

Republic of Congo

Digital Economy Assessment

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About the DE4A Assessment

An assessment of the Central African Republic's (CAR) digital economy has been launched as part of the World Bank Group's Digital Economy for Africa (DE4A) Initiative, which uses an integrated and foundations-based diagnostic framework to examine the present level of digital economy development across Africa. The assessment maps the current strengths and weaknesses that characterize the national digital economy ecosystem in CAR as well as identifies the challenges and opportunities for future growth.

Digital transformation is rapidly re-shaping our global economy, permeating virtually every sector and aspect of daily life – changing the way we learn, work, trade, socialize, and access public and private services and information. In 2016, the global digital economy was worth some USD 11.5 trillion, equivalent to 15.5 percent of the world's overall Gross Domestic Product (GDP). It is expected to reach 25 percent in less than a decade, quickly outpacing the growth of the overall economy. Digital technology development presents undeniable opportunities for the growth of African countries, and the Republic of Congo is no exception. However, strategic investments in the fundamentals of the digital economy must be made for the country to fully benefit from this growth potential.

The overarching analytical framework that shapes this assessment is guided by the premise that **five foundational digital elements** create the building blocks for unlocking digital transformation in CAR, and thus determine the country's ability to build a robust digital economy:

1. **Digital Infrastructure** that provides the means for people, businesses, and government to get online, and subsequently access local and global digital services, thus effectively embedding users in the global digital economy. Broadly speaking, digital infrastructure consists of high-quality, accessible and affordable connectivity services, but also includes internet of things and data centers, as well as institutions and rules that foster a competitive telecommunications market.
2. **Digital Skills** that support the creation of a digitally savvy workforce. These are critical to building a robust and competitive digital economy, where innovative services, industries and business-models can emerge. Broad-based digital literacy and basic skills acquisition are instrumental to supporting wide adoption and use of digital products and services by the average consumer, and hence critical to ensuring digital inclusion. However, the level of intermediate, advanced and highly specialized digital skills will determine a CAR's ability to embrace digital innovation.
3. **Digital Platforms** that enable digital transactions and exchange, support new digital businesses and public service delivery models. Related systems, applications and services thus have the power to transform the way people, government, businesses and civil society interact with each other in all aspects of life. Digital platforms help create economies of scale and leverage network effects to create value and support productivity gains.
4. **Digital Financial Services (DFS)** that provide individuals and households with convenient and affordable means to pay, as well as to save and borrow, using digital tools and platforms. Firms can leverage DFS to transact more easily with their customers and suppliers, as well as to build digital credit histories allowing access to finance. Governments can use DFS to increase efficiency and accountability in various payment streams, including for the disbursement of

social transfers and receipt of tax payments. Digital payments are often the entry point for DFS and provide the “rails” through which additional products and use-cases can be developed.

5. **Digital Entrepreneurship** and innovation ecosystem that helps bring the digital economy to life and accelerate digital transformation – with both young ventures and innovators helping to generate new products and services that leverage technologies and digitally-enabled business models, as well as traditional industries adopting related solutions – contributing to net employment, enhanced competitiveness and productivity. Digital entrepreneurship thus helps expand products and services on offer but can also create new markets.
6. In addition, several **cross-cutting themes or areas** shape these foundational elements, which determine CAR’s ability of create an enabling institutional and policy environment. A clear strategy and strong leadership are both needed to spearhead the agenda at national level. Equally, the digital economy creates new legal and regulatory challenges, such as protecting consumers and their right to privacy, supporting cybersecurity and data protection, as well as effective taxation and competition, which need to be effectively addressed to ensure that innovative services continue to emerge, and guarantee their safe and affordable access. Moreover, for all Central Africans to reap the digital dividends associated with the digital economy, it needs to be inclusive to ensure that anyone, regardless of age, gender, income and geography has the ability to access digital tools and services.

