the SIGFIP treasury module; in general, data around customs revenue is very opaque, which may allow for collusion and corruption on the part of government officials and firms. The separate Cashew Nut Field Control System (SICOCAJU), launched in August 2021, records the cashew variety flow data from the regions to the capital Bissau, thus recording the data at the time of exportation with the APGB, with which it is possible to monitor the cashew nut stock.

Human Resource Management

73. [There currently is no human resource management information system in Guinea-Bissau and management of human resource \(HR\) data is divided between two non-interoperable systems.](#) The Ministry of Finance's (MoF) Integrated Human Resource Management System of the Public Administration (SIGHAP) covers management of salaries and payroll while the Ministry of Public Administration's Public Administration Database (BDAP) manages HR data of public servants (although several groups, including



soldiers and pensioners, are excluded). Furthermore, several ministries (including Education) have acquired their own software or Access databases to record employee data; these freestanding HR registries are all siloed and do not comply with the Ministry of Public Administration's Procedure Manual. Inefficient HR management translates into significant government losses: the Ministry of Finance's payroll (as per SIGRHAP) covers over 31,000 individuals, whereas

BDAP only possesses records for 25,417 individuals employed by the public sector. GoGB is digitalizing the payment of public servants; a summary of Central African Republic's ongoing digitalization can be found in Box 7. Within Guinea-Bissau, a significant portion of public sector wages continue to be paid outside of SIGRHAP and in cash (instead of through bank transfers), leaving room for corruption as there is no audit trail to follow these funds.

Box 7: Digitalizing Government Salaries: The Example of Central African Republic

The Central African Republic's flagship e-Government project, Patapaye, was launched in January 2020 and aims to digitalize the payment of US\$1.4 million in civil servant salaries. This will help the Government achieve its goal of improving service delivery by increasing the presence of civil servants outside of Bangui. The project was designed in partnership with banks, mobile money providers, distribution networks, and fiscal agencies, and benefitted from a comprehensive communication strategy with civil society and overall close collaboration with the private sector. The service is being piloted to work out the kinks. The second phase will include developing a citizen and business interface for tax payments with integrated digital payment options. Before then, however, the Government still needs to overcome several constraints, including the need to effectively verify, identify, and support critical Know-Your Customer requirements, given the country's absence of a robust ID system.

Justice And Identity

74. The Criminal Registration System (SIGREC) is currently being used for the standardization of criminal certificates; however, it lacks a database of all criminal records and does not provide for automatic fingerprint identification. The system is being developed internally to accommodate the registration of all convictions issued by the court and issuing criminal certificates. There are plans to implement a Court Case Management System in the future.

75. Guinea-Bissau has adopted minimum conditions for the issuance of biometric passports, driver's licenses, and identity cards (OECD 2018). Since 2012, the country has been issuing biometric passports

through CETIS, one of the largest passport production companies in the world, with a presence in more than 15 countries, including Nigeria, Somalia, and Equatorial Guinea. So far, passports can only be obtained in Bissau and in certain embassies, and the process takes one week on average. The data collection of biometric information (i.e., photo and two fingerprints) is done onsite, but all the data is managed by CETIS. Passport automatic authentication machines only operate at the main Airport Osvaldo Vieira in Bissau and there is no interoperability with the ID nor civil registration systems for data validation and acquisition purposes. The National Printing Agency is not involved in the printing of the passports.

Education Management And Social Protection

76. Guinea-Bissau's education management information system (EMIS) is not systematically capturing administrative or performance data. Detailed more in the Digital Skills Chapter, the country's EMIS (Sistema Integrado de Gestão Escolar, SIGE) only covers one region, with 207 schools (plans are to roll it out to other regions in 2022). The subregion's STATEDUC has been in use since 2011, but minimal statistical data has been generated (less than 45 MB), largely due to the system's closed nature (for example, the interface is in French and the only individual with the credentials and background to support it flies in from Dakar to ensure its maintenance). Interviews with Ministry of Education staff did not provide clarity as to why GoGB has two similar systems meant to capture the same data, only that the plan was to scale up use of SIGE.

77. A social safety net system is being developed through World Bank support for a Social Registry. The current system manages relevant data on households and individuals potentially eligible to benefit from social protection or other programs as well as a parallel, payment information tracking system. The Registry covers five of nine administrative regions and has captured a little less than 6 percent of the country's population (116,326 people from 12,756 households, as of the end of February 2022). It utilizes geospatial data to locate residences, given the country's lack of a functional address system, and operates a Microsoft Access interface to facilitate use by enumerators trained through the World Bank project,⁴⁷ who capture data on tablets using Survey Solution. Individuals without proof of formal identification can be registered with a residency card or even their telephone number. The Registry is currently hosted by the Ministry of Economy, but the Ministry of Social Protection has expressed interest in taking over the Registry following

the close of the Bank project in December 2022; however, limited capacity, high instability, and low budget may constrain its ability to manage the system.

GOVERNMENT-TO-CITIZEN (G2C) AND GOVERNMENT-TO-BUSINESS (G2B) PLATFORMS

78. Very few government services are offered electronically in Guinea-Bissau, with the country's electricity constraints further exacerbating this. Guinea-Bissau scores low compared to structural peers along global indices measuring online presence, digital adoption, and e-participation. There are no concrete plans to accelerate whole-of-government services digitalization, nor is there an inventory of all public services and plans to gradually transition from offline to online service provision, nor plans for the implementation of a public services portal as a single-entry point for service delivery. Some basic services for taxpayers, such as taxpayer registration and some e-payment capabilities, are available at kontaktu.mef.gw (the Digital Financial Services chapter has further information on e-payments). Incipient services are also offered on the websites of the Ministry of the Environment and Biodiversity (submission of environmental denunciations or grievances), the National Institute of Social Security, and the Embassy of Guinea-Bissau in Portugal (visa services). The Center for the Formalization of Businesses (CFE), the one-stop shop for business registration, offers online information on administrative processes around opening and managing a business but does not allow for any online transactions or offer any services online. Greater access to reliable electricity—for example, through expanding the grid, building smaller grids, or even the installation of individual solar panels on government buildings—is needed to ensure that access to government systems and services are available to all (particularly in rural and remote areas in which the most vulnerable and excluded populations live).

⁴⁷ Safety Nets and Basic Services Project (P163901).



49 79. *Business Registration* - Businesses can access information on business creation and activities through one portal, although no services can yet be accessed online. Analyzed further in the Digital Businesses Chapter, companies and individuals can obtain information on all the requirements to register their business through the CFE portal, which centralizes information on requirements from various government entities for opening, formalizing, and closing a business. The CFE system's PLATAFORMA (accessing only in person, at a physical CFE) allows companies to register their business and issues a registration certificate and a payment receipt. However, while the CFE simplifies the services for business registration by centralizing information and steps, it does not streamline unified services (no business process review has been undertaken to simplify the underlying processes); rather, each relevant ministry or agency continues to utilize their own systems on the backend of the portal. Within physical CFEs, companies can also obtain their NIF through another system, the IMMAT, regardless of whether a fiscal activity is initiated. Finally, the Commercial and Property Credit Registry (RCCM) is an integrated system (i.e., for commercial and property registrations) providing reliable information and real statistics on business creation and activity. It should be noted, however, that to register a business (or access any service), one must currently go in person to a CFE: this cannot yet be done online. There are plans to enhance functionality to allow for online registration, and perhaps the creation of a mobile unit, CFE Movel, to extend the provision of services to remote areas.

80. *Tax Filing and Payment* - The registration of taxpayers, subsequent tax settlement, and payment is generally done manually and using different systems, although KONTAKTU, a promising new, unified

system offering online services is gaining popularity. Taxpayers who can prove their identity are registered through Guinea-Bissau's taxpayer registration system, IMMAT, at one of eight locations (businesses can only receive their NIFs at a CFE). They can then submit their tax declarations through SIGEF, the tax revenue management system mentioned above. The submission of tax declarations is done through the SIGEF, the Tax Management System (treatment and follow-up of tax and non-fiscal operations). SIGEF records and validates taxpayer declarations and issues a payment notification. Taxpayers then submit their payments through SIGFIP, and then take their payment confirmation and receipt to register within SIGEF. Several years ago, the government launched KONTAKTU, which serves as an online gateway for declaring taxes, calculating taxes owed, submitting tax payments, and receiving payment receipt (more information is provided in the Digital Financial Services Chapter). Taxpayers access the platform from the internet using their NIF. This system interacts with SIGEF and allows e-payments through Orange Money, MTN Mobile Money, and Banco Ecobank. The system also receives information regarding late payments from the SIGAT system. A key value add of such a system is its ability to address the widespread issues and discrepancies caused by the manual processes of registering taxpayers, declaring, and paying taxes using different non-interoperable systems.

81. *Imports/Exports* - Importers and exporters register their cargo through ASYCUDA. The import/export process starts with a registration of a cargo manifest, using the information sent automatically by a cargo agent through XML. ASYCUDA then registers all taxes and levies that are calculated by a team of experts and issues a payment notification for the trader. ASYCUDA is not interoperable with the SIGFIP treasury module,

and a unified online customs payment and revenue management system (similar to KONTAKU) has not yet been developed. As mentioned earlier, there is considerable opacity in the management of customs and customs revenue data.

82. Procurement - Public procurement is largely paper-based and contracting is opaque. SIGCOP manages procurement processes but contracting entities must request approval for individual purchases (procurement plans are currently not mandatory) via paper or pen drive, and the system is not interoperable with SIGFIP (to determine whether an entity has the budget for the procurement, the DGCP must send the budget information in a dossier

to the Budget Directorate). No digital documentation is generated, as the workflow is through paper, and there is no follow-up after the signing of contracts (i.e., to determine whether the procured good or service was ultimately received). SIGCOP is currently being upgraded, a new Public Procurement Law has been passed, and the Ministry of Finance is considering working with WAEMU to publish public procurement information online; however, there are no current plans to revise the legal framework to allow for the use of digital certificates and signatures within public procurement processes. Box 8 details the value added of eProcurement as well as Sierra Leone's positive experience piloting such a digital public platform.



Box 8: eProcurement in Sierra Leone

E-Procurement refers to the collaborative use of ICT by government agencies, the bidding community, regulatory and oversight agencies, other supporting service providers, and civil society in conducting ethical procurement activities in the government procurement process cycle for the procurement of goods, works, and services and the management of contracts, thereby ensuring good governance and value for money in public procurement and contributing to the socioeconomic development of a country (Shakya 2015, p 141).

E-Procurement systems can have a significant positive impact on the performance and quality of a government's public procurement. It promotes the reduction of costs, increased value for money, increased transparency and trust in procurement processes, and reduced corruption. Research from India and Indonesia suggests that e-Procurement can encourage the entry of higher quality contracts and lead to quality improvements; research from Bangladesh finds that eProcurement reduced integrity risks, increased participation of firms, and reduced prices offered by firms during the bidding process.

To work properly, e-Procurement typically involves not only the development and application of technology, but also legislative reform, changes to business practices, the adoption of new procurement staff skills, and, critically, change management. This requires a significant level of commitment from all involved stakeholders.

With the support of the World Bank, an e-Procurement system was developed and implemented in Sierra Leone, embedding open contracting principles and an open data approach. Before, the country was undertaking procurements through a manual tendering process, similar to the current situation in Guinea-Bissau. The manual tender system suffered from many deficiencies, which contributed to cost and time overruns for projects and lack of transparency and a lack of trust in the system by the bidders, media, and the citizens.

Today, Sierra Leone's e-Procurement system offers the following services online: centralized view of all suppliers registered/blacklisted for all classes; advertising of bidding opportunities; short-listing, comments, and corrections and approvals; submission of bids; sealing of virtual tender box; bid opening, evaluation, and approvals; issuance of purchase/work orders online; contract award publications; data collection and dissemination; tracking and handling of procurement-related complaints; measurement of procurement performance and publication of open procurement/contract data.

E-Procurement online tendering through the provision of 'anywhere, anytime' access to bidders for participating in tendering brings higher efficiency to the entire process. Results are already apparent: the cost per transaction was reduced and information and data about procurement activity are easier to be kept, analyzed, and used as an audit trail; information about procurement activities across government is used to prove and manage compliance with governmental policies and procedures; negotiation with vendors has been automated and optimized; the amount of paper created by the procurement process has been dramatically reduced; and the procurement cycle time has been reduced as well. The major benefit of e-Procurement implementation is making procurement processes more transparent and accessible to the stakeholders, which enables competition and eventually control of possible corruption.

ONLINE PRESENCE

83. The Government's overall presence online is minimal. The main Government portal has limited information and, apart from Finance, most ministries rely upon social media for their online presence. Box 9 presents good examples of government portals from Cape Verde and Angola. The following e-government portals are currently available:

- Government Portal (<https://gov.gw>) - presents the government structure and messages from the Prime Minister. The portal is limited to offering some documents and news, the majority of which were posted in January 2021.
- National People's Assembly portal (<https://www.parlamento.gw>) appears to be under construction since 2015, with some links reverting to Brazilian portals and others simply with portal development text. The portal provides minimal information; mostly headings without details or further content and a link to several legislative documents. It also includes a section on Transparency (in which several links do not work), including around access to financial reports, payroll reports, and procurement information. The portal displays a section for citizen engagement, although all citizen requests displayed are pending and dating

from December 2017. There is also a section for the publication of resolutions and announcements, with the latest entry from 2017.

- National Regulatory Authority for Information and Communication Technologies of Guinea Bissau portal (<https://arn.gw>) - provides institutional, regulatory, and market information on the ICT sector, as well as documentation and news.
- The Ministry of Economy and Regional Integration's online information service portal (guineebissau.eregulations.org) includes the CFE portal to facilitate administrative procedures for national and international economic activities (under construction).
- The Ministry of Finance's online portal (www.mef.gw) provides information about the institution, news, and publications, in which the General State Budget and the National Development Plan are highlighted. The website is structured according to the services offered by the State entity and hosts the KONTAKTU taxpayer services portal.
- The Ministry of Environment and Biodiversity's website (<https://ministerioambiente.gw>) offers relevant information as well as the option to submit complaints and request institutional contact.



Box 9: Government Portals to Provide Services to Citizens in Cape Verde and Angola

Increasingly, governments are placing more information and services—as well as direct access to services—online. Digitizing administrative services has several advantages:

- Cost savings
- Improves internal efficiency and productivity
- Improves transparency
- Combats corruption (by removing middlemen)
- Streamlines citizen interaction with government
- Allows for data management and insights

Cape Verde launched its Public Service Center (<https://portondinosilhas.gov.cv/>) to increase the interaction between its citizens and the public administration. Initially, *Portondinosilhas* started as an informational portal, providing information online to citizens. It gradually became more interactive and transactional and is now emblematic not only from the point of view of Cape Verde's digital transformation process, but also with regard to the adoption of good practices of standards and technological formats, usability, and accessibility. The portal offers an extensive range of services—158 services, out of which 66 are transactional—most of which are digital, in areas such as vehicles, housing, social security, taxes, customs, land registration, and licensing.

Over the past several years, the Government of Angola has developed and rolled out to all 164 municipalities (and all of Luanda's urban districts) its Citizens' Portal (<https://municipal.minfn.gov.ao/PortalMunicipal/>), which, amongst other things, standardizes and digitizes the collection of local taxes and fees as well as the provision of licenses for municipal-level administrative services. This digital public platform has led to several gains: (i) increased the transparency of costs for municipal administrative services, (ii) simplified the process of paying for services, (iii) improved the possibility of municipal-level revenue forecasting, and (iv) developed a carbon trail to allow for auditing of revenue generation. The Portal has become so popular that the Government is looking to roll it out to the commune level.

CIVICTECH

84. CivicTech does not currently exist in Guinea-Bissau and access to, and transparency of, data is not guaranteed. Only limited steps have been taken to ensure greater interaction with beneficiaries or broader consultation and more inclusive decision-making. Transparency and accountability in public services are currently not being prioritized. The Guinea-Bissau Democracy and Governance Observatory (ODG) developed a citizen support manual through the Open Governance project (Paths to Government

Transparency). The European Union financed a program for the Consolidation of Economic Governance and Public Finance Management Systems in PALOP and Timor-Leste that accommodates an Online Platform for Civil Society Organizations to support Budget Simplification and Analysis. Training is given through the platform and an e-participatory budgeting application is being developed. Box 10 details Brazil and Portugal's experience leveraging CivicTech to expand citizen participation.

Box 10: CivicTech in Brazil and Portugal: e-Participation

Since the mid-1990s, ICTs have been used to allow citizens to participate in different stages of the decision-making processes taken by public servants and government officials, in what has generally been called online political participation (or e-participation).

e-Participation processes provide relevant information to citizens, increase government responsiveness through citizen feedback mechanisms, and potentially create better and more responsive public policies. This is increasingly being found to, in turn, foster public trust in government, encourage the full exercise of citizenship, increase the population's commitment to the public good, and develop mutual accountability between governments and civil society in managing local or central governments.

One example of such processes is e-Participatory Budgeting, an important instrument for promoting democratic participation allowing citizens to debate, define, and prioritize the future of a city, region, or country, through ICT. Brazil and Portugal are amongst the many countries that have successfully implemented digital participatory budgeting.

Considering the digital divide, and in order to address growing issues of digital exclusion, some cities such as Belo Horizonte and Recife have made public hotspots available for voting on e-participatory budgets through electronic voting machines or computers with internet access. In some Portuguese cities, in addition to online voting, the Government has made available public spots in which participants can vote or even submit written suggestions on e-participatory budgets. There were cases where citizens were encouraged to make suggestions online and then participate in person for the final discussions.

Another example of e-participation is the “Fix my Street” solution built by several municipalities around the world to encourage the active participation of citizens in solving problems in the streets of their city. Through the application, citizens can report a problem related to a street or place, by marking a coordinate on the map and writing a message describing the issue. Feedback is then automatically sent with the associated geocoordinates.

Sources: Åström and Grönlund, 2012; Macintosh and Whyte, 2008; Sampaio, 2016.

DEVELOPMENT PARTNER SUPPORT TO USE CASE SYSTEMS

85. There is a high level of duplication in donor-supported reforms and activities in the digital governance space. This exacerbates the problem of system siloization, discourages institutional coordination, and increases risks of duplication of efforts. While there are relatively few large development partners supporting the space—besides

the World Bank, International Monetary Fund, UNDP, and European Union—duplications (for instance, within human resource management) are present. The World Bank is preparing a follow-up public sector modernization project⁴⁸ that supports digitization of several core Government back-end systems (see Box 11).

⁴⁸ The Public Sector Strengthening Project II, P176383



Box 11: Public Sector Platforms Supported through Public Sector Strengthening Project I and II

Public Sector Strengthening Project I – this project (2015-2020) supported the following core government back-end systems:

- Improved tax information system that allowed for interfacing with the Treasury
- Greater interconnection of national information systems of DGCT, DGC, DGTPA, DGTCC, and DGFE
- Extended ASYCUDA to new delegations to increase customs declarations
- Upgraded the Debt Management and Financial Analysis System
- Undertook a diagnostic of SIGFIP to inform future reforms

Public Sector Strengthening Project II – this pipeline project aims to support the following core government back-end systems:

- Support the acquisition and implementation of a core treasury banking system to centralize the processing of transactions and operate the newly established treasury single account with the objective of strengthening control over public expenditure
- Develop and roll out an HRMIS to improve systems and processes for human resource management, wage bill, and pension management with the objective of better managing the public sector and controlling the wage bill
- Finance analytical studies on (i) the development of an e-Government Interoperability Framework and Platform to support the development and implementation of open standards with the objective of laying the foundation for more robust digital governance and (ii) the physical infrastructure needed to support the introduction of IT solutions given Guinea-Bissau's fragile context.

Interoperability Layers, Data Management, Data Sharing, And Secure Access

86. Digital public platforms in Guinea-Bissau are generally not interoperable. The GoGB does not possess a national interoperability framework and public sector systems are generally not interoperable. Box 12 details the principle of interoperability and the experience to date of interoperability frameworks in

Cape Verde and Mozambique. As mentioned in Box 6, above, the World Bank is preparing to finance a study on the feasibility of an interoperability framework and policy; if successful, the project activity could be expanded to include development of technical specifications and acquisition of a platform.

Box 12: Interoperability Platforms in Cape Verde and Mozambique

Interoperability across digital public systems is key to improving government efficiency, transparency, accountability, and coordination of services at lower costs. It is also key to guaranteeing a citizen-centric approach to reducing the administrative burden that citizens face in accessing public services, as it allows for the re-use and exchange of data, information, and knowledge across agencies. Underpinning interoperability is an interoperability framework, which specifies a set of common, government-wide principles, standards, and practices that all agencies should adopt and utilize for the purposes of joint delivery of public services. Such a framework consists of four layers: legal, organizational, semantic, and technical interoperability.

Several countries have defined their interoperability framework as a first step towards the “once-only principle” (an e-government concept that integrates both data protection regulations and users’ consent to reduce the administrative burden for citizens and businesses), and offering integrated public service governance to ensure usability, security, privacy, and performance. However, transforming the principle into reality is difficult and lengthy, requiring the definition and operationalization of the legal, organizational, semantic, and technical aspects of interoperability.

Cape Verde has implemented an interoperability framework that is continually evolving to promote flexible integration of all stakeholders, enhance the country’s digital marketplace, and thereby improve digital trust and trust in transactions between government, businesses, and citizens.

Mozambique has managed to establish legal instruments that favor interoperability, among them the eGovernment Interoperability Framework, the principles of organization and functioning of the public administration, the Electronic Government legislation, and various public administration reforms. Nevertheless, despite the opportunities provided by such revisions to the country’s legal framework, interoperability is still incipient and most critical government systems do not interoperate, including within the same government agency.

Source: Lisboa and Soares, 2014; European Commission, 2017; EU, 2016.

87. Guinea-Bissau lacks a comprehensive vision and policy on platform and data sharing and the management of data and data infrastructure. The country still lacks a common data framework and data sharing protocols. Shared platforms help remove duplication of resources, and redundancy of cost and effort, across disparate parts of the government. The government local area network does not extend to all central ministries and its infrastructure is largely obsolete, forcing government entities to

procure their own connectivity; most entities do not possess sufficient computing equipment to fully undertake digital processes. ITMA has developed plans for a Center for IT Innovation—which would include a government data center (the country does not currently have one), a network operation center, and a security operation center—although it is not clear that there are resources to fund this. This would include a tier III data center to provide Infrastructure as a Service⁴⁹ and Platforms as a

⁴⁹ IaaS is a cloud-computing service that offers essential computing, storage, and networking resources on a pay-as-you-go basis.



Service⁵⁰ to all manner of software applications for the entire government, ensuring flexibility, agility, security, interoperability, and performance, in a cost-effective manner. This vision for a cloud-like, on-premises data center may be overambitious, however, given the country's existing infrastructure

challenges. Additionally, the costs and complexity of building such infrastructure and the risks of it becoming obsolete before starting to provide the expected benefits are extremely high. Box 13 details the objectives of data centers based on the cases of Cape Verde and Sierra Leone.

Box 13: Government Data Centers in Cape Verde and Sierra Leone

Data centers are facilities that house core IT and computing services and infrastructure. Without a shared government data center, public sector entities adopt siloed approaches and develop their own individual data centers. This leads to duplication of investments, security concerns, and increased maintenance costs; it also creates additional challenges in terms of cybersecurity and interoperability. By sharing IT operations, equipment, applications, and data, data centers help governments reduce costs, increase operational efficiencies, and more effectively deliver services to their constituents.

In 2015, Cape Verde inaugurated its new Government Data Center, which is part of the digital transformation initiative started in 2001 to make the country a regional and even international reference for innovative fields, including digital finance, distance higher education, and research and development of IT and other ICT solutions. It is the central nerve for all government communication, the e-governance platform, and public administration services, as well as a place to safely store and process government data.

This has been costly, however, and required an enabling environment including high public sector digital skills. Implementation of a tier 3 or 4 data center in Guinea-Bissau would be challenging due to the significant economic, energy, and technical constraints. They require a significant investment for the center itself as well as high capacity for the redundant Disaster Recovery. Additionally, a data center of this complexity requires substantial energy power for cooling and functioning, which is very challenging given the country's constraints in supplying clean and reliable energy. Finally, the maintenance of a tier-4 data center requires technical expertise that is almost inexistent in the country, increasing the maintenance and total cost of ownership costs.

One approach that other governments have taken is to rely solely on cloud computing or a combination of on-premises infrastructure with cloud solutions. More modest investments in infrastructure, which focus first and foremost on hosting the government's mission-critical systems and applications, are important, as they could then be scalable and follow a phased approach. This was the case for Sierra Leone, which adopted an incremental, planned approach to the development of a whole-of-government digital ecosystem.

⁵⁰ PaaS is a complete, cloud-based development and deployment environment with resources that enable the delivery of everything from simple cloud-based apps to sophisticated, cloud-enabled enterprise applications.

Summary Of Constraints To Digital Platforms Development

Constraint 1: Institutional and Leadership

GoGB has no established, central agency capable of leading digital transformation reforms and initiatives and there is also no digital strategy setting forth objectives, goals, indicators, and metrics.

Constraint 2: Insufficient Legal and Policy Framework

Critical policies and laws (i.e., on data protection, data interoperability and sharing frameworks, data privacy, cybersecurity, and access to information) are missing or outdated.

Constraint 3: No digital transformation strategy

While the country's national development plans stress the importance of the ICT sector, there is no digital transformation strategy guiding its development.

Constraint 4: Lack of interoperability

There is no national interoperability framework, and, with few exceptions, digital platforms do not communicate with each other. Likewise, there is no enterprise architecture to underpin interoperability.

Constraint 5: No shared infrastructure or data

No shared platforms exist to host government systems nor is data shared or reused. The government does not possess a data center to enable the digital transformation of the public sector and optimize the interoperability of government information systems.

Constraint 6: No foundations for digital identity

The emergence of digital identity is hampered by the lack of a structured foundational identity system or an operational trust framework for e-authentication.

Constraint 7: Limited public sector digital and data skills

Digital and data literacy and IT skills are exceedingly low within the public sector, limiting the adoption, use, and sustainability of existing and future public platforms. Many systems rely on foreign firms, including for simple maintenance and upgrades.



DIGITAL PUBLIC PLATFORM RECOMMENDATIONS

Short Term (by 2023)

- Build **institutional leadership and coordination** to spearhead necessary measures, including development of sector strategy, preparation for the undertaking of legal and policy reforms, and development and enforcement common IT standards.
- Develop a countrywide, **digital transformation strategy** with a whole-of-government and citizen-centric approach with an eye towards harmonizing existing and pipeline initiatives.
- Reinforce the supremacy and **use of SIGFIP** by rolling out the system to more budgeting entities, issuing a circular requiring its use for budget preparation and execution, and boosting IT support and change management to ensure proper usage.

Medium Term (by 2025)

- Implement a countrywide, **digital transformation strategy** with a whole-of-government and citizen-centric approach with an eye towards harmonizing existing and pipeline initiatives.
- Undertake a gap analysis to determine the gaps in the **country's legal and regulatory framework** as it pertains to digital transformation including consumer protections laws, e-payments/e-transactions, and cybersecurity.
- Modernize and **reform the sector's legal and regulatory framework** based on the findings and recommendations of the gap analysis including, critically, regulations on personal data protection, e-payments/transactions, and cybersecurity.
- Pilot and develop an **interoperability framework and enterprise architecture** for existing and future digital platforms. Critically, this should include increasing the interoperability of SIGFIP with other

digital public platforms.

- Develop a **government data center** and basic shared services and that is scalable to accommodate future needs of the public sector leveraging the private sector. Shared platforms for repetitive functionalities (such as reporting, archiving, document management, authentication, etc.) can remove duplication of resources and redundancy of cost and effort across the government.
- Develop and implement an **electronic civil registration system** and review the civil identification service provider contract to ensure ownership of the data.
- Broaden access to and fluency with digital technology for public sector employees and citizens in general by developing and implementing sustainable ways to **boost digital skills**.

Long Term (by 2028)

- Strengthening institutional and operational capacities of civil registration and civil identification systems, including the cooperation between them, and eliminate barriers and costs to boost the population's **access to civil registration and civil identification services**, especially in rural areas.
- Develop **civic tech principles and initiatives to boost citizen/government interaction** (including the private sector) to enhance transparency and accountability of public services as GoGB moves to make them digitally accessible. To this end, digitizing and making more government data (particularly procurement and fiscal data) available online and in open format should be pursued.
- Build platforms for electronic authentication and digital signature services, anchored within the civil identification system, to **enable digital identification**.



3. DIGITAL FINANCIAL SERVICES

PHOTO CREDIT: CHERIF TOURÉ



IMPORTANCE

88. Digital Financial Services (DFS) cover a wide array of financial products and services delivered using a digital technology such as a mobile phone or a computer.

These include Person to Person (P2P) transfers, payments, savings, credits, insurances, remittances, and investments. Beyond mobile phones and computers, DFS channels also include Point-of-Sales terminals for credit and debit cards and quick response codes or other types of payments using a code. The rapid pace of innovation in the sector has led to a distinction between the first generation of DFS, which includes peer-to-peer transfers, airtime purchases, bill payments and cash-in and cash-out transactions,

and the second generation of DFS, notably composed of microcredits and microinsurance products, loan repayments, merchant payments, push (to bank)/pull (from bank) transfers and international remittances. In addition, DFS cover both traditional instruments (such as debit and credit cards) mostly offered by banks, as well as relatively new products and services leveraging on cloud computing, digital platforms, and distributed ledger technologies (blockchain). The advent of mobile payments, crypto-assets, and P2P applications are only a few examples of the latest developments in the field. The most popular type of DFS is mobile money, which is different from mobile banking (Box 14).

Box 14: Mobile Money vs. Mobile Banking

The digital finance ecosystem remains in constant evolution especially due to the activities of industry players such as mobile network operators and Financial Technology companies (FinTechs) testing new business models and building partnerships to develop innovative products and services. As per the IMF's Financial Access Survey, "mobile money is a pay-as-you-go digital medium of exchange and store of value using mobile money accounts, facilitated by a network of mobile money agents. It is a financial service offered to its clients by a mobile network operator or another entity that partners with mobile network operators, independent of the traditional banking network."

Mobile money is therefore different than mobile banking, which corresponds to "the use of an application on a mobile device to access and execute banking services, such as check deposits, balance inquiry, and payment transfers."

Source: IMF Financial Access Survey.

89. DFS act as a catalyst for financial inclusion. In a world increasingly shaped by digital technologies, digital finance offers the possibility to bring underserved communities and the unbanked to the formal financial system. DFS also have the potential to address common demand-side barriers such as irregular and low-income levels, the absence of formal means of identification, the lack of trust in the formal financial system, and geographical and literacy-related barriers. The outbreak of the Covid-19 pandemic has played a critical role in the acceleration of the digital transformation of financial services and led to a surge

in the use of DFS. According to the Global System for Mobile Communications, in 2020, the number of registered mobile money accounts worldwide increased by 12.7 percent to 1.21 billion accounts, which was twice the forecasted growth rate (GSMA, 2021). In addition, for the first time, the value of daily mobile money transactions alone surpassed US\$2 billion dollars globally and is forecasted to exceed US\$3 billion a day by the end of 2022 (GSMA, 2021). Overall, mobile money has proven more transformative than mobile banking over the past decades, especially due to its higher impact on financial inclusion. Before the

outbreak of the Covid-19 pandemic, two use-cases for DFS beyond mobile money were particularly beneficial for the poor: remittances and Government-to-Person payments. Cross-border remittances, which have grown steadily throughout the WAEMU region over the past three years and have become the biggest source of digital recharge for mobile wallets (Gueye, 2022), had even been projected to exceed USD \$600 billion—more than all FDI and ODA combined—by 2021. The average global cost for a cash transfer of these funds is 6.8 percent while a fully digital transaction would reduce the cost to 3.3 percent (World Bank, 2020).

90. DFS offer the opportunity to reduce transactional costs and increase the efficiency and quality of formal financial services for communities untapped by the existing banking system. The added value of DFS lies in their ability for users—particularly financially excluded and underserved populations (including women)—to top digital technologies to lower operating and transaction costs while generating productivity gains. Empowered by digital technologies, individuals can leverage digital channels to save, transfer, receive or borrow money, pay utility bills, and school fees as

well as collect their wages in a cost-effective manner. Being more efficient and safer than cash, digital financial transactions also reduce the need for face-to-face interactions—a key added value, especially in the context of the COVID-19 pandemic. Altogether, efficiency gains generated from the use of DFS can contribute to an increase in earning capacity by enabling individuals to better handle their revenue streams and to improve their investments in areas such as education, health, and housing. Another benefit of DFS for individuals is the increased capacity to prove resilient to external shocks (such as disease, job loss, or weak harvests) through, for example, basic savings, insurance products, international remittances, and loans.

91. From a private sector development perspective, firms, especially MSMEs, can leverage DFS to facilitate transactions with their customers and suppliers. They also have the possibility to simplify the establishment of a credit history and to enhance the ability to ask for a loan. A growing body of literature is quantifying how electronic government payments can reduce corruption, reduce crime, decrease operating costs, and lower transport-related costs of recipients.⁵¹

⁵¹ In India, leakage was estimated to fall by almost 13 percentage points in response to the introduction of a biometric smartcard to facilitate government transfer to beneficiaries. See Muralidharan et al. (2014). In the United States, the overall crime rate fell by over 9 percent in response to an electronic benefit transfer program. Wright et al. (2017).



DIAGNOSTIC FINDINGS: CURRENT STATE OF DFS

92. Despite the recent uptake of DFS in the country, and the WAEMU-wide prioritization of the digitalization of financial services, Guinea-Bissau's adoption of DFS as a national policy priority remains long overdue. As mentioned earlier, while Terra Ranka had a central focus on boosting digital services as a catalyst for economic growth and sustainable development, the 2020-2023 National Development Plan places significantly less focus on the digital economy. Yet, digital finance constitutes a key opportunity to reach the close to 43 percent of Bissau-Guineans currently financially excluded from the formal financial system.⁵² Guinea-Bissau boasts a relatively high number of mobile cellular telephone

subscriptions (97 per 100 people in Guinea Bissau) compared to peers in SSA, which puts the country in a sound position to rapidly scale mobile money services.⁵³ In this context, MoF launched an initiative to develop a national financial inclusion strategy. The MoF intends to gather key stakeholders of the Bissau-Guinean financial ecosystem (Box 15) in order to shape the vision and a robust action plan to close the financial access gap in the country by the end of the year 2022. The long-awaited definition of a national financial inclusion strategy comes over five years after the adoption, in 2016, of the regional financial inclusion strategy designed by the regional financial regulator, the Central Bank of West African States (BCEAO).⁵⁴

Box 15: Overview of the financial sector in Guinea-Bissau

Guinea-Bissau's financial sector is dominated by the country's six traditional banks and the two mobile network operators providing mobile money services. Additional stakeholders in the sector include three insurance companies and the national social security institute:

- **Banks:** As of December 2020, five traditional banks were operating in Guinea Bissau - Banco Da União, Ecobank Guinée-Bissau, Banco da Africa Ocidental and two subsidiaries (Orabank Côte d'Ivoire/Subsidiary in Guinée-Bissau and Banque Atlantique Côte d'Ivoire/Subsidiary in Guinea-Bissau). A sixth bank, Coris Bank International, began operations in Guinea-Bissau in March 2022.
- **Mobile-Network Operators:** Two mobile network operators provide mobile money services in Guinea-Bissau thanks to a partnership with a bank. MTN partnered with Banco da África Ocidental to launch 'Mobile Money' while Orange Bissau teamed up with Ecobank to launch 'Orange Money.'
- **Insurance companies:** Three insurance companies are active in Guinea-Bissau.
- **National social security institute:** The national social security institute is the entity responsible for pension management.
- **Microfinance institutions (MFIs):** There are officially six licensed microfinance institutions in Guinea-Bissau.
- **FinTechs:** The Fintech industry remains at a nascent development stage in Guinea-Bissau. Only a handful of startups in the financial technology field have launched operations in the country.

⁵² BCEAO, evolution of financial inclusion monitoring indicators in West African Economic and Monetary Union (WAEMU) for the year 2020, November 2021

⁵³ International Telecommunication Union (ITU) World Telecommunication/ICT Indicators Database.

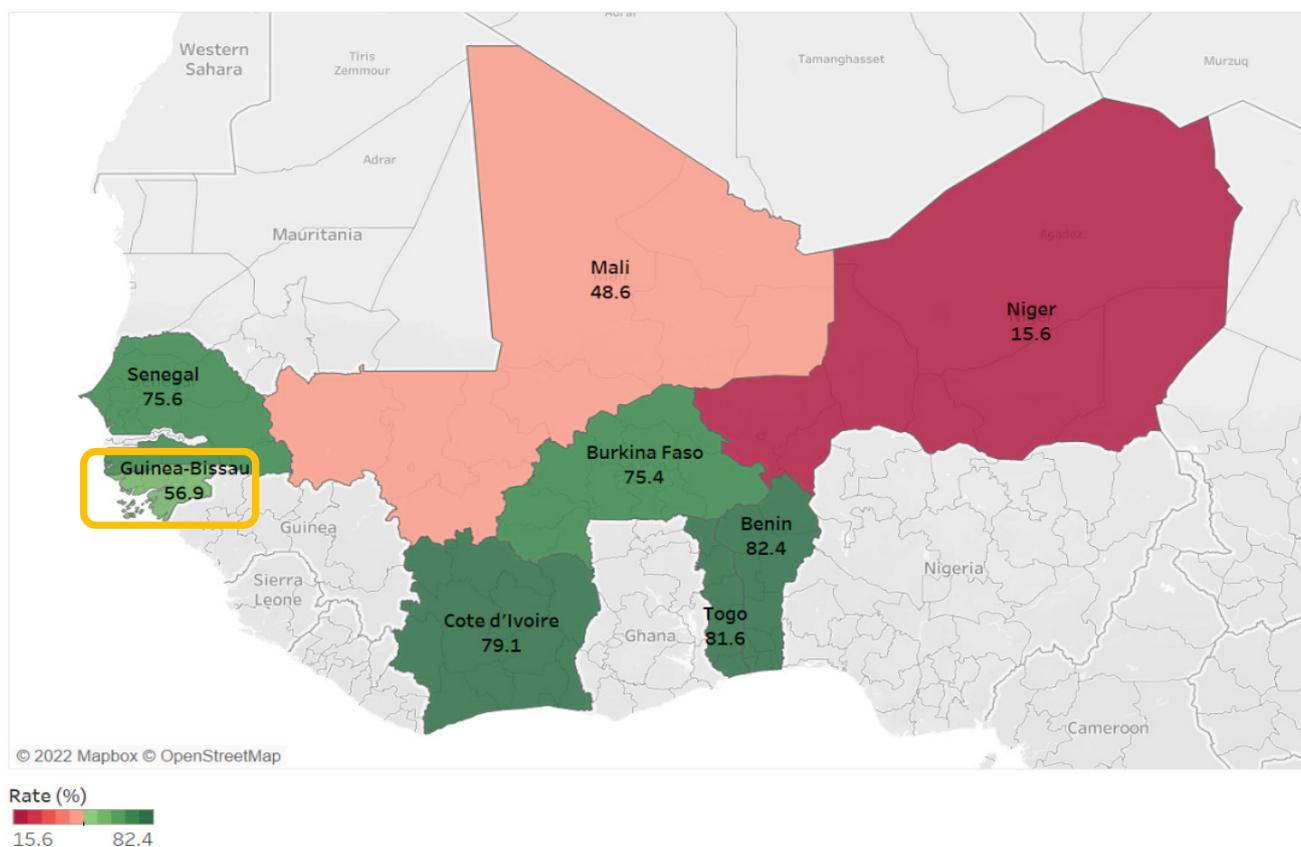
⁵⁴ BCEAO is the central bank of the eight countries (Benin, Burkina Faso, Ivory Coast, Guinea Bissau, Mali, Niger, Senegal, and Togo) of WAEMU.