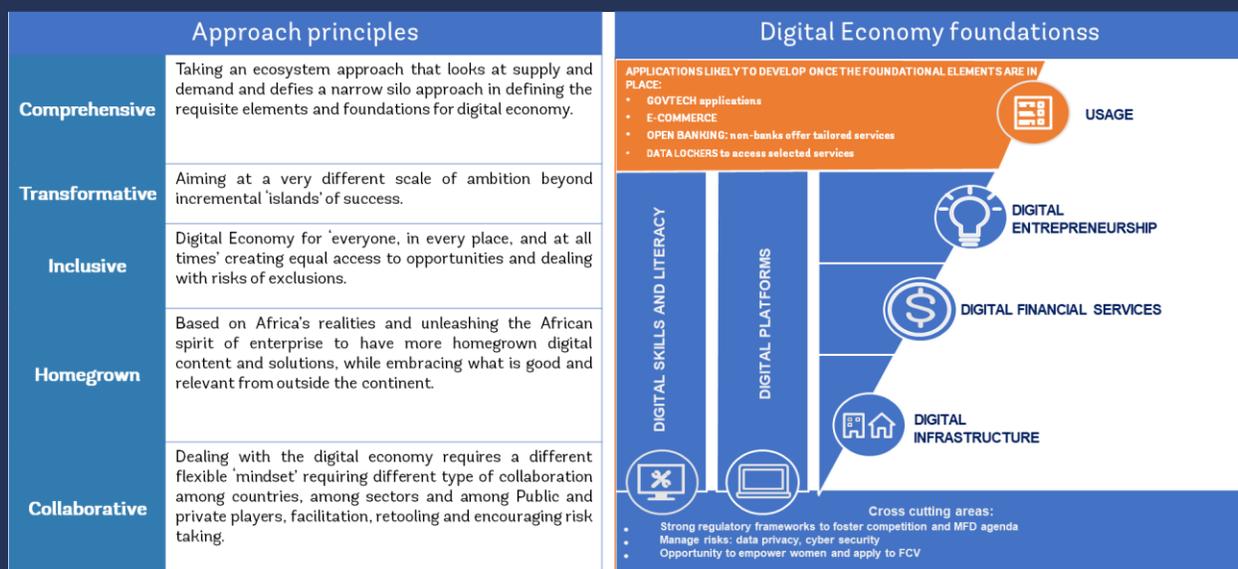


Figure 1: Approach and foundations of the DE4A Initiative

The DE4A Initiative forms part of the World Bank Group’s support for the African Union’s Digital Transformation Strategy (DTS) for Africa. As part of the DTS, ambitious, high-level targets have been established for all five foundational pillars of the digital economy, articulated in the DE4A assessment framework, as a way to define and measure success against the overarching goal of ensuring that every individual, business and government is digitally enabled by 2030. Many of these targets have in turn been embedded in the World Bank Group’s IDA19 Commitments.

Diagnostic methodology

This diagnosis is informed by a comprehensive desk research, followed by several in-country and virtual fact-finding missions in 2020 by members of the multi-disciplinary core research team. This team was composed of experts from the following units: Digital Development, Finance, Innovation and Competitiveness, Education and Governance. The team consulted widely with stakeholders within the Government and the private sector. Stakeholders interviewed included government ministries, departments and agencies involved in the provision of public ICT services and infrastructure, promotion of investment and entrepreneurship, and the education sector, among others. On the private sector side, industry associations, established technology companies, ICT service providers and more recently created technology startups were consulted. The analysis presented in this report also draws on regional and global benchmarking, based on standardized indicators that are part of the DE4A diagnostic methodology.

Structure du rapport

Each chapter that follows will present a summary of the main findings of the diagnostic and the current situation in relation to the five fundamental pillars of the digital economy which are part of the DE4A diagnostic methodology. Chapter 1 reviews cross-cutting factors that affect the strategic, institutional, and regulatory environment for the digital agenda in the Republic of Congo. The report assesses the five foundational pillars of the digital economy in more depth: Digital infrastructure; Digital skills; Digital platforms; Digital financial services, Digital entrepreneurship. Chapter 2 looks at the access, quality, and usage of digital infrastructure, and the dynamics of the connectivity market, including what it will take to get more Congolese online. Chapter 3 discusses the current state of digital skills attainment and coverage, considering basic and advanced skills needed to support further adoption of digital services and the application of digital solutions. Chapter 4 examines the availability and use of digital platforms that can support a greater number of digital exchanges, transactions, and access to public and private services online. Chapter 5 and 6 are devoted to examining the current state of digital financial services and the digital entrepreneurship ecosystem.