Access To Digital Financial Services

93. Access to formal financial services in Guinea-Bissau has taken a great leap forward over the past several years, but geographic penetration remains weak. From 2019 and 2020, the country recorded the highest financial inclusion rate growth within WAEMU, of 20 percentage points. This has brought Guinea-Bissau's financial inclusion rate (global usage rate of financial services) to 56.9 percent in 2020, according to BCEAO figures, not far below the WAEMU average of 63.8 percent. However, Guinea-Bissau still lags all WAEMU countries except Mali and Niger (Figure 29). The overall encouraging performance was mainly driven by the boom of the mobile money industry in Guinea-Bissau over the past couple of years as well as the intensive adoption

and use of DFS during the Covid-19 pandemic (detailed below). However, in terms of geographic penetration, with only seven agents (distribution points of financial services) per 1,000 km² in 2020, the country recorded the lowest rate in WAEMU (BCEAO, 2021). Overall, the country accounted for 14,288 distribution points of financial services (ATMs, distributors, and sub-distributors) in 2020 (with only 44.2 percent of distribution points active). This is troubling from an equity perspective, as many of the country's most vulnerable populations live in rural and remote areas. Furthermore, frequent service disruptions negatively impact the customer experience of DFS users and add to a legacy of mistrust in ISPs as well as mobile network operators.

Figure 29: Financial inclusion rates in the West African Economic and Monetary Union



Source: BCEAO data, OpenStreetMap.



94. **Limited access to electricity hampers greater adoption of DFS.** In Guinea Bissau several communities, especially vulnerable groups (such as women, rural dwellers, and young people), do not have access to electricity to power digital financial tools (such as mobile phones). New business models enabled by digital finance, such as “pay-as-you-go energy” to finance off-grid energy, can play a huge role in expanding access to electricity for low-income populations, especially in rural areas (where, as mentioned in the Digital Infrastructure chapter, the electrification rate is 15 percent). At the same time, it also provides an opportunity to accelerate the adoption of DFS by incorporating other value-added services like insurance services as well as access to

farming and weather data.

95. **There is no national financial education strategy and, subsequently, no financial education programs in Guinea-Bissau.** Financial illiteracy (and digital illiteracy—detailed in the Digital Skills chapter) coupled with the perceived unaffordability of financial services and the lack of trust in the formal financial system are key interrelated barriers to the use of DFS, particularly among women and low-income Bissau-Guineans. Neither specialized training institutes nor financial service providers offer basic financial education courses in the country. In this context, the prevalence of a cash culture inhibits the demand for DFS.

Banking Sector

96. **Guinea-Bissau’s banking sector remains underdeveloped compared to the rest of the WAEMU region, with limited services offered outside of Bissau.** Guinea-Bissau continues to have one of the lowest strict and extended bank penetration rates in the world: 17.5 percent and 18.7 percent respectively, as per 2020 figures. In 2020, Guinea Bissau accounted for only 0.7 percent of total assets in WAEMU (WAEMU, 2020). The concentration of credit within the banking sector is also

high in Guinea-Bissau (the highest in WAEMU). In terms of outreach, banks are predominantly operating from the capital city, while rural areas are left underserved. The scarcity of bank facilities in the country—42 bank branches and 74 automated teller machines (ATMs)—continues to undermine the ability to meet the local demand for formal financial services (Table 8; WAEMU, 2020). Just 6.1 ATMs and 4.1 bank branches were available per 100,000 adults in 2020 (IMF, 2021a).

Table 8: Overview of the banking sector in West African Economic and Monetary Union

	Number		Total	Balance Sheet Total (Billions of XOF)	Market share (%)	Number			
	Banks	Financial Institutions				Branches	ATMs	Bank accounts	Bank staff
Benin	14	1	15	4 828.1	10.1	227	348	2273.09	3009
Burkina	15	4	19	6 725.3	14.1	323	526	2256.61	3.72
Cote d'Ivoire	28	2	30	15 935.2	33.4	736	1.13	4599.90	9.71
Guinea-Bissau	5	-	5	342.6	0.7	42	74	178.08	558.0
Mali	14	3	17	5 629.6	11.8	490	527	1942.26	3.56
Niger	14	3	17	2 017.1	4.2	1.16	185	818.11	3.73
Senegal	25	4	29	8 785.5	18.4	525	643	2167.63	6.22
Togo	13	3	16	3 457.0	7.3	260	240	1178.59	2.16
WAEMU	128	20	148	47 720.4	100	3.76	3.7	15414.25	32.66

Source: WAEMU (2020).

97. The microfinance sector is a dire state in Guinea-Bissau, although the pending creation of a reference microfinance institution should boost the sector's growth. From 2010 to 2020, the utilization rate of microfinance services in Guinea-Bissau stagnated at around 1 percent of the population aged over 15 (compared to 21 percent at WAEMU level in 2020; BCEAO, 2021). Over the same period, the geographic penetration rate of microfinance services declined slightly: from 0.4 microfinance service points per 1,000 km² in 2010 to 0.2 in 2020 (compared to 1.3 at the WAEMU level). Prior to 2018, Guinea Bissau accounted for 18 MFIs even though the vast majority of MFIs were not operating and none of them were falling within the scope of article 44 of the law regulating decentralized financial systems in WAEMU. In 2017, the regulator withdrew the license of 12 MFIs which

had not been operating over the past 12 months (in accordance with article 37 of the law regulating decentralized financial systems in WAEMU). Overall, despite several attempts at developing the sector, the microfinance market remains embryonic and beset by various inefficiencies (such as capacity constraints, limited institutional and administrative capacity, lack of availability of experienced staff and an unfavorable business environment). In this respect, there is no microfinance culture in Guinea-Bissau unlike in neighboring countries such as Senegal. Bissau-Guineans public authorities are collaborating with the European Union to launch a process to create a reference microfinance institution.⁵⁵ Were one to be established, such an institution would have a significant impact on digital financial inclusion, given the potential for development of the untapped sector.

⁵⁵ European Union/Guinea Bissau, Multiannual Indicative Program 2021-2027.

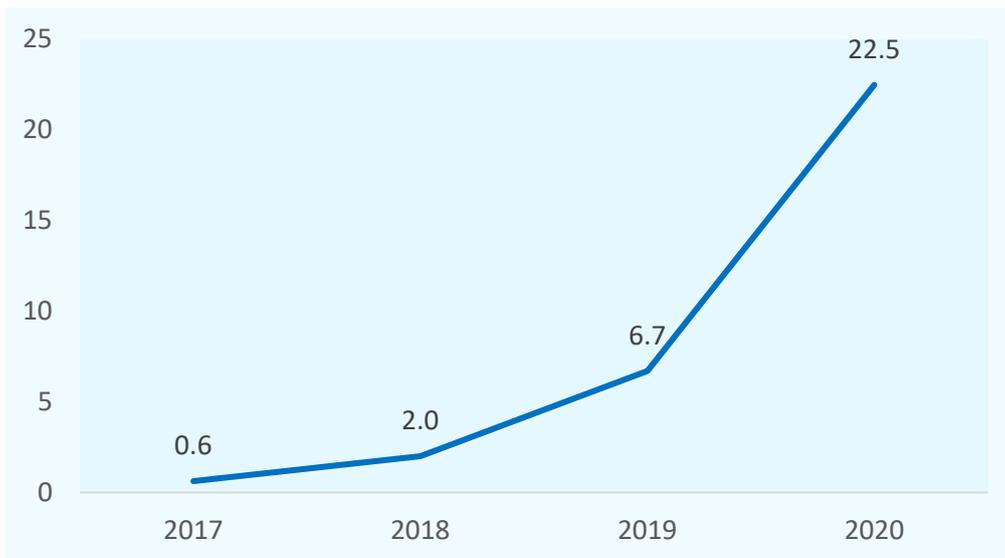


MOBILE MONEY INDUSTRY

98. Introduced in Guinea-Bissau in 2014, the mobile money sector has skyrocketed recently due in part to temporary measures taken by BCEAO to loosen regulations across WAEMU in the face of the COVID-19 pandemic. In response to the need for social distancing and public health, BCEAO temporarily eased restrictions relating to the opening of accounts.⁵⁶ Consequently, the country’s two main mobile network operators automatically opened so-called ‘light’ e-money accounts (capped at XOF200,000; US\$321) to all SIM-card holders. By end December 2020, Guinea-Bissau’s two mobile money providers together counted 1.7 million electronic money

accounts in a country whose population is just shy of 2 million, signifying a year-on-year increase of almost 80 percent. The mobile money activity rate grew at 77 percent in 2020, compared to 51 percent in 2019. In terms of transactions, 22.47 million mobile money operations were registered in 2020 (corresponding to a total value of XOF146 billion; US\$234.5M) which represented a 235 percent growth in volume and a 181 percent increase in value (Figure 30). Overall, the value of mobile money transactions grew in prominence over the past few years, reaching 6.9 per cent of the GDP in 2020, against 0.4 percent of the GDP in 2017 (IMF, 2021a).

Figure 30: Growth of mobile money transactions in Guinea-Bissau (in millions)



Source: BCEAO, evolution of financial inclusion monitoring indicators in WAEMU for the year 2020, November 2021

99. Despite the rapid expansion of mobile money, financial access is still a problem for vulnerable populations, particularly women and rural dwellers. Over the past two years, mobile network operators invested considerably in the development of their distribution networks and strived to expand to

remote areas over this period, as reflected by the 126 percent growth in mobile money distribution points. Regardless, exclusion remains a problem. Liquidity management remains a critical challenge for mobile money agents, especially in rural areas (notably due to poor infrastructure conditions such as roads and

⁵⁶ Bissau-Guinean authorities imposed strict Covid-19 lockdown measures and closed the borders in 2020. Health and safety requirements coupled with eased regulatory restrictions therefore proved conducive to the development of the mobile money market, as many Bissau Guineans turned to mobile money as a means for handling their finances while respecting social distancing measures related to the pandemic.

electricity supply). From a geographic standpoint, the number of registered mobile money agent outlets per 1,000 km² took a leap forward and stood at 363.1 in 2020 compared to 11.7 in 2016 (IMF, 2021a). Nevertheless, according to BCEAO, only 44.2 percent of distribution points were active in Guinea Bissau in 2020, compared to 56.6 percent at WAEMU level, thus

Use Of Digital Financial Services

100. Most banks active in Guinea-Bissau now offer mobile banking solutions, which, given the geographic distribution of the country's vulnerable populations, has the potential to expand financial access to the unbanked. Fully aware of the need to increase proximity with clients and increase their customer outreach, Guinea-Bissau's active banks have all started to follow the global digitalization trend. Banks and bank subsidiaries have mostly implemented digital transformation-related solutions created at their Group (i.e., regional) level. From a bank perspective, digital transformation is one way of enhancing the customer experience by allowing for online execution of financial transactions and operations, resulting in time and transport costs savings. It is also important for banks' bottom line, as mobile banking diminishes the need to open new branches and reduces congestion in existing offices. This can lead to significant efficiency gains, given the high costs and relatively low returns associated with opening brick-and-mortar institutions in remote areas of the country, as well as longer term costs of hiring, training, and retaining employees at bank branches. In these ways, digital banking can be seen as an opportunity to provide cost-effective and affordable formal financial services to the unbanked

diminishing the impact of the increase in points.⁵⁷ BCEAO does not report sex-disaggregated data on the number of e-money account holders and Guinea-Bissau is the only WAEMU country which does not have available Findex data, complicating a clear picture of the gender gap in terms of mobile money access and usage.

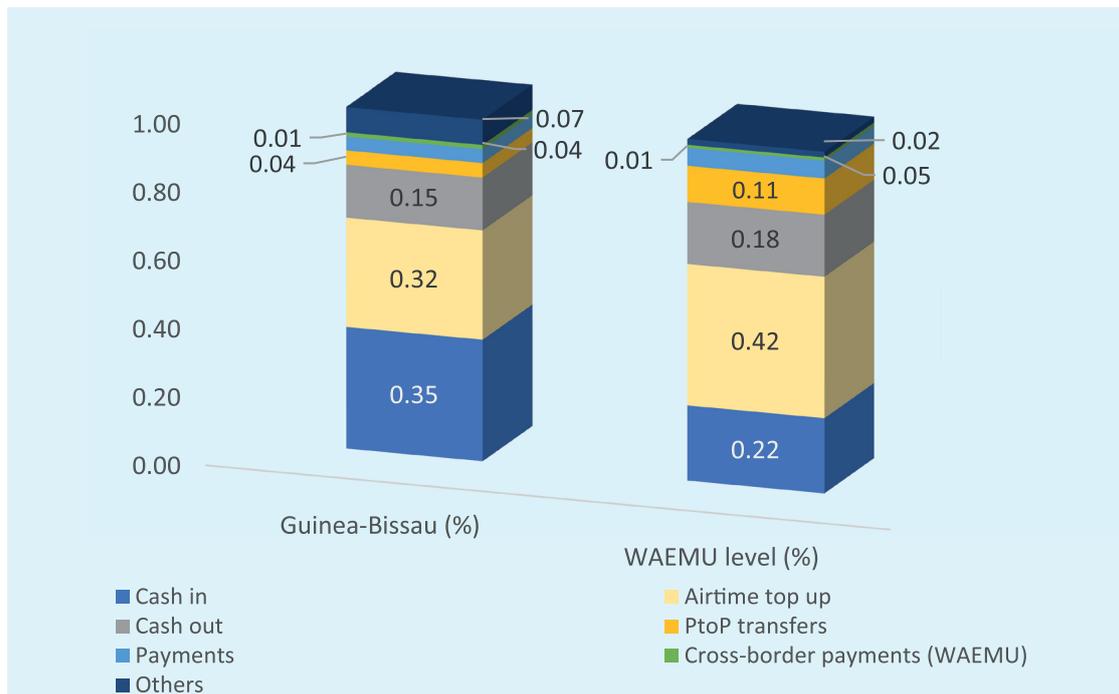
and low-income population groups to consequently extend banks' customer base.

101. To date, the use of DFS in Guinea-Bissau is predominantly limited to first-generation mobile money services. Mobile network operators active in Guinea-Bissau provide traditional mobile money services such as cash in/out, P2P transfers, bill payments, and salary disbursements (Figure 31). In terms of transactions, out of the 22.47 million mobile money operations recorded in 2020, the main transaction category was cash-in (36 percent), followed by airtime top up (32 percent), cash-out (15 percent), peer-to-peer transfers (4 percent), payments (4 percent), and (intra-WAEMU) cross-border transfers (1 percent; BCEAO, 2021). Cash-in/Cash-out makes up over half of digital finance transactions in volume in Guinea-Bissau (compared to about 40 percent at WAEMU level), a result of the lack of maturity of the country's DFS ecosystem. It also reflects the fact that most income and expense-related transactions are not yet digitized and suggests that a significant share of the population continues to save through informal channels (as opposed to formal financial accounts).

⁵⁷ According to BCEAO, active distribution points correspond to distribution points having recorded at least one transaction during the last 90 days.



Figure 31: Composition of e-money transactions in Guinea-Bissau vs WAEMU (2020)



Source: BCEAO, 2021.

102. The limited suite of e-banking services offered by banks in Guinea-Bissau is mainly due to the focus on the development of the first generation of (basic) DFS. E-banking services currently offered include instant access to accounts to check balances and recent transactions, the ability to make payments and wire transfers online (usually at the national level, within WAEMU, and within the global bank network), and e-messages to contact bank officers or to file claims. Mobile banking also allows customers to receive documents such as bank statements, which was otherwise exceedingly difficult due to the lack of a formal street address system in Guinea-Bissau. Bissau Guinean banks also offer debit and pre-paid cards—either VISA or GIM⁵⁸ and are accepted globally. In October 2020, a partnership between Orange Bissau and Banco da União resulted in the launch of bank-to-wallet/wallet-to-bank services. Overall, as of March

2022, out of the five traditional banks active in the country, four—Ecobank, BDU, Orabank, and Banque Atlantique—had launched a partnership with at least one mobile network operator to develop bank-to-wallet/wallet-to-bank services. Other partnerships between banks and money transfer agencies such as MoneyGram or Western Union already exist and enable bank customers to perform online international wire transfers. Going forward, banks have expressed interest in developing more advanced digital banking solutions such as digital credit and remote account opening through e-know your customer (KYC). They are also considering fintech partnerships, particularly to develop new capabilities such as using alternative data sources for credit scoring. However, these advanced e-banking products and services are not yet available, mainly due to the banks’ focus on the development and consolidation of the use of basic DFS.

⁵⁸ GIM-UEMOA is the interbank card switching and clearing system of WAEMU.

103. Despite an urgent need for increased access to finance, Guinea-Bissau's growth in digital lending is hampered by the lack of a clear regulatory framework on digital credits, the limited scope of the regional credit bureau, and the inexistence of a national framework on the certification of e-signatures. Access to credit is scarce in Guinea-Bissau. In 2020, outstanding loans from commercial banks were just shy of 17.1 percent of GDP, compared to 36.6 percent in neighboring Senegal. This is problematic, as access to credit for small borrowers is key for low-income individuals to tackle the volatility of their finances over time and for MSMEs to grow their businesses. Digital lending and the corresponding use of alternative data sources for credit scoring has proved essential in enhancing access to finance for low-income segments of the population as well as MSMEs. Moreover, research shows that "marketplace lending to consumers grows in countries where financial depth declines highlighting the role of fintech credit in filling the credit gap by traditional

lenders. This result is particularly strong in low-income countries" (IMF, 2020). Three key barriers to expanding access to credit in Guinea-Bissau are (i) the lack of a clear regulatory framework on digital credit, (ii) the limited scope of the regional credit bureau (BIC-UEMOA), which is particularly detrimental in a country such as Guinea-Bissau in which potential borrowers lack documentation and credit history; and (iii) the lack of a national regulatory framework governing the acceptance and certification of e-signatures. Despite the publication of regional instruction on the procedure to grant an accreditation to providers of electronic certification services in Payment Systems,⁵⁹ in Guinea-Bissau, the telecom regulator (ARN) also acts as the regulator of the ICT sector but does not act as the certification authority, nor does it have the capacity to license e-signature providers. Lastly, there still are no licensed providers of e-signatures in Guinea Bissau. ARN has plans to launch an official process to design a law on electronic transactions.

DIGITAL PAYMENTS

104. Use of digital payment services is gradually rising and demand is increasing, but the number and volume of transactions remains small from a regional perspective. As of December 2020, out of the 304 merchants registered to carry out payment transactions in Guinea-Bissau, only 14 (4.6 percent) were actively recording transactions over the past three months (BCEAO, 2021). In the same vein, just two merchants were registered to accept e-money for transactions such as payment of utility bills, school fees, or TV channel subscriptions, while only one accepted mobile payment using an e-payment terminal (no data were available on merchants accepting online payments). Moreover, e-payments in Guinea-Bissau are generally of smaller amounts

than those within WAEMU: at end December 2020, the average value of an e-payment in Guinea-Bissau was XOF4,988 (US\$8), compared to XOF21,345 (around US\$34) within WAEMU (BCEAO, 2021). The share of e-payments for all total transactions (in volume) is also slightly higher within WAEMU compared to Guinea-Bissau: 5.2 percent vs. 4.0 percent, respectively. DFS are not yet considered necessary for doing business in Guinea-Bissau, according to a UNDP survey of the private sector (UNDP, 2021a). A few surveyed firms appreciated the reduction in time and costs afforded by mobile money services; however, overall findings revealed that cash remains the most frequently used form of payments for e-commerce transactions, despite

⁵⁹ Instruction N°141-04-07 du 30 avril 2007 relative à la procédure d'accréditation des organismes de qualification et à la procédure d'évaluation et de qualification des prestataires de services de certification électronique dans les Systèmes de Paiements: https://www.bceao.int/sites/default/files/2017-11/5-Instruction_N_o_141_-_04_-_07_du_30_avril_2007.pdf



the recent development of the mobile money market. That being said, demand could easily outstrip supply, as the development of a robust ecosystem for digital payments is lacking and hindering their mass adoption.