The report concludes with a discussion of the next steps, including a summary of recommendations. These recommendations are intended for a wider audience, including government, the private sector, and development partners. However, report findings are also likely to shape the World Bank Group's interventions on related topics moving forward.

Executive Summary

The Republic of Congo's path to inclusive economic growth will involve economic diversification, bolstered human capital, and support to improved public services and entrepreneurship. The digital economy provides leap-frogging opportunities to achieve these objectives. The World Bank's Digital Economy Assessment (DE4A) presents an overview of the enabling environment and current state of the digital economy in the Republic of Congo. It maps the current strengths and weaknesses that characterize the national digital economy ecosystem and identifies opportunities for future growth. The assessment is based on the five foundational pillars of the digital economy: (i) Digital Infrastructure; (ii) Digital Skills; (iii) Digital Platforms; (iv) Digital Financial Services; and (v) Digital Entrepreneurship.

Digital infrastructure

The country has achieved some success, including mobile penetration as high as 94 percent, on the Information Communication and Technology (ICT) infrastructure front. Investment in long-distance connectivity infrastructures were undertaken with support from development partners. However, the Republic of Congo has been less successful on broadband internet and in spreading internet services beyond the most urban segments of the population. Household penetration rate for broadband is low and stands at 0.3 percent – far below the regional average of 8 percent. Low purchasing power of the population, policy failures and inefficient public investments, and the lack of competition are factors affecting the population's accessibility to internet services. The Government launched several national and regional infrastructure projects to position Congo as a traffic hub and improve access to broadband services across the country and the region. However, these projects have run into enormous delays due to the COVID-19 pandemic.

Digital skills

Insufficient availability of basic¹ and specialized² digital skills limits the local digital ecosystem in its take-off and growth, and therefore the efforts of the Republic of Congo to innovate and digitize. Yet, digitizing government services requires a significant shift within the public sector in terms of the skill set needed for civil servants. Firms and government experience difficulties finding employees with computer or general IT skills. Today, firms or even IT departments within the government chase a qualified and internationally trained workforce with very specialized and advanced skills (developers, network technicians, programmers, etc.), because they cannot find locally trained skills. Locally, formal basic digital skills training offers are very limited, fragmented and highly theoretical, thus not placing enough emphasis on practical experience, which is essential for employability. They are nonexistent in primary and secondary schooling, and in short supply within higher education and technical and vocational institutes. Computer science training is available in some private schools but constrained by lack of equipment, the high cost of internet and energy. Faced with this challenge, informal training could compensate for this deficit, through non-state actors such as incubators, non-governmental organizations, foundations and associations.

¹ Basic skills cover hardware (for example using a keyboard and operating touchscreen technology), software (for example word processing, managing files on laptops, managing privacy settings on mobile phones), and basic online operations (for example email, search, or completing an online form).

² Requiring advanced skills such as developer, programmer, system engineering, network engineering etc.

Digital Public Platforms

The Republic of Congo could leverage the potentialities of digital transformation to improve particularly citizen-oriented service delivery and the overall digital economy. While several digitalization projects have been launched, most of these are focused on internal government systems³, and have been largely developed in silo. Without coordination, the plurality of projects may create the risks of duplication, cost inefficiency and non-interoperability of systems. The lack of institutional and operational coordination constrains the implementation of a whole-of-government approach, economies of scale, interoperability of systems and improved services to citizens. Government to government systems currently constitute a large majority of digitalization efforts. Most of the efforts are concentrated within the Ministry of Finances, with the development of the integrated financial management and information systems (e.g., the new online tax payment system “e-tax”). However, the implementation of these project suffers from delays due to weak implementation capacity. On identity management, further coordination is required due to multiplicity of projects with plans to collect biometrics (for civil servants, and for taxpayers) while biometrics in a digital format are already collected in the establishment of the National ID card.

Most government entities have online presence but provide very limited online services. Government websites present extensive information, and are fairly well maintained and updated, but do not provide two-ways transactions. In general, the implementation of digitalization projects is constrained by the public administration’s limited connectivity infrastructures, as well as weak implementation capacity. Capacity is limited within the government to support the digital transformation agenda, reflecting the limited supply of skills cited earlier. These same issues also constrain further uptake and usage of digital services.

The country has adopted the foundational legislations for the implementation of public platforms: cybercrime, cybersecurity, digital transaction and protection of personal data. However, these instruments have yet to be operationalized.

Digital Financial Services

The role of Digital Financial Services in the Republic of Congo’s socio-economic development has been significant, steadily increasing financial inclusion for the unbanked in the last decade. The two mobile money providers – Airtel and MTN, have several million mobile money clients, and alongside *Banque Postale* and MUCODEC, offer accessible tools that have enabled access to financial services and increased resilience for the people of the Republic of Congo. However, the penetration rate of mobile money is low, with only 6,2 % of the population having an account, while the GDP/capita is high. Nevertheless, as usage continues to increase, appetite and aptitude for more sophisticated digital financial services grows.

As the Republic of Congo seeks to further diversify its economy from oil and towards new and innovative industries, a robust range of digital financial services is paramount for both consumers and businesses. At present, cash-in-cash-out is the most used DFS, and innovative fintech is limited. The expanded market requires that consumers and businesses are offered secure options to save, and provided with widespread access to credit, cheaper remittances, and other tools to smooth consumption. As with digital platforms, building blocks must first be put in place to allow the scale up of DFS, and this includes addressing several barriers such as a more flexible legal framework to increase the supply and access to credit, advanced digital skills in the market, greater

³ Within the Ministry of Finances: tax, customs, procurement, integrated financial management and information system (IFMIS), in the Ministry of civil service: HRMIS, Ministry of Health: E-Health system, Land administration: Land management system etc.

access to mobile devices, a robust national identification system to meet the requirements of KYC (“know your customers”), better interoperability between Payment Services Providers (PSPs) with the availability of open APIs (Application Programming Interface), and effective safeguards to protect against fraud and personal data security breaches.

Digital Entrepreneurship

While the country has one of the least conducive business environments in the world, the innovation ecosystem is emerging and digital initiatives are still underway, led by a handful of relatively isolated but dedicated young entrepreneurs. Most of today’s innovators were trained in one of the country’s two principal incubators, Yekolab and Fongwama, or appeared at the country’s innovation forums. The government shows proven successful collaboration with business incubators, as showed by recent signing of partnership agreements. Emerging solutions for e-commerce and online food ordering and delivery platforms are underway in Pointe-Noire and Brazzaville, and new partnerships are coming up as is the case with the National Post and the startup M-Rapid. Private digital platforms are on the rise although the government is not strategically and practically engaged in their development.

However, most entrepreneurs or companies whose business model uses technology as a basis struggle to reach a critical scale due to high prices of digital devices and lack of reliable electricity supply. Digital culture, however, is still low in Congo, which hinders demand for digital services as well as entrepreneurs’ capacity to raise funds, as they are often considered too risky by potential investors. To build the key foundational elements that enable the development of entrepreneurship and private digital platforms, it will be crucial to build capacity of entrepreneurs, encourage public-private collaboration and improve the regulatory framework for data-driven business models. This includes support through networking and financial incentives for digital businesses, as well as reinforcing institutions in charge of promoting open innovation and innovative financing.