105. While it does not have a comprehensive strategy guiding it, GoGB is piloting the digitalization of government payments. The roadmap for e-governance designed by UNDP in collaboration with UNU in 2021 (as detailed in the Digital Public Platforms chapter) calls for the digitalization of government payments; however, to date, GoGB efforts to develop a comprehensive and government-wide strategy are yet to materialize. The public administration has leveraged the expansion of mobile money services during the pandemic to start paying the salaries of some employees using mobile payments. Guinea-Bissau's COVID-19 High Commission⁶⁰ was one of the first entities transitioning to digital government payments, for example. In the same vein, development partners active in the country such as the Food and Agriculture Organization of the United Nations and NGOs such as Plan International are also using mobile money services provided by local mobile network operators to provide mass payments (i.e., mobile money bulk payments) for staff. In this context, the use of DFS by government entities is gaining traction and they are taking it upon themselves to unilaterally digitize their payments and services. Nevertheless, despite the start of the digitization of HR management and payroll systems (i.e., BDAP and SIGRHAP), a considerable amount of government payments—including pensions—are still made in cash at payment offices.

106. The digitalization of government payments—like the adoption of other forms of DFS—has the potential to reduce ghost workers and other leakages, money laundering, corruption, and the financing of terrorism (Cangiano et al., 2019; World Bank, 2020c). Guinea-Bissau's score on Transparency International's Corruption Perceptions Index is low, although it has consistently improved since 2018 (from a score of 16 to 21 out of 100). One of the country's main challenges is the difficulty in tracing and auditing government payments related to salaries, health, pensions, and financial support for families in need. According to the World Economic Forum, hundreds of billions of dollars of government payments and transfers are made across the globe in physical cash every year, which makes it difficult to trace, since the anonymity of cash makes it vulnerable to skimming off the top, and to ghost recipients who do not exist, causing losses every year in emerging economies (World Economic Forum, 2018). The McKinsey Global Institute (2016) estimated that digital finance could save governments US\$110 billion per year by reducing leakage in public spending and tax collection. UNCTAD's Economic Development in Africa Report 2020 also says that stopping illicit capital flight could almost cut in half the annual financing gap of \$200 billion that the African continent faces to achieve the Sustainable Development Goals (UNCTAD, 2020). DFS can help reduce corruption and money laundry schemes, as there is an improved ability to audit payment data through advanced analytics which helps identify suspicious patterns, fraud and non-compliance in revenue collection and payment disbursement, allowing governments to cut leakages. Through DFSs, governments are able

⁶⁰ The High Commission is a new government entity established to coordinate government efforts as a response to the Covid-19 pandemic.

to deliver payments through secure, transparent, and convenient digital channels, ensuring that the money either reaches the intended recipient in full, or goes back to state coffers (World Bank, 2020c). However, this all means that reforms may be hard to adopt: given the Bissau-Guinean context of high corruption deepening such reforms could be met with considerable resistance by vested interests.

107. One of the few large-scale pilot projects underway to digitize government payments is the online tax payment platform, KONTAKTU. As detailed in the Digital Public Platforms chapter, GoGB and UNDP partnered to pilot this platform as a way of

enabling online tax payments in Guinea-Bissau. The interconnection between KONTAKTU and the tax revenue management system, SIGEF, enables citizens to make electronic tax payments through Orange Money, MTN Mobile Money, and Ecobank. During the ongoing pilot phase, the General Directorate of Contributions and Taxes has focused on getting large, medium, and small firms to use the system (large firms are now required to use KONTAKTU); an extra 108 firms are now being targeted for support, to add to the existing 70 currently declaring and paying taxes electronically through KONTAKTU. In addition, over 30 SMEs voluntarily used the platform to declare and pay their taxes online in 2021.

Enabling environment For DFS

108. As is the case with all WAEMU countries, Guinea-Bissau's overarching policy and strategic direction for financial inclusion is set by BCEAO, through a regional framework document adopted in June 2016 by its Council of Ministers. This strategy sets a financial inclusion rate target of 75 percent of the active population by 2025, to be achieved through the following five pillars: (i) promote an enabling legal, regulatory, and supervisory framework; (ii) consolidate and strengthen the microfinance sector; (iii) promote innovations that ensure the inclusion of excluded populations; (iv) strengthen financial education and consumer protection in financial services; and (v) establish a financial framework and policies that support inclusion.

109. E-money is regulated in Guinea-Bissau through BCEAO's 2015 instruction, which provides the terms and conditions for the exercise of activities of e-money issuers within WAEMU. The framework sets forth the

requirements for non-bank institutions to become e-money issuers under a specific prudential regime. Commercial banks and payment service providers can issue e-money, but they must notify BCEAO; mobile network operators must create a dedicated subsidiary and apply for a license to become an e-money issuer. Regarding financial inclusion, the regulations include several provisions on DFS enablers such as the use of agents, customer due diligence (i.e., KYC), and financial consumer protection. However, certain provisions are incomplete or have now become outdated. For example, while the regulatory framework enables non-bank financial institutions, such as microfinance institutions, to become e-money issuers, a distinct BCEAO regulation on microfinance restricts the provision of non-core activities (including e-money issuance). As regards more advanced DFS such as digital savings and loan products, non-banks institutions are required to develop partnerships with financial institutions to offer these products.



110. The restrictive regulatory framework for agency banking prevents the extension of microfinance services to rural areas. The framework for the use of agents is categorized by type of DFS providers. The 2015 e-money instruction includes provisions related to the use of agents by e-money issuers while the Banking Law of 2010 regulates agency banking and therefore applies for banks and MFIs. The enabling policy environment created by the e-money instruction of 2015 led to the development of large agent networks by e-money issuers networks in most WAEMU countries, while the regulatory framework governing agency banking remains less conducive for MFIs and banks. For instance, MFIs must establish branches to offer agency banking. However, strict requirements such as the US\$10,000 deposit requirement for Intermediaries of Banks (IOBs) are considered too dissuasive to offer agency banking. This regulatory constraint acts as an additional barrier to the development of the embryonic microfinance sector in Guinea Bissau.

111. Emergency policy measures by BCEAO in response to the Covid-19 pandemic boosted the development of Guinea-Bissau's DFS market, but they have since been rolled back. A risk-based customer due diligence approach enabled by the 2015 e-money instructions makes it possible for e-money issuers to open low-value e-money accounts (capped at XOF200,000 or US\$321) with limited identification requirements. However, such a proportionate identification framework is not allowed for other financial institutions such as banks. In April 2020, BCEAO published a set of eight measures to boost the use of digital payments across WAEMU (box 16).⁶¹ These measures, which included easing identification requirements by allowing remote identification to open specific low value e-money accounts, contributed to the rapid growth in the number of new e-money accounts opened within Guinea-Bissau as well as across WAEMU (mentioned above). To the detriment of DFS, BCEAO rolled back these temporary measures in July 2020.

Box 16: Temporary BCEAO measures taken to promote the use of digital payments during the Covid-19 pandemic

- I. Free, nationwide transfers of e-money between people for amounts less than or equal to XOF5,000 (US\$8);
- II. Free payment of water and electricity bills, via mobile phones, for amounts less than or equal to XOF50,000 (US\$80);
- III. The removal, by e-money issuers, of commissions paid by merchants on mobile money merchant payments;
- IV. A 50 percent reduction, by banks, of commissions paid by merchants on merchant payments using cards from the GIM-UEMOA network;
- V. An increase of the top up ceiling for e-money accounts from XOF2-3 million (US\$3,213 to US\$4,819) and the cumulative monthly reloading from XOF10-12 million (US\$16,064 to US\$19,277);
- VI. A 50 percent reduction in fees applied to customer bank transfers processed via SICA-UEMOA;
- VII. A relaxation of the conditions for opening e-money accounts (e-money issuers are authorized to activate e-wallets on the basis of mobile telephone identification data);
- VIII. A 50 percent reduction in bank card withdrawal fees within the GIM-UEMOA regional network.

Source: BCEAO, Opinion No. 004-03-2020 relating to measures to promote electronic payments in the context of the fight against the spread of Covid-19.

Note: SICA-UEMOA is the WAEMU Automated Interbank Clearing System.

⁶¹ Opinion No. 004-03-2020 relating to measures to promote electronic payments in the context of the fight against the spread of Covid-19.

112. As is the case throughout WAEMU, Guinea-Bissau lacks a comprehensive regulatory framework conducive to the development of a Fintech industry. Globally, Fintech start-ups are playing a central role in the development of inclusive financial ecosystems. Technological innovations brought by Fintech have proven effective in contributing to the financial inclusion of the unbanked and in closing the gender gap in financial access. According to the regional central bank (BCEAO), at the regional level, Fintech companies are mostly active in sectors such as e-money distribution, money transfer and payment aggregation. They also offer digital platforms for e-commerce, for data management and for financial flows. To foster financial innovation, in February 2020, BCEAO launched a Fintech Office in charge of the promotion of an enabling Fintech ecosystem, notably through the adaptation of the regulatory framework in force as well as the establishment of an innovation hub. In April 2022, BCEAO announced the opening of a 'FinTech Knowledge and Monitoring Office' (BSCF) whose mission is to promote the Fintech sector through the organization of interactions between Fintech companies and the financial regulator. BCEAO is also expected to publish a Fintech strategy to spur innovation and competition in the financial sector, whilst ensuring market integrity, financial soundness, and consumer protection. As such, Guinea-Bissau does not currently have the enabling environment to support Fintech and the few existing start-ups remain at a nascent development stage and suffer from low availability of innovation support organizations.

113. Guinea-Bissau is the last WAEMU country to start the process of developing a national financial inclusion strategy (NFIS). National authorities in Guinea-Bissau recently hired a consultant to develop a NFIS in line with the recommendations of the 2016 Regional Financial Inclusion Strategy. Consultations with stakeholders of the financial ecosystem took place during the first

semester of 2022 and the country's NFIS is expected to be adopted by the end of 2022. The Ministry of Finance (through the National Committee for the Implementation and Monitoring of the Strategy for Financial Inclusion - CNSMO), also held a workshop on "Financial Education" in October 2021, at the occasion of World Savings Day. In the same vein, the national office of the regional Central Bank in Guinea-Bissau set up a committee on financial education in charge of the development of the national financial education strategy (which is expected to be developed together with the National Financial Inclusion Strategy). Lastly, the national office of the BCEAO began to consider the set-up of a national Observatory for the Quality of Financial Services (following the example of the Observatory set up in Senegal, in Ivory Coast and in Benin and currently being set up in Togo, Burkina Faso, and Niger).

114. Access to Unstructured Supplementary Service Data (USSD) channels is not regulated in Guinea-Bissau. Conditions and the tariff grid to access USSD channels remain unclear due to the current monopoly over the provision of USSD codes by Guinea-Bissau's two active mobile network operators. Pricing and licensing practices of mobile network operators remain opaque. Several banks and other financial institutions have attempted to sign partnerships with mobile network operators, but they raised concerns regarding prices they set for third parties to access USSD channels. In an attempt to promote fair competition in mobile financial services, ARN has expressed interest in regulating access to the USSD channels. It intends to launch a public consultation with DFS stakeholders to collect information on current issues related to access to USSD channels and to take corresponding regulatory measures to address them; however, there is no clear indication on a potential date for the adoption of such regulation.



115. The lack of cybersecurity and data protection laws and culture in Guinea-Bissau serves as another barrier to enabling DFS. As noted in the Digital Infrastructure and Digital Public Platform chapters, cybersecurity and data protection laws are non-existent in Guinea-Bissau. In addition, the public sector lacks a data protection culture, resulting in poor personal data management practices and a loss of public confidence. Cybersecurity awareness

among the population is also low, as reflected by the findings from the 2021 UNDP survey on digital readiness in Guinea-Bissau: respondents admitted a lack of knowledge on available data standards and protection laws. This undermines the safety of digital financial transactions and operations and serves as a barrier to building trust in the formal financial system, which is critical for further developing and building demand for DFS.

Payment Infrastructure

116. The WAEMU region has yet to secure interoperability of digital payment systems. The Interbanks Monetary Group of WAEMU (GIM-UEMOA) was established in 2003 to address the interoperability of digital payments within WAEMU. It is legally constituted as an e-money agency, with capital held mainly by the BCEAO and the 135 credit institutions of WAEMU (four of which are based in Guinea-Bissau). Even though the 2015 e-money regulation does not make interoperability mandatory by law, it encourages e-money issuers to facilitate interoperability. In addition, BCEAO developed a “roadmap for interoperability,” whose initial goal was to secure full interoperability through the regional payment switch platform by 2021. Overall, in WAEMU, payments systems (STAR, SICA, and GIM) are interoperable, but digital payments instruments (card, mobile money, online) are not yet interoperable. In this context, Guinea-Bissau forms part of STAR-UEMOA (the Real Time Gross Settlement of the region) and the GIM-UEMOA, its participating banks can therefore send and receive transactions across the region but mobile money providers in the region cannot at this stage. In 2016, BCEAO and GIM-UEMOA partnered to launch a project to extend interoperability to mobile payments to promote the integration between all types of digital payments in the WAEMU region. However, ongoing delays to this regional project’s implementation inhibit

the full interoperability of payments systems across the region (including in Guinea-Bissau). This means that, as of today, money transfers between two customers from different mobile network operators or other financial service providers are not yet possible, which contributes to the lack of efficiency of the digital payment ecosystems and discourages individuals from using DFS.

117. Regional payments systems (i.e., SICA/STAR) present several flaws. STAR-UEMOA is the regional system for real-time gross settlement for systemically important transactions. It has been operational since 2004 and, as of December 2020, is composed of 138 participants. SICA-UEMOA, the Automated Interbank Clearing System, counts 146 participants (as of December 2020), including the banks, BCEAO, and Public Treasury of Benin, Burkina, Ivory Coast, Guinea-Bissau, Mali, Niger, and Senegal. According to BCEAO’s annual report, the volume of trade corresponded to 18,992,429 operations for a total amount of XOF53.8 billion (US\$86.4 million). In 2020, the activity of SICA-UEMOA was marked by a 20.76 percent increase in volume and 4.32 percent in the value of cleared payments compared to 2019. However, STAR and SICA are limited to banks while there is a growing trend to open payment systems to non-bank entities.

Remittances

118. Remittances continue to act as a key driver of growth in Guinea-Bissau, but cross border mobile money transfers to or from outside of the WAEMU region remain prohibited. Remittance inflows rose from US\$20 million in 2000-2005 to US\$70 million in 2015-2019, which helped stimulate private consumption (World Bank, 2020a). According to BCEAO, remittances from emigrants to Guinea-Bissau accounted for XOF53 billion (US\$85 million) in 2020. Data from the IMF had initially estimated remittances from migrants at XOF44.5 billion (US\$71.5 million) which would have corresponded to 5.4 percent of the GDP (IMF, 2021b). This number is depressed, however, by extant prohibitions on remittances coming in from outside of the WAEMU region.

Summary Of Constraints To DFS Development

Constraint 1: Weak (mobile) broadband infrastructure and limited access to electricity, especially in remote areas, discourages DFS usage

Recurrent disruptions in internet and/or network access make mobile money services unreliable and undermines the public's trust in DFS. Access to electricity is also scarce which makes it even more difficult to use digital tools such as mobile phones on which DFS access relies.

Constraint 2: Limited financial education

One-off events related to financial education are not sufficient for a sustained impact on financial literacy in Guinea-Bissau. There is no financial education strategy and, subsequently, no financial education programs.

Constraint 3: Lack of financial consumer protections and of a robust cybersecurity framework

The lack of a robust regulatory framework on financial consumer protection contributes to the perceived absence of effective recourse mechanisms in the event of issues with digital financial transactions. In addition, Cybersecurity risks further amplify the lack of trust in DFS and, consequently, limit the growth of DFS.

Constraint 4: Non-interoperability of digital payment systems

Mobile money transfers between two customers from different mobile network operators or other financial service providers are not yet possible.

Constraint 5: Lack of a microfinance culture

The microfinance sector remains embryonic and beset by various inefficiencies such as significant capacity, organizational and financial constraints.

Constraint 6: Regulatory barriers to e-KYC and absence of a national framework on e-signature

Identification and in-person requirements to opening accounts is limiting the growth of DFS. Moreover, the lack of national laws and regulations governing the acceptance and certification of e-signatures prevents the growth of digital lending.

Constraint 7: Unregulated USSD channel access

Unregulated access to USSD channels prevents the emergence of a broader range of DFS in Guinea-Bissau.

Constraint 8: Incomplete legal and regulatory framework for fintech

The lack of a clear and enabling legal or regulatory framework for fintech entities is hindering the development of the fintech sector.

Constraint 9: Limited formal identification

The lack of official ID documents remains a key constraint to the financial inclusion of marginalized segments of the population.



DIGITAL FINANCIAL SERVICES RECOMMENDATIONS

Short Term (by 2023)

- Design and adopt a national **financial inclusion strategy** that takes into account DFS and includes a specific focus on women, rural dwellers and MSMEs.
- Enhance financial capabilities and resilience by designing a **national financial education strategy** with a specific focus on women and on digital literacy (in line with BCEAO's financial education-related projects).
- Adopt a regulation to ensure **fair and equitable access to the USSD channel** (including fair pricing and quality of access to USSD channels).

Medium Term (by 2025)

National level

- Develop a robust national framework on **financial consumer protection**.
- Further expand the **digitalization of government payments** (especially the digital transformation of customs payments) to develop a critical mass of DFS users.
- **Expand and strengthen agent networks** to foster the adoption of DFS especially in remote areas and leverage on micro-businesses to scale up merchant payments.
- Adopt a national framework governing the **certification and acceptance of e-signatures**

Regional level

- Ensure the **interoperability of digital payment**

systems, agent networks and security platforms to broaden the expansion of DFS.

- Update the regulatory framework for digital financial services, notably through the development of an **enabling framework for fintech development** including a fintech innovation hub and the simplification of KYC requirements.
- **Update the payment system regulation** as well as specific aspects of the banking law to accommodate DFS expansion.

Long Term (by 2028)

- **Improve key market drivers of DFS** and industry collaboration, for example, by strengthening/setting up e-commerce platforms, cybersecurity platforms, credit reference bureaus, and crowdfunding platforms (and **refrain from the adoption of taxes** which would discourage the growth of the DFS market).
- Set-up an **Observatory to monitor the Quality of Financial Services (OQSF)** whose role could notably include the collection of (sex-disaggregated) data on the use of financial products and services and related cases of frauds/unfair practices as well as the launch of awareness-raising campaigns on financial products and services and financial education programs (with a specific focus on women and rural dwellers).
- Develop a plan to **restructure and clean up the microfinance sector** and strengthen the institutional capacity of MFIs deemed viable.



4. DIGITAL BUSINESSES

PHOTO CREDIT: CHERIF TOURÉ





IMPORTANCE

119. [Digital technologies open unique opportunities for entrepreneurs in developing economies.](#) Over the last several years, entrepreneurship ecosystems, through incubators and technology hubs, have grown ten-fold in SSA. MSMEs, the backbone of SSA economies, are increasingly gaining access to internet and mobile technology, such as low-cost smartphones and tablets, which provide versatile platforms for business innovation. In the long run, mobile technology is expected to have a transformative effect on economies throughout the region, driving new business models and innovations not only within digital start-ups (i.e., early-stage ventures that create new and innovative solutions or business models as part of their core products or services), but also for established digital firms (i.e., platform-based and data-driven firms that have passed the initial start-up stage, having acquired suppliers, contractors, and consumers; European Investment Bank, 2021). Digital entrepreneurs across the African continent are innovating in many sectors, including financial services, education, agriculture, and health. The digital solutions developed by startups as well as the use of digital inputs in existing firms can stimulate much-needed jobs, economic growth, and new industries in developing countries.

120. [The adoption of digital technologies has been shown to affect firm- and industry-level labor productivity.](#) At the firm level, digital technologies usage can increase the automation of routine tasks and enhance workers' abilities to complete non-routine tasks. At the industry level, labor productivity in ICT

industries has been shown to be higher on average than in other industries in the non-agricultural business sector in almost all Organization for Economic Cooperation and Development countries, thus contributing positively to average productivity growth. Research has further suggested that productivity benefits accruing from the adoption of digital technologies are greater in manufacturing industries—where the share of automatable tasks is greater—as more data-intensive decision-making has led, on average, to increased productivity (OECD, 2020).