The impact of the Covid-19 pandemic on the digital economy

To a certain extent, the Covid-19 pandemic is helping the government to refocus attention on digital transformation and lay the foundations for a digital economy. Much of the population, business services and the functioning of government depend more than ever on digital infrastructure. The crisis is exposing many facets of the digital divide by income level, location, age, education, and industry. It also highlights the underinvestment in digital infrastructure and related services. The crisis shows that fundamental building blocks are needed to leverage electronic applications in government solutions and in key sectors such as health, education, and agriculture. Building these bases would help ensure both an immediate response and better preparedness for future crises and a faster economic recovery. There is therefore now a wake-up call among companies and policy makers on the essential investment in the levers of the digital economy while responding to the ongoing health and socio-economic impact. Congo would benefit from increasing internet bandwidth, connecting vital services, supporting digital business models and promoting trust, security and safety, while preparing for the recovery and long-term resilience.

Recommendations

Based on this diagnostic, the report suggests the following priority recommendations:

Strategic, Institutional and Legal Framework			
Action		Time Frame	Priority
i. Implement the legal and regulatory framework			
R1. Strengthen and operationalize the institutions in charge of monitoring and applying the newly adopted legislative framework to offer Republic of Congo resilience against emerging challenges in the digital economy.	The adoption of new laws was an important step in making the legal framework more comprehensive and better aligned with international best practices. The next step is to operationalize and / or empower existing and newly created agencies (ARPCE, ARTF, ACSI, ANSSI) in charge of monitoring and applying the newly adopted legislative framework; and strategically to coordinate the efforts of different public and private entities responsible for the development and regulation of the ICT sector.	Short/Medium	High
ii. Improve coordination and planning			
R2. Strengthen the leadership and capacities of civil servants and policy makers to promote the digital agenda and design national policies in accordance.	This could be done based on good practices, and through training, capacity building and knowledge exchange with other countries. The COVID-19 crisis is leading countries to dramatically accelerate their digitization, given social distancing measures and travel restrictions. Public officials must quickly learn and assimilate best practices and solutions, to be adapted and implemented in the country.	Medium	High
R3. Reinforce the strategic coordination mechanism for digital transformation	The government has adopted the national digital strategy which will require further implementation guidance through action plans and defined goals for each stakeholder. The Ministry of Telecommunication and the Office of the Prime minister should also coordinate on the operational model for coordinating efforts on digital economy and formalize the different arrangements in place in order to provide high-level political mandate, clarify roles and provide the powers. In practical terms, this would involve ensuring the existence of resources allocated to institutional coordination at MPTEN level, strengthening the capacity of the interinstitutional coordination committee in order to hold regular meetings, defining the milestones and the results to be achieved as well as the responsibilities.	Short	High

Digital Infrastructure			
Action		Time Frame	Priority
i. Improve access to existing digital infrastructure and incentivizing new investments			
R1. Encourage competition in the market for wholesale and international capacity within the landing station, and the market for transporting capacity on fiber optic backbone to Brazzaville.	The legal framework allows all operators to build fiber, however, a single operator remains dominant. The Pointe Noire – Brazzaville link should be fully liberalized and opened to other operators to build, while ensuring new dominant operators are checked in order to create accountability and competition between operators.	Long	Intermediate
R2. Liberalize and foster the markets for FTTx and WiMAX services.	Internet Service Providers face several difficulties to deploy WiMAX radios and other equipment, given the high cost of installing masts. This fast-growing segment deserves to be opened up by facilitating the entry of new operators to balance the digital economy and boost it, while ensuring that they are under control.	Medium	High
R3. Realize and commercialize ongoing transformational projects.	The already completed Republic of Congo-Gabon fiber link (financed by the CAB project) needs to be commercialized. Immediate arrangements need to be made for testing, industry-friendly pricing and transport of capacity over Congo Telecom’s fiber from Pointe Noire.	Medium	High
R4. Boost complimentary infrastructure.	Complimentary infrastructure such as data centers and steady energy can benefit from partnering with electricity utility, SNE and creating incentives for green energy deployment by mobile operators. The legal framework already allows operators to deploy mini and micro grids, but there is no coordination between key ministries to implement this. Due to lack of industry-grade data centers, CDN networks are still routing internet traffic to London and back to Republic of Congo.	Medium	Intermediate
R5. Implement redundancy for the WACS cable.	Lack of redundancy to the WACS cable, low bandwidth availability and instability of the existing link have limited service expansion by many operators. This could be achieved through the development of PPP frameworks to cushion deteriorating fiscal space and operate projects.	Medium/Long	High