121. [In Guinea-Bissau, the use of digital technologies has the potential to achieve major productivity gains and expand market access, particularly in the agriculture sector.](#) Given the country's dependence on the export of cashew nuts, access to digital technology can offer significant advantages to smallholder farmers and other rural businesses by facilitating the exchange of market information between suppliers and producers; facilitating access to support services such as training, finance, and legal services; and, critically, expanding their reach to additional markets and customers (FAO, 2019). Further, as described in the Digital Public Platforms Chapter, digital technologies have the potential to combat informality and streamline critical G2B services such as business registration and tax payments.

DIAGNOSTIC FINDINGS: CURRENT STATE OF DIGITAL BUSINESSES

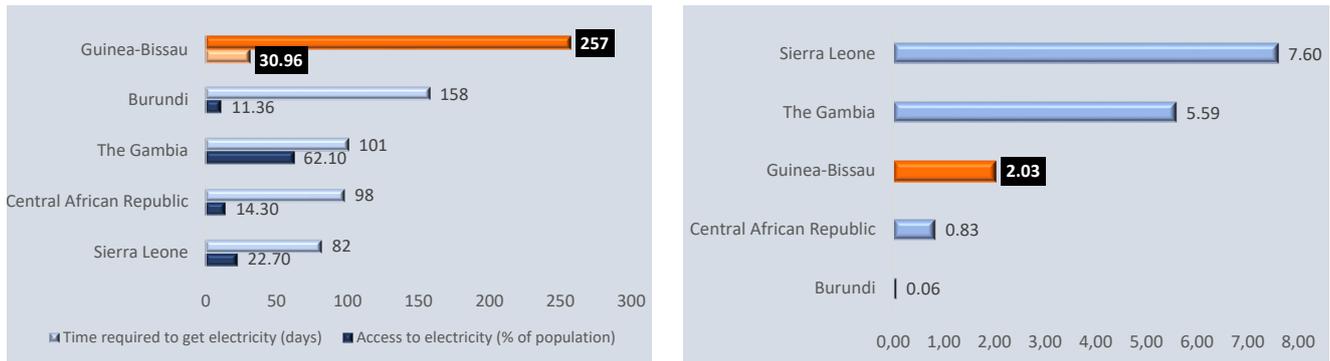
122. The GoGB has acknowledged the importance of digital technology to improving the business enabling environment. Although the National Development Plan does not mention digital technologies as part of GoGB plans to combat informality and promote entrepreneurship and access to finance, the longer term strategic and operational plan 2015-2025 *Terra Ranka* identifies digital technologies as catalysts for the development of the national economy. *Terra Ranka* presents a broader business climate agenda anchored in ensuring access to international connectivity and broadband access, streamlining business environment legal and regulatory aspects, attracting private investment, and creating an overall enabling digital environment, with special emphasis on including youth (about 60 percent of the population is below 25 years of age) as part of the transformation agenda (World Bank, 2021b).

123. The growth of Guinea-Bissau's digital entrepreneurship remains hampered by one of the most difficult and informal business environments in the world. Owing to years of chronic political and institutional instability, Guinea-Bissau has not been able to catalyze significant domestic or international private sector investment due to key constraints

associated with poor infrastructure and utility access (notably electricity coverage and reliability), no public institutions offering support, a very weak regulatory environment with uneven enforcement of laws and regulations, limited access to finance, and difficult access to markets. A UNDP firm level survey conducted in 2021 found that fully 92 percent of managers interviewed found the country's political instability and governance problems to be critical obstacles for business operation and half of both exporting and importing firms were asked for a bribe the last time they traded internationally (UNDP, 2021b). The country compares generally unfavorably in overall business environment and investment generation and attraction, as witnessed in the considerably lower levels of foreign direct investment (FDI) when compared to Sierra Leone and The Gambia (Figure 32). More than 90 percent of the active and employed population is estimated to be in the informal sector, with formal workers concentrated in the non-agriculture sectors, particularly businesses in Bissau, which focus on the retail/import sector (World Bank, 2020a). As noted in the Digital Infrastructure Chapter, challenging conditions in terms of coverage, quality, and price of broadband services compound the challenges facing digital entrepreneurship.



Figure 32: FDI and Access to Electricity: Guinea-Bissau vs Structural Peers



Source: World Development Indicators.

124. A key overarching binding constraint to improving the digital business ecosystem is access to electricity. Businesses experience astounding productivity gains and cost savings when going digital, which implies access to affordable and reliable supply of internet and electricity, both for them and their customers. However, business owners around the world identified electricity services as the fourth biggest obstacle to their commercial activities (World Bank, 2018). In Guinea-Bissau this obstacle is especially impactful as only about a third of the population has regular access to electricity supply (although the trend has

been improving up from 14.8 percent in 2012) and businesses aiming to go digital suffer in tandem in terms of coverage, affordability, reliability, and timely and cost-efficient procedures for access (Figure 31). Businesses outside Bissau and main cities—and even those in the capital that still face blackouts—resort to self-supply through generators or solar batteries of limited quality at a significant cost. Expanding and strengthening the current grid, as well as establishing more mini grids, will be a critical accelerant to unleashing greater dynamism among digital businesses.

Current Digital Entrepreneurial Dynamics And Support Ecosystem For Entrepreneurs

125. The few existing digital startups are supported by a thin ecosystem made up of a small network of incubators. Notwithstanding the particularly adverse context, Bissau-Guineans have been able to put forward a handful of digital start-up ideas and concepts, supported by several incubators and accelerators centered mostly in and around Bissau. Stakeholders active in supporting early-stage businesses and concepts, although not anchored specifically on digital, include: i) ENGIM, led by an international non-governmental organization (NGO) focused on professional training with centers in Bissau and Bula, incubating about 22 startup businesses across

agribusiness, fisheries, small transformation (carpentry, handicrafts, etc.), and retail; ii) the Center for Incubation and Business Development (CIDE-GB), based in Bissau and created in 2019 by five alumni of the Tony Elumelu Foundation (a Nigerian-led international NGO Fund) entrepreneurial support programs, having backed more than 60 early stage businesses transitioning to formality; iii) Djemberém, a recent incubator startup itself, based in Bissau, aiming to focus on professional and productive inclusion training; and iv) Innovalab, the single most active player in the digital business spectrum, with about 15 startups in different stages of activity under its umbrella (Box 17).

Box 17: Innovalab, leading digital start-up entrepreneurship in Guinea-Bissau

Formed in 2015 by three Bissau-Guinean college graduates, Innovalab is a Bissau-based, innovation accelerator hub that has led the way in spurring digital entrepreneurship in Guinea-Bissau. Innovalab structures its core services around three areas, facilitated by 6 volunteers and 10 mentors:

- **Coworking space** where digitally inclined entrepreneurs can meet, work, network, share ideas, and collaborate. It is designed to meet the needs of small businesses, freelancers, remote workers, entrepreneurs, start-ups, digital designers, writers, artists, freelance journalists and other new media or digital arts professionals whose work does not fit into the classic office model.
- **Mentorship and incubation services** in which the Innovalab team provides specialized (in person or virtual) assistance with tools, resources, and networks to help entrepreneurs navigate the challenges associated with seed and concept stage development, with the aim of helping turn concepts into sustainable businesses.
- **Acceleration and expertise**, by helping companies improve performance once the concept idea has achieved critical mass and is active in the market. This is done mainly by providing financial and accounting support, advice in addressing organizational issues, and support for the development of improvement plans.

A critical aspect of Innovalab's outreach has been the broad scope of its ICT-related events, including OpenLabs, Forums, TechCamps, Hackathons, and Bootcamps. In cooperation with donors and development partners, Innovalab helps young entrepreneurs in Guinea-Bissau tackle socio-economic challenges by leveraging and providing access to the technology, resources, and networks of local and international stakeholders. At the end of these events, a 6-month to 1-year mentoring period is usually offered to candidates whose products and services are deemed commercially viable. Innovalab supports the establishment of their companies and the marketing of their products. This assistance includes aspects of business and financial management, as well as marketing and product management, and is typically supported by seed funding contributions from local and international partners.

Innovalab enjoys good visibility within the local and international media and has a rich network of public and private partners who provide technical and financial support. This network includes GoGB, Orange and MTN, ARN, UNDP, and the World Bank.

Since inception, Innovalab has facilitated the creation of more than 20 startups and organized more than 300 events for more than 6,000 beneficiaries. Some of the main startups include:

- Ubuntu 2S - a digital inclusion project that provides low-cost solar batteries to the most remote localities of Guinea-Bissau in order to bring electricity—and thus internet—to the underserved. The project won first place out of 6,000 applicants in the Live Innovation Impact Grant Program award at the World Expo 2020 in Dubai;
- Bandim Online – an online e-commerce produce store. Established in 2017, Bandim Online was incubated by Innovalab and won a national competition to represent Guinea-Bissau in the 2017 Orange Social Venture Prize for Africa & Middle East;
- IGope – an opinion polling platform;
- Moriah GB – a car fleet management and tracking app;
- GetKnowledge - a center specializing in training young people in technological professions;
- Bem Estar HSG – an app for medical imaging and telemedicine;



126. Other stakeholders such as industry and trade associations as well as IT service providers have also contributed to the country's enabling ecosystem.

This includes trade and industry associations such as the lead Chamber of Commerce, Industry and Services (CCIAS), which has recently supported national representation efforts for regional and donor-led startup competitions in the WAEMU context, the National Youth Entrepreneur Association (ANEJ), which runs a dedicated entrepreneurship information website (Portal do Empreendedor), and the Development Aid People-to-People NGO; all have been active in supporting advocacy, training, and dissemination efforts to boost entrepreneurial inclusion. Other important actors include ICT service firms like Big Technologies—founded in 2014, based in Bissau, and with a track-record of services and training to current and past start-ups—as well as ABIPTOM, another IT service provider firm.

127. Ad hoc business plan competitions and other innovation-related call-for-project-proposal initiatives have been a key launchpad for local entrepreneurs.

With the support of GoGB, NGOs, and development partners, several such competitions have taken place within Guinea-Bissau to promote digital awareness and entrepreneurship. Such events have included: i) the Africa Science and Technology Week - a showcase one week event supported by the Next Einstein Forum of the African Institute of Mathematical Sciences;

ii) the Global Entrepreneurship Week (part of the respective global network), consisting of a one-week showcase and roadshow to connect entrepreneurs with collaborators, mentors and potential investors; and iii) business plan competitions, with subsequent training and mentorship, such as Accelerator Lab Entrepreneurship Contest (supported by UNDP) and Desafio Guiné-Bissau, organized from 2017 to 2019 with World Bank support (CESO, 2020), and which received 4,559 applications, of which the top 50 were for an in-kind grant of XOF4 million (approximately US\$6,426 per firm), to be topped up with an additional XOF1 million (US\$1,606) one year later if they achieved pre-determined objectives.

128. The recent organization of a digital hackathon during the COVID-19 pandemic provides a good case study on the existing entrepreneurial appetite and potential in the ICT space.

The Hack 4 Sustainable Development Goals initiative was co-supported by the World Bank and UNDP in cooperation with Innovalab. Despite difficulties arising from the ongoing Covid-19 crisis, the event took place in early 2021 and eight finalist teams (out of 89) presented concrete business proposals aimed at tackling development challenges in the country. The three winning proposals went on to receive prize money and support from Innovalab to help formalize the creation of their respective companies and bring products and platforms to market (Box 18).

Box 18: 2021 Hack 4 Sustainable Development Goals Initiative Finalists and Winners

- **Saúde na Hora (e-Health)**, (winner of XOF1 million; US\$1,606) a solution to enable remote medical monitoring and treatment of patients, of particular use in rural areas. The solution collects health data and compiles medical history, as well as provides patients with information on chronic diseases.
- **Nha scola (e-Education)**, (runner-up winner: XOF700,000; US\$1,125) a distance learning platform to offer online courses by level and topic that also allows for fundraising and financial assistance for underprivileged students.
- **BueloJobs (e-Social protection)**, (third place: for XOF450,000; US\$723) a mobile app to provide public- and private-sector job opportunities, including SMS notifications and the provision of career guidance.
- **Neska (e-Education)**, a web portal for school data management to allow schools to create online teaching modules, thereby standardizing the content of the courses offered. The solution will also improve the control and management of school personnel and assets.
- **Abasemel nutricional (e-Nutrition)**, a solution to allow for the distribution of local products and natural food with high protein content to alleviate acute malnutrition in vulnerable communities.
- **Nha Terrenu (e-Government mapping)**, a solution to digitally map cities and register land, thereby supporting municipalities develop a digital land registry.
- **Nha Saúde (e-Health)**, a solution to enable remote medical care, including through the provision of a list of known diseases and suggestions for treatment (including directions to a nearby health facility, if warranted) based on the described symptoms.
- **Nha Bias (e-Transport)**, a solution to streamline trip planning (sea and land) including facilitating ticket purchases and alerting passengers of schedules, changes, and alternative routes.

129. Another example of the potential to leverage the local digital entrepreneurial ecosystem occurred in the context of a public-private collaboration in the context of COVID-19 response. Seeking to respond to the registration and tracking challenges brought on by COVID-19 testing needs across the population, the GoGB task force for COVID-19 in the President's Office (dubbed "Alto Comissariado da COVID-19"), commissioned, with donor support from the UNDP, Innovalab and a partner company to develop and help to deploy an online registration and tracking platform for nationwide COVID-19 testing. In this platform, made operational within a few months, national citizens and visitors are able to schedule COVID-19 tests, fill-out and submit travel-related forms online, and access the test result certificate with a QR-code which enables validation at the various related checkpoints in airports and elsewhere.⁶²

130. Notwithstanding the existence of these digital start-ups and initiatives, very few have been able to transition sustainably into the private market due to lack of access to finance and continuous upskilling of developers. The typical cycle of concept note/idea in the incubator sphere consists of: i) initial business modeling of a prototype to market needs as well as development of branding, marketing and sales/business plans; ii) preparation for market entry through a beta test platform or app, including a soft launch with a larger subset of users in tandem with the necessary formalization legal steps with CFE or the African Intellectual Property Organization (OAPI); iii) product launch, consisting of the official launch in accordance with the marketing plan and conditional on early fundraising goals; and iv) acceleration, where specific needs for business growth are laid out on a case-by-case basis. Existing Bissau-Guinean startups

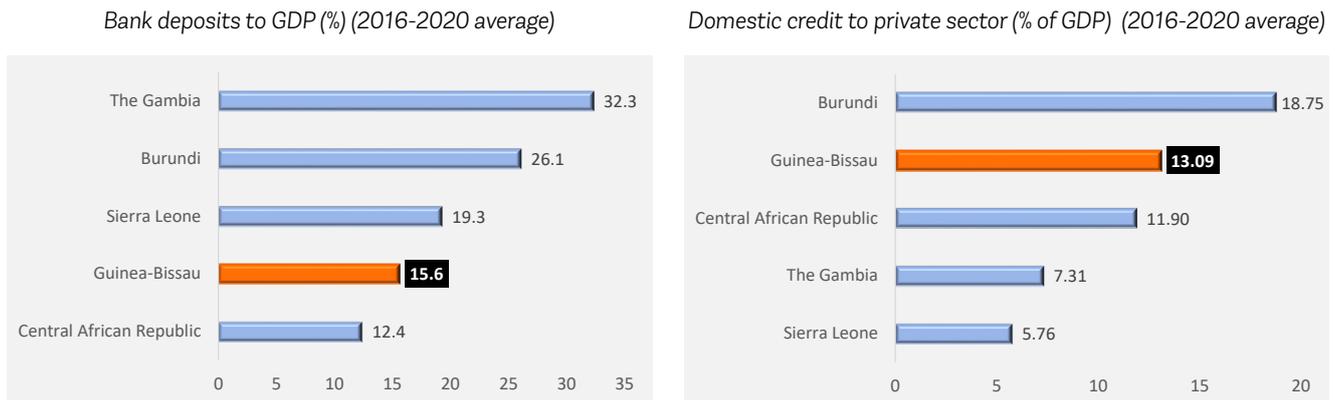
⁶² The platform is accessible through the following website: <https://portalcovid-gw.org/>

struggle to achieve full product launch and successful acceleration due to the chronic lack of funding at all stages from pre-seed and beyond, as well as scarcely available continuous late-stage upskilling and training for young entrepreneurs.

131. Guinea-Bissau’s small and underdeveloped financial sector limits the funding available for digital entrepreneurs. As also mentioned in the Digital Financial Services chapter, financial intermediation remains shallow overall in Guinea-Bissau when compared to structural peers, making access to capital and credit a key obstacle (Figure 33). The banking sector consists of three locally incorporated banks and two

branches of foreign banks, although system-wide levels of non-performing loans has led some institutions to curtail lending.⁶³ The microfinance sector remains thin and affected by low repayment rates, lack of capital, and an absence of contract enforcement mechanisms. As such, it does not constitute an alternative source of capital for entrepreneurs. In the absence of integrated, Government-led, or banking sector initiatives to tackle this issue, Innovalab recently presented an integrated program to attempt to fill this vacuum (Box 19). The programmatic continuous approach of such program past the 5-year mark, however, is nonetheless a challenge, as is the yet uncertain level of public endorsement and fundraising support.

Figure 33: Measures of Financial Intermediation and Depth vs Structural Peers



Source: Global Financial Development Database, World Development Indicators

⁶³ Total gross non-performing loans in the system stood at 26.1 end-June 2019, with a high concentration in the largest depositor BAO (which holds some 40 percent of bank deposits in Guinea-Bissau (i.e., 6-7 percent of GDP), accounting for about 20 percent of banking sector.

Box 19: ORIK Capital Program to Assist Start-ups

Looking to fill the critical funding void for startups, and with an eye on mitigating the socioeconomic impact of the COVID-19 pandemic, Innovalab has developed plans to create an Entrepreneurship and Digital Economy Support Fund initiative, ORIK Capital.

The 5-year project, which will look to fundraise approximately XOF40 billion (US\$64.3 million) with Government support, is to consist of a series of subprograms:

- I. ORIK Digital Microcredit - support the recovery of the informal sector, especially women in markets and producers in rural areas;
- II. ORIK Entrepreneur Grant - financing for new ideas and adaptation-diversification projects of economy and youth employment;
- III. ORIK Venture Capital and Loans - supporting SMEs in the growth phase-reducing the impact of COVID-19 on existing businesses-resilience;
- IV. Human Capital Development initiatives - digital literacy programs, “deep learning,” innovation hub, and digitalization of sensitive sectors-adaptation.

Innovalab will be responsible for managing the funds, in close cooperation with other incubator stakeholders. Early projections point to about 10,000 beneficiaries in the early rollout phase once it is launched.

Source: Innovalab.

132. The mobilization of diaspora know-how and capital to support the entrepreneurial ecosystem provides an interesting yet relatively untapped opportunity. Guinea-Bissau boasts important diaspora communities in Europe (mainly Portugal, Spain, and France), as well as neighboring Senegal and Gambia. Although these communities are recognized as having latent potential in terms of source of entrepreneurial know-how and capital, current contributions and initiatives to mobilize these are fractioned and led mostly led by civil society, such as Djassi Africa (providing business development advisory) or Diaspora GB (donor-supported and aimed at linking diaspora-based associations). The perceived potential for a broader and integrated public backed strategy, featuring outreach and incentive measures, and targeted at diaspora communities and associations, is a necessary piece of an MSME support strategy.

133. The lack of online e-commerce platforms and limited dissemination of mobile and digital app-based solutions in other national supply and value chains stems from structural issues. Bandim-online, an e-commerce startup for B2B and B2C sales of fresh produce, handicrafts, and general retail, has not yet been able to transition to market due to funding issues for the development of the necessary warehouse support infrastructure. There are a few noted use cases of data and tech-driven platforms by existing mature businesses; for instance, Arrey Africa, one of the largest cashew producers, is using mobile based apps to register and track producers. Overall, e-commerce is hampered by the underdeveloped payment infrastructure, logistical supply chain challenges, and regulatory hurdles. These are detailed below.



Legal, Policy And Regulatory Framework

134. The establishment of CFE, Guinea-Bissau’s one-stop shop, has streamlined the business registration and formalization process, although coverage is limited to Bissau. The launch of the CFE in 2011 resulted in a significant reduction in the time and cost involved in starting a new business in Guinea-Bissau. Between 2010 and 2019, the number of days it took to register a business dropped from 213 days to just 8-to-9 days,⁶⁴ and associated costs dropped from 323 to 88.8 percent of income per capita. As noted in the Digital Platforms Chapter, the CFE enabled the streamlining of business registration by offering all involved public services—tax authority, notary, conservatory, and line

ministries for industry-specific licenses—although it should be noted that (i) CFE-related services are not yet available online (one has to go in person), (ii) the respective back-office databases have not yet been integrated, and (iii) sector-specific licenses (*álvaras*) are not offered at the CFE. While coverage is limited to Bissau, plans exist to deploy a mobile van-based service, “CFE móvel,” which would expand coverage to rural and other underserved areas. From its establishment in May 2011 to end 2018, CFE has registered more than 4,800 new businesses; these firms have been largely based in Bissau and in the retail import/export sector (see Figure 34).

Figure 34: Number of new firms incorporated through CFE



Source: Centro de Formalização Empresarial.

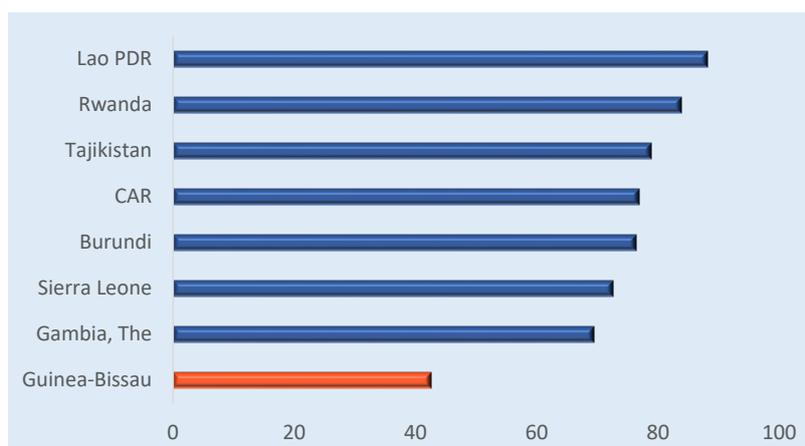
135. The CFE has also provided momentum to improve the respective registration regulations, particularly in the framework of Guinea-Bissau’s Harmonization of African Business Law (OHADA) membership, although reforms have recently stalled.⁶⁵ The streamlined guidelines and regulations issued by OHADA are issued through Uniform Acts and are applicable to all member countries. In Guinea-Bissau, these have led to the reduction in the minimum capital for limited liability companies in 2016; a revised Investment Code in 2011 that aimed to strengthen the principles of transparency, simplicity, and non-discrimination when dealing with investors; and a licensing reform also in 2011 that sought to streamline procedures for

business incorporation by eliminating the need for licenses in certain low-risk activities. Other legislative upgrades convergent with the Organization’s Uniform Acts, namely reduction of licensing burden and establishment of deadlines and terms for specific procedures, were also envisioned but have not yet been implemented. The stalled regulatory reform momentum and lack of recent administrative enhancement reforms in CFE have caused Guinea-Bissau to lag most structural peers in cost and number of procedures to start a business, including also on measures of equitable gender access to streamlined registration services and associated economic opportunities (Figure 35).

⁶⁴ Variation due to the extra procedure imposed on women as business owners when seeking husband permission.

⁶⁵ OHADA is a multinational association created in 1993, currently made of 17 member states across Central and West Africa and aiming at harmonizing business laws and implementing institutions to enable private sector led growth in the continent.

Figure 35: Women, Business, and the Law Index Score: Guinea-Bissau vs. Structural and Aspirational Peers (2022)



Source: World Development Indicators.

Note: The Women Business and Law index measures how laws and regulations affect women's economic opportunities. Overall scores are calculated by taking the average of each of the eight areas (Going Places, Starting a Job, Getting Paid, Getting Married, Having Children, Running a Business, Managing Assets and Getting a Pension), with 100 representing the highest possible score. Structural peers are in orange; aspirational peers in blue. Score: 1-100.

136. In the context of OHADA's 2011 streamlined entrepreneur regime, CFE launched a entrepreneurial support program that, while promising, has stalled. Financed by the World Bank,⁶⁶ the CFE launched the Entrepreneur Card (cartão do empreendedor) initiative in 2016 to incentivize business registration in the context of an associated streamlined business registration package. Since inception, 728 cards have been issued; however, the process initiative was discontinued due to lack of funding (notwithstanding

the fee charged for it). The practice and benchmarking of the entrepreneur application in OHADA countries should provide a framework for scaling up interventions in Guinea-Bissau, to help informal businesses register themselves (see Box 20). However, CFE's plans remain uncertain. In its recently developed digital transformation roadmap for GoGB, UNDP (2021) highlighted CFE—and, specifically, the increase in coverage and further digitization and streamlining of procedures—as a strategic priority area.⁶⁷

Box 20: Implementation of the Entrepreneur Law in OHADA

The entrepreneur status ("statut d'entrepreneur") is an OHADA initiative launched in 2011 and enacted in all member countries to promote business formalization through a simplified Commercial Law regime. The new legal framework streamlines legal incorporation for micro and small enterprises. Practical applications by member countries have lagged in the absence of implementing regulations and institutions, but recent pilot experiences in some countries provided interesting results and valuable lessons to assess the cost/benefit of pursuing similar program and iterations.

For instance, in Benin, a pilot program was able to increase the number of business registrations from 341 in 2016 to 4,000 a year later. The set of incentives attached to the program was an important contributing factor and included cheaper bank accounts, tax mediation, training, and access to insurance. Burkina Faso registered 300 registrations in its pilot program in 2018, which was also coupled with a training program for entrepreneurs.

Source: Oxford Policy Management, (2019), *Leçons tirées de la mise en œuvre du statut d'entrepreneur dans les pays de l'OHADA.*

⁶⁶ Private Sector Rehabilitation and Agribusiness Development Project (2014 to 2019).
⁶⁷ UNDP (2021), *Roteiro para Transformação Digital do Sistema de Governação da Guiné-Bissau.*



137. Lack of predictability and arbitrary enforcement around taxes is another source of friction for businesses in Guinea-Bissau. Recent estimates note that approximately 80 to 90 percent of corporate income tax receipts come from large taxpayers. Furthermore, the lack of revenue collection capacity has placed an oversized burden on indirect taxation sources—accounting for 60 to 75 percent of overall tax revenues—which is often paid upfront and mostly collected through customs at point of entry/exit. Pressure to raise revenue and poor enforcement capacity has led to unpredictable changes to the application of taxes and fees, increasing uncertainty and non-compliance among firms. Guinea-Bissau's performance on the paying taxes indicator for the Doing Business Index has remained stagnant over the previous decade: Guinea Bissau ranked 155th in 2020.⁶⁸

138. Critical updates to legislative and regulatory decrees are needed to enable digital entrepreneurship. Highlighted in the Digital Public Platforms Chapter, legislative gaps include topics such as consumer protection, intellectual property enforcement, data protection and privacy, data use and reuse, e-signature, regulations on e-commerce and e-procurement (although a set of rules to regulate digital payment services is under development), access to and sharing of information, and effective mechanisms to ensure cybersecurity or combat cybercrime (i.e., laws, governance frameworks, initiatives, etc.). On the upside, ARN is active as the designated national Domain Name System manager for websites and has an online platform for a streamlined process to address domain requests and payments. At the regional level, BCEAO is developing a regional strategy for e-commerce.

Leadership And Institutions

139. The institutional framework for entrepreneurial support is fractured between two ministries. The mandate for entrepreneurial support, digital and otherwise, is centered on the Ministry of Commerce and Industry, but no dedicated MSME support agency or strategy exists. In partnership with the International Trade Center and ECCWAS, GoGB is currently working on creating such a strategy, as well as an export promotion agency. In reality, the mandate is more fractured, as the Ministry of Economy, Planning, and Regional Integration is in charge of key business-facing agencies such as the aforementioned CFE, the investment promotion agency (Guiné-Bissau Investimentos), and the agency for support to savings and microcredit (Agência de Promoção da Actividade de Poupança e Microcrédito), in addition to many of the general directorates in charge of policy making for the business environment and general private investment support. MCI is in charge of a general-inspectorate, two

policy making directorates for industry and commerce, intellectual property oversight agency (regional), and a foundation for business and industrial development (FUNDEI), which appears inactive.

140. There is no functional and stable framework for Public-Private Dialogue on private sector needs and business environment reform priorities. The absence of a structured dialogue between private sector actors and public sector policy makers also weighs against a consolidated and articulated business environment reform agenda. Different attempts have happened at sector-level – e.g., the Conselho Nacional de Carregadores attempted to create and leverage a dialogue and operational platform to advance custom's information exchange and administrative reforms but was eventually discontinued due to a lack of continuous ownership and uptake. Lead industry associations like the Chamber of Commerce,

⁶⁸ World Bank (2020); Guinea-Bissau: Country Economic Memorandum – Escaping the Low Growth Trap

Industry and Services (CCIAS) have also struggled to rally and coordinate all of the member associations across economic sectors, and the representativity and involvement of tech-driven sectors such as e.g., telcos or younger entrepreneurial hubs like Innovalab, are also challenges.

Summary Of Constraints To Digital Businesses Development

Constraint 1: Lack of funding for digital start-ups

Mechanisms to access higher-risk seed and equity capital or debt for would-be entrepreneurs are practically nonexistent.

Constraint 2: Limited market

Small country and market with low-income population, low digital skills, relatively few people with internet access, and surrounded by francophone countries.

Constraint 3: Hurdles to formalization

Complex and inefficient regulations on land use, construction permits, labor markets, and tax structures hamper formal business creation and development.

Constraint 4: Incomplete legal and regulatory framework for digital businesses

There are no laws around consumer protection, intellectual property enforcement, data protection and privacy, protection against cybercrime and e-transactions.

Constraint 5: Lack of integrated support and structured public-private dialogue

No integrated support and development strategy or digital entrepreneurship “champion” agency. Support to entrepreneurs occurs solely through a few non-government actors and ad-hoc initiatives by development partners. The lack of a structured public-private dialogue framework also weighs on an integrated business environment reform agenda.

Constraint 6: Difficult operating environment

Access to reliable and affordable electricity supply is difficult for businesses in Guinea-Bissau, as is access to ICT services, as connectivity suffers in tandem in terms of coverage, affordability, and reliability.



DIGITAL BUSINESSES RECOMMENDATIONS

Short Term (by 2023)

- Conduct a **mapping exercise to identify sectors or start-ups** with high potential for digital leapfrogging in the Guinea-Bissau economy (e.g., overcoming price discovery and logistical challenges in cashew value chain, exploring specific e-commerce opportunities for local retailers, developing digital addressing solutions).
- Develop a functional framework for **Public-Private Dialogue** which would gather key stakeholders to enable troubleshooting and overview of private sector needs and business environment priorities on a regular basis.
- Design and deploy a short-term publicly supported **seed capital pilot program** in cooperation with existing ecosystem stakeholders, enabling quick support to promising start-ups and emerging businesses in the ICT space.

Medium Term (By 2025)

- Develop a general **MSME support strategy**, including digital businesses, and identify a government champion to lead implementation. The experience of the CFE could be beneficial as part of a larger incentive and support package to business formalization, including fast-track registration licenses for start-ups, and subsidized taxes and

fees during an early stage. The identification of measures and incentives to mobilize Diaspora know-how and capital is also an essential ingredient.

- Build the capacity of support organizations – provide finance and technical assistance to **expand the coverage and scope of services provided to entrepreneurs**, as well as linking these with larger private companies and diaspora capital and know-how.
- Create a **financing mechanism to support digital entrepreneurship**, involving a joint approach with authorities, banks, and diaspora capital and know-how to share and mitigate risk. The scope of instruments could include matching grants, quasi-equity, partially guaranteed loans, venture capital, among others.

Long Term (by 2028)

- Improve the overall business environment through the introduction of an **integrated action plan and robust implementation body** (potentially reactivating the CIMAN inter-ministerial body). The agenda should span critical areas such as access to electricity, contract enforcement, land tenure, access to credit, among others.



5. DIGITAL SKILLS

PHOTO CREDIT: CHERIF TOURÉ



IMPORTANCE OF DIGITAL SKILLS

141. Digital skills consist of the skills, competencies, knowledge, and attitudes needed to live, work, and thrive in the digital economy. While there are differences between ‘skill,’ ‘literacy,’ and ‘competency,’⁶⁹ the terms digital skills, digital literacy, and digital competency are typically used interchangeably. There are varying frameworks to categorize the proficiency of digital skills and varying kinds of assessments to measure them.⁷⁰ The most common way is according to the broad classifications of proficiency levels for digital skills, which are basic, intermediate, and advanced, as elaborated in the ITU Digital Skill toolkit, while some like the European Union include ‘highly specialized’ as well (Coward and Fellows, 2018). Basic digital

skills are the general skills required broadly for all workers, consumers, and citizens in a digital society. Intermediate digital skills build upon basic skills and are effectively job-ready skills, as they encompass those skills needed to perform work-related functions. Advanced digital skills form the basis of specialist ICT occupations and professions mostly at the post-secondary level and are crucial to developing innovative ICT products and services.⁷¹ Table 9 provides a representation of the categorization of digital skills by proficiency levels according to the cognitive challenge involved in carrying out tasks as well as the complexity of tasks that can be handled at that level along with the aligned level of autonomy needed to complete the task.

Table 9: Digital Skills – Proficiency levels based on cognitive domain, complexity and autonomy level needed for task completion

Levels in DigComp 1.0	Levels in DigComp 2.1	Complexity of tasks	Autonomy	Cognitive domain
Foundation	1	Simple tasks	With guidance	Remembering
	2	Simple tasks	Autonomy and with guidance where needed	Remembering
Intermediate	3	Well-defined and routine tasks, and straightforward problems	On my own	Understanding
	4	Tasks, and well-defined and non-routine problems	Independent and according to my needs	Understanding
Advanced	5	Different tasks and problems	Guiding others	Applying
	6	Most appropriate tasks	Able to adapt to others in a complex context	Evaluating
Highly Specialized	7	Resolve complex problems with limited solutions	Integrate to contribute to the professional practice and to guide others	Creating
	8	Resolve complex problems with many interacting factors	Propose new ideas and processes to the field	Creating

Source: Stephanie Carretero & Riina Vuorikari & Yves Punie, 2017. “DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use,” JRC Working Papers JRC106281, Joint Research Centre (Seville site).

⁶⁹ See World Bank Global Education Technology Team’s Digital Skills: Compendium of Definitions, Framework, Curricula and Applications. Accessible [here](#).
⁷⁰ For more details on digital skills frameworks and assessment types, refer to World Bank Global Education Technology Team’s Digital Skills: Compendium of Definitions, Framework, Curricula and Applications. Accessible [here](#). See also UNESCO UIS Digital Literacy Global Framework, Broadband Commission For Sustainable Development (Working Group on Education), and UNICEF.
⁷¹ ITU Digital Skills toolkit

142. Digital skills are the bedrock of a digital economy and are poised to increase in importance (World Bank, 2019b). Without these, citizens do not have the skills required to build or leverage the digital economy. As such, a digitally literate population is a prerequisite for the development and growth of a country's digital economy. To function effectively, however, digital literacy requires an enabling infrastructure—i.e., stable electricity, reliable broadband internet connectivity, and technology devices—particularly across the education sector, as well as an enabling policy environment with a unifying digital skills strategy as part of the broad education sector strategy plan. Other enablers include strong leadership to prioritize and coordinate digital literacy within all levels of education, ICT, and other aligned sectors, thus ensuring a 'whole of government' approach to digital transformation, as discussed in the Digital Public Platforms Chapter.

143. Equitable access to digital skills can improve access to basic public goods and services, including educational continuity during emergencies. The acquisition of digital skills can improve access to basic public goods and services like public health (e.g., telehealth) or DFS (e.g., online banking, digital payments). This is made possible through increased access to and use of public information and digital platforms, both enabled by digital skills. The equitable spread of digital skills can thus allow for an inclusive digital economy. Furthermore, given the unstable nature and weak performance of Guinea-Bissau's education system, digital skills have the potential to

help support education continuity by enabling greater access to remote and/or technology-enabled teaching and learning, particularly for secondary and tertiary education students. Similar to many of its neighbors, Guinea-Bissau's lack of basic digital technologies has resulted in it missing out on remote learning options that would have helped mitigate the loss of learning on account of school closures induced by the COVID-19 pandemic.

144. Digital skills can broaden employment prospects for youth, particularly girls and women, and result in the diversification of the economy. Digital skills will increase in demand in SSA by 2030, with over 230 million jobs estimated to require them, resulting in a US\$130 billion investment opportunity in digital skilling (IFC, 2019). Digital skills have the potential to expand employment opportunities in Guinea-Bissau particularly for youth, who make up the largest share of the population and who often find it easiest to adapt to and adopt new technologies. Approximately 60 percent of the population is below 25 years old with the median age being roughly 18.8 years (World Bank, 2021). Additionally, digital skills can contribute to gender equity by empowering girls and women with greater access to basic essential services as well as financial inclusion (through, for example, DFS). This has the potential to improve the productivity of youth, girls, and women, and help address the lack of inclusiveness and low rural productivity which have been identified as key binding constraints to reducing poverty in Guinea-Bissau.

DIAGNOSTIC FINDINGS: CURRENT STATE OF THE DIGITAL SKILLS PILLAR

SYSTEM CAPACITY

145. GoGB is committed to boosting the country's digital skills, although it does not have the capacity to invest in the necessary ways to make this a reality. The spread of digital skills contributes directly to the Government's strategic priorities of strengthening the digital sector (US Department of State, 2020). The Ministry of National Education (MEN)⁷² has very limited capacity and, on average, teachers are poorly trained. In the realm of digital skills, GoGB has not developed a national ICT or digital skills policy or a national strategy. At the same time, to improve learning outcomes, the

country is preparing a new school curriculum for grades 1 to 6 as well as an update of the Education Sector Plan (Plano Sectorial da Educação, PSE). Both activities present an opportunity to operationalize the teaching of digital skills within schools. While the Government is keen to improve its human capital outcomes, low adult and youth literacy (see Table 10), ongoing political instability, limited access to free schooling, alarmingly low levels of learning, rampant teacher strikes, and the global COVID-19 pandemic have made it extremely challenging to make any measurable progress.

Table 10: Literacy rates of Adults and Youth - Regional comparison

	Literacy rate Adult male (% 15-49 years old)	Literacy rate Adult female (%15-49 years old)	Literacy rate Youth male (% of ages 15-24)	Literacy rate Youth female (% of ages 15-24)	Year of source data
Guinea-Bissau	52.3	32.6	56.5	45.6	2019
Burundi	76	61	91	86	2017
Central African Republic	50	26	48	29	2018
The Gambia	62	42	71	64	2015
Sierra Leone	52	35	71	63	2018
SSA	73	59	79	74	2018

Source: UNICEF, 2019.

146. Low access to basic and secondary education and significant out-of-school children complicates the adoption of digital skills. During the period from 2000 to 2010, significant increases in access to primary education were observed across Guinea-Bissau. The primary gross enrollment rate increased from 71.8 percent to 113.7 percent during this. This average annual increase was significantly higher than that observed in SSA over the same period (1.7 percent annually; see Annex Table 3). At the same time, Guinea-Bissau's education system is characterized by low school completion rates, low secondary and technical and vocational education and training

(TVET) enrollment rates and significant out-of-school children, with large gender, regional and income related disparities across each of these factors. According to UNICEF 2019 data, only a quarter of the schools (25 percent) in Guinea-Bissau offer the first two cycles of education (grades 1 through 6) for free, while less than half (46 percent) offer the first cycle (grades 1 through 4) for free. As a result, approximately one fourth (27.7 percent) of primary school children between the ages of 6 and 11 years and one fourth (23.3 percent) of lower secondary school children between 12 and 14 years are considered 'out-of-school' (UNICEF's MICS6 2018 – 2019). Less than a third of students complete

⁷² Until 2015, MEN's portfolio included Culture, Youth and Sports (Ministry of National Education, Culture, Sports and Youth). Between 2015 and 2018, there was a separate Ministry of Sports, Youth, and Culture but it was merged with the Ministry of National Education again in 2018.

basic education – the primary education completion rate stands at 27.2 percent in 2019 (UNICEF MICS6, 2018-19). In primary education, 10.6 percent of urban children are considered ‘out-of-school’ compared to 36.5 percent of rural children, and 37.7 percent of the poorest quintile compared to 6.1 percent of the richest quintile. The COVID-19 pandemic exposed the fragility of the education sector as a result of inadequate digital capacity to support the continuity of education remotely by leveraging technology.