	Not least because of the ongoing macro-economic challenges, Republic of Congo will benefit from more private sector participation in building and managing digital infrastructure.		
ii. Strengthen the regulatory environment and policy coordination			
R6. Strengthen inter-ministerial, inter-agency coordination.	Operationalizing the newly established Interministerial Committee (<i>Comité Technique Numérique</i>), through an implementation decree would help ensure coordination between the ministries of telecom, transport and energy, operators and the industry regulator.	Short	High
R7. Strengthen the effective operationalization of the universal service fund (USF).	The key gap that remains is the last mile distribution of fiber. Larger cities and town centers have been covered by FTTX fiber, but connectivity in smaller towns and cities, as well as the interconnection between districts and departments are still needed. 700 kilometers of total metro ring has been already deployed across the country. The second last-mile challenge is interconnecting the towns and cities with LTE technology by connecting base stations with fiber.	Short/Medium	Intermediate
R8. Ensure further SOE reform	Governance of Congo Telecom is a key issue in the digital infrastructure sector in the Republic of Congo. Lack of published catalogs and poor service levels are posing problems for operators who depend on Congo Telecom for their own operations. Given the dominant role of Congo Telecom, re-positioning it has a huge potential for changing the fortunes of the digital economy for the better. ‘Furthermore, unreconciled’ accounts between the state and Congo Telecom does not bode well for transparency and poses fiscal risks.	Medium	High
Digital Skills			
Action		Time Frame	Priority
i. Create an environment conducive to the development of digital skills within the national education system			
R1. Increase coordination and develop a clear roadmap.	Developing a vibrant digital economy requires strong collaboration and dialogue within key ministries and relevant stakeholders, including the three ministries in charge of education, the ministry of Telecommunications, and private sector representatives from business associations. The national strategy for digital and the national education strategy are good starting points, but a clear roadmap with realistic	Short	High

	milestones and concrete actions combining the two strategies needs to be elaborated.		
R2. Improve digital skills data collection and research.	Reliable and timely data that provides an accurate picture of labor-market demand for digital skills and the related supply is needed for effective decision-making. Systematic tracking of young graduates and youth unemployment should be implemented. Information on the number of existing and projected ICT vacancies would also assist efforts to assess and develop the Republic of Congo's digital skills base, both for the government and for the private sector.	Medium	Intermediate
ii. Expand access to other basic and advanced digital training (beyond the national education system)			
R3. Provide additional training opportunities in basic digital skills, with an emphasis on teachers and government employees	For training on advanced skills, it will be important to assess the needs for advanced expertise in Congo by carrying out an in-depth analysis of the demand for skills by private actors or for government functions, particularly in the context of the digitization of the administration and digitization of certain public services. Teacher training is an essential step towards digitization. Potential options for training include basic digital skills, development of online courses, and use of digital learning platforms. Digital platforms also provide significant opportunities for online and agile learning and could help address gaps in adult education and in basic IT capacity in administrations. Beyond providing initial training, it is important to identify public or private structures that have the skills to provide continuing training.	Medium	Intermediate
R4. Leverage non-state actors of basic and advanced digital skills training.	The government should also contemplate leveraging non-state actors more readily to expand access to training to young people in school or not, vulnerable groups in rural areas but also disadvantaged urban population. This could be undertaken through a more comprehensive mapping of existing providers in ICT skills training (non-formal actors for ICT education, NGOs and social enterprises), including modest government sponsorship to support their expansion and the replication or scale-up of successful models.	Medium	Intermediate