147. Digital skills are, for the most part, not taught in school and higher education offerings in the sector are limited. Science, technology, engineering, and mathematics (STEM) as a multidisciplinary teaching model (and as per best practice) is not observed in Guinea-Bissau’s education system; rather, each one is taught separately. In terms of TVET, there are currently six digital skills-specific degrees offered at one public and five higher education institutions (Table 11).

Table 11: Higher Education Offerings in Digital Skills

Higher Education Institution	Public or Private	Degree	Total Number of Students
Amílcar Cabral University (UAC)	Public	Bachelor’s in ICT	99
Lusófona University	Private	Bachelor’s in Computer Engineering	78
Jean Piaget University	Private	Bachelor’s in Computer Engineering and Systems	82
Catholic University of Guinea-Bissau (UCGG)	Private	Bachelor’s in Computer Engineering	67
Bimantecs Bissau International Management and Technology School	Private	Bachelor’s in Computer Engineering	Unknown
Polytechnic Institute New Hope (IP9)	Private	Bachelor’s in Computer Engineering	21

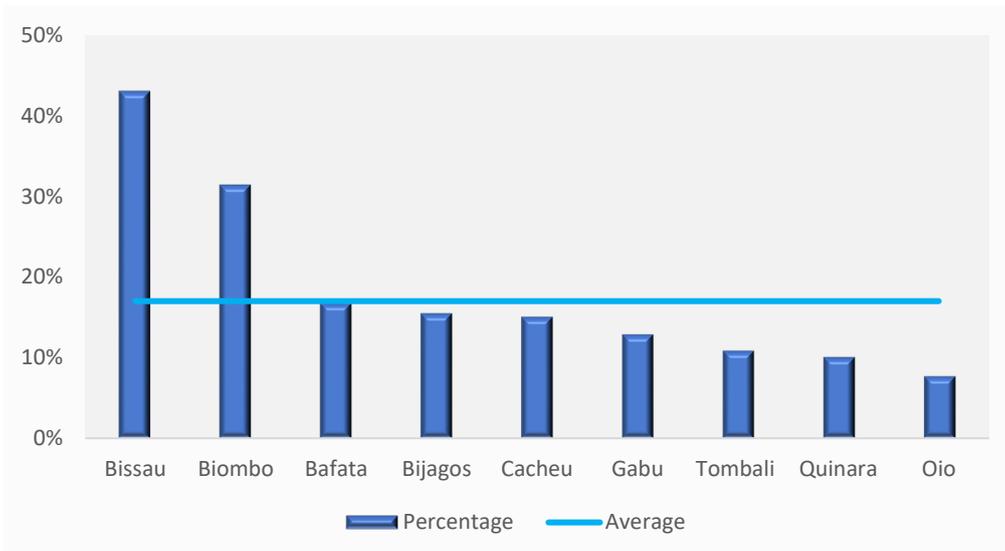
Source: University academic services.

INFRASTRUCTURE

148. Limited infrastructure—including access to electricity—required to support the development of digital skills in the education sector is a significant barrier. The Digital Infrastructure Chapter detailed the ways in which lack of stable electricity and access to broadband internet are core constraints to developing the other pillars of Guinea-Bissau’s digital economy. This is particularly true for digital skills: the enabling factors of stable electricity, adequate broadband connectivity, and access to devices are largely absent in schools and households, complicating the ability of Bissau-Guineans to acquire digital skills and resulting in continued reliance on an external supply of digital talent. While broadband internet penetration in

Guinea-Bissau stands at 37 percent as of June 2021, matters are worse within the education sector: only 17 percent of Bissau-Guinean schools have regular access to electricity, much less access to the internet, although this percentage varies significantly across the country (Figure 36). One reason for this is the high cost of connectivity in Guinea-Bissau as well as, for instance, the country’s irregular terrain that makes it hard to establish the hardware (network equipment) required for such infrastructure to function effectively. One way of addressing this is scaling up existing efforts to install solar panels at schools, but also making sure that school staff are trained in simple maintenance (for instance, dusting off the panels).

Figure 36: School Access to Electricity



Source: 2014-2015 Statistics Yearbook.

POLICY ENVIRONMENT

149. Guinea-Bissau’s weak policy environment is not capable of supporting and guiding the development of digital skills. A severe lack of policies and guidance frameworks inhibits the systemic and systematic development of digital skills across the country and particularly within educational institutions.

Guinea-Bissau does not have national or sectoral ICT or digital skills policies, standards, or frameworks. The country’s high fragility and political instability have meant that the country’s first ever overall Education Sector Plan (2017-2025)⁷³ was published only in 2018 (Global Partnership for Education, 2018). This

⁷³ The Education Sector Plan plan focuses on: (i) increasing access to basic education; (ii) improving the quality of education at all levels; (iii) developing training (technical, vocational, and higher education) appropriate to the needs of the country; and (iv) strengthening the governance of the sector by improving monitoring, decentralization, and financial management. (UNICEF, 2019)

weak policy environment translates into a lack of guidance for the development of digital skills across its education system. This, coupled with the lack of digital infrastructure, has resulted in the inability of the education sector to support educational continuity for its students during the COVID-19 pandemic, further widening the achievement gap. In contrast, just-in-time

guidance on remote or technology-enabled teaching and learning from governments in countries like Senegal (Global Partnership for Education, 2021) and the Gambia (UNICEF, 2020) allowed their students to continue schooling during the pandemic by taking advantage of remote learning. Box 21 details Rwanda's digital skills policy.

Box 21: Rwanda's National Digital Talent Policy 2016

As part of its national ICT strategy, the Smart Rwanda Master Plan, Rwanda has a national Digital Talent Policy as of 2016 to develop the digital literacy of its citizens. This can serve as an example for other low-income countries on how to develop a comprehensive digital skills policy that ensures the systematic development of digital literacy across the population spanning students, youth, and adults.

The policy delineates five key objectives and multiple actionable measures to achieve these objectives. These are as follows:

I. Address the recurrent mismatch between ICT skills supply and demand – This involves the following measures: (1) carry out a national ICT skills demand and supply matching study; (2) develop and implement a national digital skills and literacy supply and demand matching strategy.

II. Transform Rwanda from an importer to an exporter of ICT expertise by 2020 – This involves the following measures: (3) integrate digital skills and certification in formal education curriculum at all levels; (4) introduce computer programming skills at basic education level; (5) support upward mobility of students who are able to acquire strong digital skills; (6) customize specialized ICT programs to match Rwanda to the regional ICT industry and market needs.

III. Increase the ratio of Digitally Literate Citizens from 8.4 to 20 percent by 2020 – This involves the following measures: (7) train and certify all ICT professionals of the government, private sector, and civil society.

IV. Strengthen the legal and regulatory framework to provide digital skills and literacy – This involves the following measures: (8) identify and develop Rwanda's niche at the regional and global level; (9) attract internationally recognized training and certification providers; (10) strengthen industrial ties for ICT students; (11) introduce strong ICT components in non-ICT graduate programs; (12) establish ICT engineers' certification body.

V. Establish an institutional framework to govern and coordinate digital skills and literacy – This involves the following measures: (13) certify all government employees in digital literacy; and (14) certify all students at all levels of formal educational institutions.

Source: Ministry of ICT and Innovation, Government of Rwanda. Accessible here:
http://weclearn.net/wp-content/uploads/2020/07/DIGITAL_TALENT_POLICY.pdf

150. Forthcoming updates to the school curriculum can be a window of opportunity to embed plans for the systematic development of digital skills across the school system. This could serve as a way to introduce the development of digital skills in a way that is

scaffolded and spread across primary, secondary, and tertiary education sectors. At the same time, digital skills must also be integrated into the curriculum instead of taught separately as a standalone subject for greater impact.



Institutions And Leadership

151. GoGB's education institutions suffer from weak capacity and low digital competency. The limited capacity of education ministry officials, school directors, and school inspectors leads to improper oversight, training and support structures stifling the enabling environment wherein teachers are more likely to succeed. The Inspectorate General in Education has a mandate to evaluate as well as support teachers; however, in practice, it does not function as intended. While an IT department exists within MEN, it does not have the capacity to provide technology training and

support to the education workforce and institutions (schools and tertiary education institutions). Low digital competency amongst education ministry officials complicates the adoption of digital solutions like SIGE (Guinea-Bissau's EMIS) and improvements to the sector's human resource management. Furthermore, a highly politicized system results in a leadership vacuum at times with unclear management and direction of the education sector. Several ongoing World Bank projects are supporting Guinea-Bissau's education sector to address this weak capacity (Box 22).

Box 22: World Bank support to Guinea-Bissau's Education Sector

- *Institutional Strengthening and the Quality Education for All Project (2021-2025)* aims to strengthen institutional capacity within MEN to improve the performance of the education sector. Specifically, it aims to strengthen institutional capacity, improve planning and management of resources, and strengthen citizen engagement and address gender norms.
- *Quality Education for All Project (2018-2024)* aims to improve the teaching and learning environment in grades 1-4 in targeted schools. Within this, the project has begun work on strengthening school-based management practices and empowering communities, improving the quality of teaching instruction, and strengthening education sector management capacity.
- *Second Public Sector Strengthening Reform Project* (pipeline; mentioned in the Digital Public Platforms chapter) aims to address the poor governance of the existing education system and incorporate digital solutions to improve performance.

152. Inconsistent leadership has led to fluctuating institutional arrangements within the education sector and, ultimately, its weak performance. The organizational structure of MEN includes centrally based staff at the national level, regionally based staff at Regional Directorates of Education (DREs), and school directors and teachers at the school level. Due to political instability, there are frequent changes across all levels of the sector and staff turnover is high. Most of the leadership positions in the central ministry, the DREs, and even at the school-level, are seen as quasi-political appointments. Every time the government changes, a substantial number of these

staff are changed as well so capacity building efforts are short lived. This leads to continued poor oversight and weak management of school resources and limits the sector's ability to collect reliable and timely school level data which is needed for sector planning. The system is somewhat decentralized, where a significant amount of decision-making is done at the DRE and school level where capacity is limited; inadequate quality controls and policies and weak capacity creates fragmentation of the sector and weak service delivery. There is a need for awareness regarding the potential of technology and digital skills for management and services within the sector.

153. Student learning—including digital skills—is hampered by untrained teachers, pervasive teacher strikes, and scarce school resources. The use of ICT by teachers is positively correlated with the digital skills levels of students. Therefore, investment in ICT skills of teachers and integration of ICT into the school curriculum should positively impact the uptake of digital skills among students (Nascimbeni and Vosloo, 2019). However, in Guinea-Bissau, teachers do not have the required content or pedagogical skills nor are they provided with proper training and support to be adequately prepared. Based on the latest available data from MEN in 2015, on being administered the same assessment given to their students, 32 percent of grade 2 teachers were unable to master the Portuguese assessment and 54 percent were unable to correctly respond to the mathematics assessment. Grade 5 teachers performed worse - 98 percent of teachers

did not show adequate mastery of the Portuguese and mathematics content they teach, respectively (UNICEF, 2019). Teacher professional development opportunities are ad hoc, only provided in a subset of schools, and led by donors. In a 2020 survey, a large gender divide was found in who has access to teaching positions at different levels of the education system - while 61 percent of pre-primary teachers are women, only 19 percent of primary teachers and only 8 percent of secondary teachers are female (UNICEF, 2019). Other challenges that impact teacher performance include pervasive teacher strikes⁷⁴ (driven largely by political instability), lack of pedagogical material and resources, distance to schools and unavailability of all grades at many schools. Such challenges have an adverse effect on building the digital competency of the education sector workforce and ultimately, of students.

Data Collection And Management

154. Guinea-Bissau's education sector suffers from ineffective administrative data collection and management, which leads to inefficient sectoral planning and execution. The most recent education data is from 2014-2015. Currently, there is no national level data for even the most basic statistics such as the number of schools, teachers, or students. While data collection instruments have been developed and trainings have taken place over the past few years, the high level of turnover of school directors and regional directors, repeated teacher strikes, and school closures have hampered the government's ability to collect reliable school-level data. The low capacity of staff collecting data and data entry relying on paper-based questionnaires further complicates the ability to collect reliable data in a timely manner. This, in turn, has made planning and executing any activities difficult

at the school level. Currently, various donors such as the European Union, the World Bank, and the Global Partnership for Education have financing targeted to help the MEN build reliable education data systems. The EU's support is targeted primarily at the regional level and focuses on capacity building and leveraging technology to improve the functioning of SIGE (Guinea-Bissau's EMIS). The SIGE was developed with the support of the United Nations Educational, Scientific and Cultural Organization's (UNESCO) Institute of Statistics established in 2015 as a result of donor financing. While further funding and projects have been approved as of 2019 to ensure the continuity and strengthening of SIGE, delays in the roll out and implementation have slowed the progress and the impact it is capable of having in the management of the sector.

⁷⁴ For instance, in the 2015-2016 academic year, over half of the entire school year (more than 90 days of instruction time) was lost and in 2018-2019, almost the entire school year was lost due to teacher strikes.



Foundational And Digital Skills Supply

155. Low human capital attainment represents one of the most significant challenges in the uptake of technology and development of digital skills. Basic literacy and numeracy are prerequisites to acquiring and utilizing digital skills. However, the acquisition of these skills is alarmingly low amongst Bissau-Guinean students and in most cases, worse for girls, poorer students, and rural students (Table 12). After grade 2, students fail to master half of what they should know in Portuguese and mathematics. This is exacerbated by grade 5 as these students show proficiency in only a third of what they should have mastered by this stage (UNICEF, 2019). According to the latest data available on learning outcomes in UNICEF’s MICS6 (2018-19), 12.4 percent of 7- to 14-year-olds were able to demonstrate basic reading

skills, while only 7.5 percent could demonstrate basic arithmetic skills. The disparity was higher in reading for rural students (6.1 percent) compared to urban students (23.7 percent) than in arithmetic (7 percent in rural areas compared to 8.4 percent in urban areas). High student repetition rates further impose economic pressure on the education system since each repeated year adds additional costs. In primary schools, repetition is very high with an even larger regional divide – a quarter of primary school children in urban areas compared to two thirds of students in rural areas (UNICEF MICS6 2018-19). The COVID-19 pandemic exposed the fragility of the education sector as a result of inadequate digital capacity to support the continuity of education remotely by leveraging technology.

Table 12: Quality of Basic Education amongst students aged 7 to 14 years

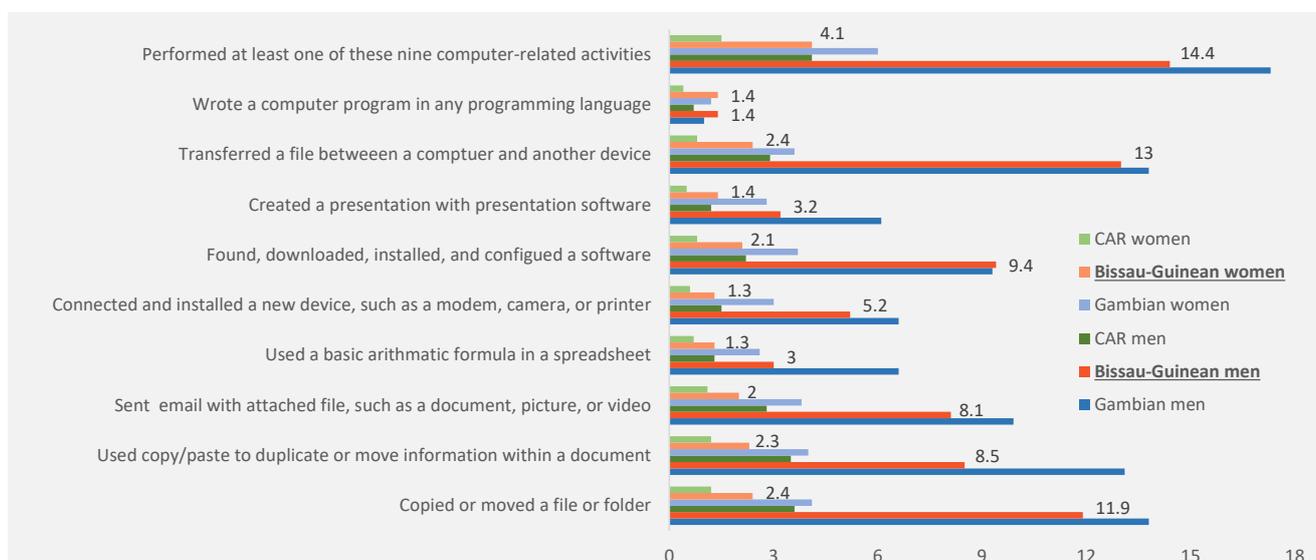
	Proportion of 7-14-year-olds Demonstrating basic reading skills			Proportion of 7-14-year-olds Demonstrating basic arithmetic skills		
	Male	Female	All	Male	Female	All
Total	12.1	12.7	12.4	8.1	7.0	7.5
Urban	24.8	22.8	23.7	10.2	7.0	8.4
Rural	5.9	6.3	6.1	7.0	7.0	7.0
Age 11 years old	14.5	13.1	13.7	9.4	10.2	9.8
Grade 6 (EB2)	55.3	67.9	60.8	26.5	28.4	27.3

Source: UNICEF, 2019.

156. Insufficient foundational skills further impede the development of a digitally enabled workforce. The current level of digital skills across the population is extremely limited. Attainment of digital skills is complicated by the high number of illiterate youths and adults, particularly given the country’s large informal market. According to 2019 data, just 13 percent of women and 37 percent of men have ever used the

internet (the equivalent for the Gambia was 46 percent and 68 percent, while for the Central African Republic, this was 4 percent and 8 percent). Figure 37 includes a breakdown by gender of Bissau-Guineans’ experience undertaking technological activities as compared to these two structural peers. This demonstrates not only the low level of digital skills but also the large digital gender divide.

Figure 37: Comparison of the level of digital competency of Bissau-Guineans to peers from comparable countries



Sources: Instituto Nacional de Estatística 2019; Guiné-Bissau - Inquérito aos Indicadores Múltiplos (MICS) 2018-2019; UNICEF 2018; The Gambia – Multiple Indicator Cluster Survey (MICS); Ministre de l'Économie 2021; République centrafricaine - Enquête par grappes à indicateurs multiples 2018-2019.

Note: (i) Digital competency here is measured via computer related activities carried out in the last 3 months of the study. (ii) Population is women and men aged 15-49.

DEMAND FOR DIGITAL SKILLS

157. A small private sector and scarce tertiary education and training opportunities result in an inadequate supply of digital literacy opportunities, particularly for youth. Guinea-Bissau has a handful of TVET institutions as GoGB does not have the capacity to invest in increasing access to tertiary education. In addition, a small private sector and high political instability disincentivizes prolonged private sector investment, including in tertiary education (TVET and higher education). As a result, there is scant data on the tertiary sub-sector and an inadequate

offering of digital literacy programs, particularly from TVETs, as well as limited opportunities for on-the-job STEM training (e.g., internships and apprenticeships). This significantly reduces opportunities for Bissau-Guineans to gain job-relevant digital competencies. Donors are partnering with private sector companies on digital skills initiatives with a focus on women, girls, and youth, but these initiatives are limited in scope. Box 23 provides examples of such initiatives elsewhere on the continent. Annex Table 2 synthesizes some of the country's existing digital skills training programs.



Box 23: Rwanda's national Digital Ambassador Program

The Government of Rwanda's national Digital Ambassador Program is an example of how a motivated, low-income country can engage key stakeholders and pave the way for inclusive digital literacy of its citizens through clear national level guidance and action along with the necessary supporting digital infrastructure and systems required for its success.

Led by the Ministry of ICT and Innovation, the Digital Ambassador Program is one way the government has put into action its national Digital Talent Policy 2016. The program leverages a multistakeholder approach by involving telecom companies, private sector, banks, and government agencies. It aims to develop digital skills of almost 40 percent of the population—5 million Rwandans—between 2017 and 2024. It does so by strengthening the digital literacy of young women and men entrepreneurs (called 'digital ambassadors'), who, in turn, teach digital literacy to others in their communities as well as familiarize them with the use of the government's digital public platforms like Irembo. The young digital ambassadors are trained in local languages using locally relevant digital content demonstrating the local relevance of digital literacy.

The program aims to:

- I. improve digital literacy and thereby, productivity of rural communities;
- II. improve access to basic public goods and services (like health, finance, commerce, and agriculture) through their online delivery including better access to information;
- III. improve digital infrastructure including connectivity and device penetration by stimulating demand and building capacity to use them;
- IV. ensure inclusive development by focusing on women, youth, and citizens with special needs;
- V. support job creation for the digital ambassadors (who earn by training their community members while the training remains free for citizens).

During its pilot phase (September 2017 to June 2019), the program trained 41,025 citizens by employing an optimization strategy put in place as a result of learning from the pilot stage. During this period, 110 digital ambassadors were trained and deployed across 40 districts of Rwanda, and 262 "service access points" were equipped with laptops or desktops, connectivity, and training.

Source: Government of Rwanda, 2016. See also www.irembo.gov.rw.

158. Demand for digital skills comes primarily from the public and education sectors. Given the contracted size of Guinea-Bissau's private sector, the demand for digital skills is highest in the public sector. This reflects the Government's ongoing efforts to digitize the public sector (for example, through e-payments to public servants, or back-office

systems such as SIGFIP, mentioned in the Digital Public Platforms and DFS chapters). Lesser demand comes from the education sector to equip students for the digital economy. Expanding the private sector and, subsequently, the labor market would lead to a market increase in demand for digital skills in Guinea-Bissau.

Summary Of Constraints To Digital Skills Development

Constraint 1: Policy environment

Guinea-Bissau's weak policy environment is incapable of supporting and guiding the development of digital skills.

Constraint 2: Sectoral leadership

Inadequate capacity, low skills, and politicization limits the capacity of the Ministry of National Education (MEN) to plan and guide the development of digital skills.

Constraint 3: Teacher capacity

Teachers have limited pre-requisite knowledge or skills as well as the support (professional development opportunities and infrastructure) to teach digital skills in the classroom.

Constraint 4: Data collection and management

MEN has both weak systems and capacity to collect and use basic administrative data, decreasing efficiency and the ability of the sector to plan and improve service delivery.

Constraint 5: Human capital

Low human capital attainment complicates the uptake of technology and development of digital skills among school children as well as the workforce.

Constraint 6: Few tertiary education and training options, particularly TVETs

A small private sector and limited tertiary education institutions result in an inadequate supply of ICT training opportunities, particularly for youth.

Constraint 7: Infrastructure

Just 17 percent of Bissau-Guinean schools have regular access to electricity, much less access to the internet.



DIGITAL SKILLS RECOMMENDATIONS

Short Term (by 2023)

- **Conduct sensitization campaigns for education sector leadership and teachers' unions** on the importance of technology and digital skills for smoother education sector management and service delivery as well as for employability of youth. Investing in leadership is the key starting point for the digital transformation of the sector without which little change is possible.

- **Undertake a digital skills needs assessment and develop a basic digital skills development section** of the Education Sector Plan that caters to skill building across all levels of Guinea-Bissau's education and skilling ecosystem. Include digital skills in the ongoing school curriculum reform with a focus on skilling girls to shrink the gender digital divide.

- **Design a mass digital skilling initiative** that leverages mobile-friendly platforms, with a focus on women and youth, to address the skills gap found in the needs assessment. Incentivize the private sector to expand rapid digital skills training programs and certification as well as partner with ongoing adult or second chance training programs for the unemployed or youth within the informal sector. Pair this with apprenticeship, internship, and employment opportunities.

Medium Term (by 2025)

- Work with development partners to **include digital skills training for teachers within ongoing**

teacher professional development as well as within the curriculum at teacher training colleges. Include digital skills training within existing monthly teacher meetings known as "Comissões de Estudo" at the school level. Low-cost training initiatives that work with teachers when they are already expected to be in the classroom are most likely to be successful.

- **Strengthen SIGE (EMIS), expand it nationally, and provide digital skills training** to ensure its use for improving the management of the education sector.

- **Work with development partners to equip schools with enabling infrastructure** (i.e., electricity, connectivity, and devices) for improved quality of teaching and learning, the development of digital skills within the classroom, and data collection.

- **Use technology to improve the education sector's human resource management** (including through development of an HRMIS) to improve oversight and management of the teaching force.

Long Term (by 2028)

- **Expand access to post-secondary education and training with a focus on STEM offerings, particularly for women.** To provide an enabling environment for this, equip tertiary educational institutions, especially TVETs, with digital infrastructure.

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ANNEXES

Annex Table 1: Best practices in universal service and use cases

Best Practice	Country	Comments
Autonomous/independent Fund structure	Pakistan, Nigeria	Separate company – USF Co Board of Directors comprised of representatives of both private and public sector
	Morocco	Successful implementation of play or pay plus practice of consulting with operators (see box 4 for more details)
Consultation with stakeholders	Canada	Operators have representation on and input into the Fund oversight committee Conducted detailed public consultations
	Ghana	Board of trustees for Fund includes a representative from each major telecom operator
Clearly specified and measurable objectives including coverage and service delivery targets	Pakistan	Publication of projects and related coverage targets Ongoing status reports
	Colombia	Produces 4-year plan with detailed project descriptions, targets and associated cost
	Peru	Annual report on fund performance with respect to project allocation and project performance versus target
Highly transparent from a financial reporting perspective	Colombia	Detailed annual reports (in a 4 yr. planning cycle) showing budget allocation, funds committed, and funds used, including percentage of utilization
	India	Posts details on Fund's financial performance on Fund's web site listing levies collected, amount contributed to Fund and balance not yet disbursed
Guidelines and procedures for working with other funding sources (e.g., IFC, World Bank, NGO's, etc.)	Mongolia	Demonstrated in recent projects in collaboration with World Bank to increase mobile coverage in the soums
	Afghanistan	The elaboration of an operating manual
Clear definition and delineation of responsibilities between the USF and other government agencies/departments	Peru	Other government departments may identify possible projects and request funding with understanding that FITEC is the administrator
Focus on ongoing sustainability with particular emphasis on training and/or power sources	Colombia	Tele-centers and internet access projects include technical training and training in use of applications Build-out of fiber backbone, connectivity
	Dominican Republic	Heavy focus on education and e-strategies to accompany deployment of tele-centers and community access centers
	Pakistan	Base stations funded by USF must have renewable energy Free electricity via solar power provided to tele-centers
	Uganda	Addition of supplementary services to stimulate use of telecentres and village phones, content, etc
Fair project allocation process – competitive bidding	Nigeria, Columbia and Pakistan	Least cost subsidy Successful bidders posted on web site (also in publications in Pakistan)
Instead of direct and immediate reimbursement, provide incentives for efficient deployment and/or innovation and cost-minimization where feasible	Chile	Subsidies paid in instalments based on project milestones/completed phases
	Dominican Republic	Instalments for project deployment paid in instalments over 5 years after initial payments made
	Peru	Able to change FITEC to incorporate rural broadband
Flexible regulatory framework to permit Fund adjustments where required	Chile	Government can adjust Fund parameters to respond to input regarding new technologies and practices
	Colombia	Broad definition basically underscoring access to all ICT services

Annex Table 2: Digital Skills Training Program Initiatives in Guinea-Bissau

Name of Program	Type of Digital Literacy training	Year it started	Intended audience	Organization leading this	Private/Public Sector
UNDP and Orange Bissau Joint Initiative on Digital Skills	Will jointly organize contests and hackathons to encourage digital entrepreneurs and innovation, establish facilities for learning digital skills and provide vocational and entrepreneurial training to the youth and women.	2021	"Youth Women"	United Nations Development Programme (UNDP) Orange Bissau	Private Sector International / Inter-governmental organizations
Women's Digital Centre	Introductory course to learn the basics of using IT equipment, online search engines and the Office suite. Computer-based literacy courses, certified with the help of the Ministry of Education (nearly 70% of women in Bissau are illiterate). Financial education and business management workshops for women who have started their own business. Job search workshops (creating a CV on a computer, cover letters, job search techniques, etc.).	2020	Girls Women	Orange Foundation ESSOR ANADEC	Private Sector
Microsoft Digital Skills Initiative	Free online courses across Microsoft, LinkedIn, and GitHub learning platforms, particularly for those affected by the pandemic to gain in-demand skills to be employable.	2021	Labor market participants	Microsoft	Private Sector
	"Main objective: Search Engine Optimization (SEO) with the following sub-goals:" Search Appearance Search Traffic Google Index Security Issues Testing Tools	2021	Those with basic digital skills: Startup Business Owners Small Business owners who want to increase their sales and revenue through the website Online Marketers Bloggers Content Developers	Google	Private Sector
Digital Transformation in Vocational Training in Guinea-Bissau		2020		Weidong Cloud Education Group	

Annex Table 3: National Repetition Rates (EB1), disaggregated by grade and gender

Grade Level	Male %	Female %	Total%
1	19.9	19.1	19.5
2	21.1	20.3	20.7
3	19.3	18.2	18.8
4	18.3	18	18.1
EB1	19.8	19	19.4

Source: World Bank and Government calculations based on Anuário Estatístico, 2014-2015.

Digital Economy Recommendations		Short-Term		Medium-Term	Long-Term		
Recommendation	Foundation Area	1-3 months	4-6 months	7-12 months	1-2 years	3-4 years	4+ years
S1	Improve international connectivity by hiring the technical team and completing the delivery of the ACE submarine cable link and the construction of the Suro-Antula backbone .	Digital Infrastructure					
S2	Build institutional leadership and coordination to spearhead necessary measures, including development of sector strategy, preparation for the undertaking of legal and policy reforms, and development and enforcement common IT standards.	Digital Public Platforms					
S3	Design and adopt a national financial inclusion strategy that takes into account DFS and includes a specific focus on women, rural dwellers and MSMEs.	DFS					
S4	Conduct a mapping exercise to identify sectors or start-ups with high potential for digital leapfrogging in the Guinea-Bissau economy (e.g., overcoming price discovery and logistical challenges in cashew value chain, exploring specific e-commerce opportunities for local retailers, developing digital addressing solutions).	Digital Businesses					
S5	Privatize the incumbent operator GuineTelecom/GuineTel and determine the best use of its assets and existing infrastructure.	Digital Infrastructure					
S6	Strengthen the transparency of the sector through the publishing of the annual audit reports of the UAF and the implementation of a telecom observatory that includes key sectoral data and publish it on ARN's website.	Digital Infrastructure					
S7	Develop a countrywide, digital transformation strategy with a whole-of-government and citizen-centric approach with an eye towards harmonizing existing and pipeline initiatives.	Digital Public Platforms					
S8	Reinforce the supremacy and use of SIGFIP by rolling out the system to more budgeting entities, issuing a circular requiring its use for budget preparation and execution, and boosting IT support and change management to ensure proper usage.	Digital Public Platforms					
S9	Enhance financial capabilities and resilience by designing a national financial education strategy with a specific focus on women and on digital literacy (in line with BCEAO's financial education-related projects).	DFS					
S10	Adopt a regulation to ensure fair and equitable access to the USSD channel (including fair pricing and quality of access to USSD channels).	DFS					
S11	Develop a functional framework for Public-Private Dialogue which would gather key stakeholders to enable troubleshooting and overview of private sector needs and business environment priorities on a regular basis.	Digital Businesses					
S12	Design and deploy a short-term publicly supported seed capital pilot program in cooperation with existing ecosystem stakeholders, enabling quick support to promising start-ups and emerging businesses in the ICT space.	Digital Businesses					
S13	Conduct sensitization campaigns for education sector leadership and teachers' unions on the importance of technology and digital skills for smoother education sector management and service delivery as well as for employability of youth. Investing the leadership is the key starting point for the digital transformation of the sector without which little change is probable	Digital Skills					



Digital Economy Recommendations		Short-Term			Medium-Term		Long-Term	
Recommendation		Foundation Area	1-3 months	4-6 months	7-12 months	1-2 years	3-4 years	4+ years
S14	Undertake a digital skills needs assessment and develop a basic digital skills development section into the Education Sector Plan that caters to skill building across all levels of Guinea-Bissau's education and skilling ecosystem. Include digital skills in the ongoing school curriculum reform with a focus on skilling girls to shrink the gender digital divide.	Digital Skills						
S15	Design a mass digital skilling initiative that leverages mobile-friendly platforms, with a focus on women and youth, to address the skills gap found in the needs assessment. Incentivize the private sector to expand rapid digital skills training programs and certification as well as partner with ongoing adult or second chance training programs for the unemployed or youth within the informal sector. Pair this with apprenticeship, internship, and employment opportunities.	Digital Skills						
M1	Develop a strategy for the usage of the UAF (under a pay or play approach) to catalyze private investment in digital infrastructure in the last mile.	Digital Infrastructure						
M2	Implement a countrywide, digital transformation strategy with a whole-of-government and citizen-centric approach with an eye towards harmonizing existing and pipeline initiatives.	Digital Public Platforms						
M3	Undertake a gap analysis to determine the gaps in the country's legal and regulatory framework as it pertains to digital transformation including consumer protections laws, e-payments/e-transactions, and cybersecurity.	Digital Public Platforms						
M4	Develop a robust national framework on financial consumer protection .	DFS						
M5	Further expand the digitalization of government payments (especially the digital transformation of customs payments) to develop a critical mass of DFS users.	DFS						
M6	Expand and strengthen agent networks to foster the adoption of DFS especially in remote areas and leverage on micro-businesses to scale up merchant payments.	DFS						
M7	Develop a general MSME support strategy , including digital businesses, and identify a government champion to lead implementation. The experience of the CFE could be beneficial as part of a larger incentive and support package to business formalization, including fast-track registration licenses for start-ups, and subsidized taxes and fees during an early stage. The identification of measures and incentives to mobilize Diaspora know-how and capital is also an essential ingredient.	Digital Businesses						
M8	Build the capacity of support organizations – provide finance and technical assistance to expand the coverage and scope of services provided to entrepreneurs , as well as linking these with larger private companies and diaspora capital and know-how.	Digital Businesses						
M9	Work with development partners to include digital skills training for teachers within ongoing teacher professional development as well as within the curriculum at teacher training colleges. Include digital skills training within existing monthly teacher meetings known as "Comissões de Estudo" at the school level. Low-cost training initiatives that work with teachers when they are already expected to be in the classroom are most likely to be successful.	Digital Skills						
M10	Strengthen SIGE (EMIS), expand it nationally, and provide digital skills training to ensure its use for improving the management of the education sector.	Digital Skills						

Digital Economy Recommendations		Short-Term			Medium-Term	Long-Term		
Recommendation		Foundation Area	1-3 months	4-6 months	7-12 months	1-2 years	3-4 years	4+ years
M11	Strengthen capacity of the regulator ARN , including by increasing its financial, administrative, and political autonomy to allow it to have the necessary means to fulfil its mandate.	Digital Infrastructure						
M12	Strengthen the country's regulatory environment , by developing a stronger regulatory framework for the telecoms sector (including for SMP, licensing, infrastructure sharing and national roaming, and the regulation of the wholesale market).	Digital Infrastructure						
M13	Deploy a national fiber optic backbone leveraging the private sector to improve backhaul capacity and support the deployment of next generation mobile connectivity such as 4G to end users.	Digital Infrastructure						
M14	Modernize and reform the sector's legal and regulatory framework based on the findings and recommendations of the gap analysis including, critically, regulations on personal data protection, e-payments/transactions, and cybersecurity.	Digital Public Platforms						
M15	Pilot and develop an interoperability framework and enterprise architecture for existing and future digital platforms. Critically, this should include increasing the interoperability of SIGFIP with other digital public platforms.	Digital Public Platforms						
M16	Develop a government data center and basic shared services and that is scalable to accommodate future needs of the public sector leveraging the private sector. Shared platforms for repetitive functionalities (such as reporting, archiving, document management, authentication, etc.) can remove duplication of resources and redundancy of cost and effort across the government.	Digital Public Platforms						
M17	Develop and implement an electronic civil registration system and review the civil identification service provider contract to ensure ownership of the data.	Digital Public Platforms						
M18	Broaden access to and fluency with digital technology for public sector employees and citizens in general by developing and implementing sustainable ways to boost digital skills .	Digital Public Platforms						
M19	Adopt a national framework governing the certification and acceptance of e-signatures .	DFS						
M20	Ensure the interoperability of digital payment systems , agent networks and security platforms to broaden the expansion of DFS.	DFS						
M21	Update the regulatory framework for digital financial services, notably through the development of an enabling framework for fintech development including a fintech innovation hub and the simplification of KYC requirements.	DFS						
M22	Update the payment system regulation as well as specific aspects of the banking law to accommodate DFS expansion.	DFS						
M23	Create a financing mechanism to support digital entrepreneurship , involving a joint approach with authorities, banks, and diaspora capital and know-how to share and mitigate risk. The scope of instruments could include matching grants, quasi-equity, partially guaranteed loans, venture capital, among others.	Digital Businesses						
M24	Work with development partners to equip schools with enabling infrastructure (i.e., electricity, connectivity, and devices) for improved quality of teaching and learning, the development of digital skills within the classroom, and data collection.	Digital Skills						



Digital Economy Recommendations		Short-Term			Medium-Term		Long-Term	
Recommendation	Foundation Area	1-3 months	4-6 months	7-12 months	1-2 years	3-4 years	4+ years	
25	Use technology to improve the education sector's human resource management (including through development of an HRMIS) to improve oversight and management of the teaching force.	Digital Skills						
L1	Ensure the redundancy of international connectivity links by connecting Guinea-Bissau to a second submarine cable.	Digital Infrastructure						
L2	Strengthening institutional and operational capacities of civil registration and civil identification systems, including the cooperation between them, and eliminate barriers and costs to boost the population's access to civil registration and civil identification services , especially in rural areas.	Digital Public Platforms						
L3	Develop civic tech principles and initiatives to boost citizen/government interaction (including the private sector) to enhance transparency and accountability of public services as GoGB moves to make them digitally accessible. To this end, digitizing and making more government data (particularly procurement and fiscal data) available online and in open format should be pursued.	Digital Public Platforms						
L4	Improve key market drivers of DFS and industry collaboration, for example, by strengthening/setting up e-commerce platforms, cybersecurity platforms, credit reference bureaus, and crowdfunding platforms (and refrain from the adoption of taxes which would discourage the growth of the DFS market).	DFS						
L5	Improve the overall business environment through the introduction of an integrated action plan and robust implementation body (potentially reactivating the CIMAN inter-ministerial body). The agenda should span critical areas such as access to electricity, contract enforcement, land tenure, access to credit, among others.	Digital Businesses						
L6	Expand access to post-secondary education and training with a focus on STEM offerings, particularly for women. To provide an enabling environment for this, equip tertiary educational institutions, especially TVETs, with digital infrastructure.	Digital Skills						
L7	Accelerate the realization of an integrated and open regional ICT market that would stimulate economic growth and enhance regional entrepreneurship and trade.	Digital Infrastructure						
L8	Build platforms for electronic authentication and digital signature services, anchored within the civil identification system, to enable digital identification .	Digital Public Platforms						
L9	Set-up an Observatory to monitor the Quality of Financial Services whose role could notably include the collection of (sex-disaggregated) data on the use of financial products and services and related cases of frauds/unfair practices as well as the launch of awareness-raising campaigns on financial products and services and financial education programs (with a specific focus on women and rural dwellers).	DFS						
L10	Develop a plan to restructure and clean up the microfinance sector and strengthen the institutional capacity of MFIs deemed viable.	DFS						



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