Digital Platforms			
Action		Time Frame	Priority
i. Improve the institutional framework			
R1. Implement a coordination structure and coordinated approach for government digitalization.	A central digital unit can catalyze change, support the building of interoperable systems across government department, ensure cost inefficiency and implement a strategic vision in a sequenced and coordinated way. A central operational digital transformation unit would also provide support to ministries and department in the implementation of their digital transformation initiatives.	Short	High
R2. Elaborate a clearly prioritized and costed action plan for government digitalization.	A consolidated action plan should be devised to prioritize and cost these different projects. The government could prioritize services that address citizens' most pressing needs and start developing outward digital platforms for service delivery by identifying priority sectors such as health where a plan for digitalization is already developed. Such systems should be developed through a user centric approach, responding to citizens' life events and around their needs	Short	High
R3. Strengthen digital skills in the public sector.	The implementation of digital transformation in the public sector will require availability of fit-for-purpose skills across the government. This includes basic and advanced skills for IT tool usage, as well as technical skills for the roll out and maintenance of digital platforms. The government, private sector and training institutions could create a "job coalition" to define skills and needs for employers and co-create corresponding training, that can support the government's digitalization through an adequate digital talent pool.	Medium	High
ii. Establish an environment of trust			
R4. Support the deployment of shared state infrastructure and systems.	The state could invest more in shared systems such as shared service registers and databases, shared interoperability framework, connection and payment networks, single online portals, content management systems, certification authorities or data storage and management solutions: government cloud, infrastructures such as public data centers (some of which are already being created under the CAB project). These systems help to share resources and reduce duplication of costs and efforts across different government agencies.	Medium	High

<p>R5. Secure resources and strengthen the legal environment for the implementation of integrated digital identification systems.</p>	<p>In addition to investments in digital identification systems, legislative updates are needed for a unique identifier to be adopted. Along with the modernization of the identity system, it is also recommended to consider the modernization of the civil registration system which ensures the verification of information relating to the civil status of the population. The steps needed to build an identification management system are to create a unique identifier for individuals and businesses, to improve access to legal identification throughout the country and to ensure that government systems are interoperable in a sustainable way.</p>	<p>Medium</p>	<p>High</p>
<p>Digital Financial Services</p>			
<p>Action</p>		<p>Time Frame</p>	<p>Priority</p>
<p>i. Build trust through the development of a robust financial and data infrastructure</p>			
<p>R1. Support adoption and implementation of the financial inclusion strategy.</p>	<p>This involves encouraging and expanding mobile money products, services and usage beyond cash-in cash-out operations and supporting the government in mainstreaming financial and digital literacy efforts amongst rural and vulnerable communities. This should also include a consumer protection framework for low-income populations and low-literacy consumers to improve their understanding of the costs and benefits of more formal, digital financial services.</p>	<p>Short</p>	<p>High</p>
<p>R2. Evaluate pricing around financial services to promote financial inclusion.</p>	<p>From monthly internet banking fees, to the 3.5 percent fee on all mobile money transactions, every level of financial service provision across the country is cost prohibitive. Price is an important component of the business case for those considering adopting financial products and services, and these transaction costs are more keenly felt amongst the unbanked population.</p>	<p>Short</p>	<p>High</p>
<p>R3. Support bill payment aggregation and fintech development, especially</p>	<p>To reduce fragmentation of the bill payment process, build confidence and promote the use of digital financial services, the government could work with utility companies to create a</p>	<p>Medium</p>	<p>Intermediate</p>

<p>in the context of the COVID-19 crisis.</p>	<p>common aggregator that will help facilitate bill processing, improve speed, and reduce cost. In the fintech area, the current hub could be enhanced with the creation of an Innovation Fund that will help support fintech development through matching grants. Powering FinTech is a one way to support the most impacted businesses and communities, as economies are increasingly relying on fintech to stay afloat, and demand for services such as mobile payments, food delivery, and e-commerce shopping will grow exponentially.</p>		
<p>ii. Strengthen ecosystem cooperation and common inclusion</p>			
<p>R4. Establish a formal working group or a platform amongst key local stakeholders, including MNOs, government and digital entrepreneurs to address major FinTech barriers.</p>	<p>Establish a formal working group or a platform amongst key local stakeholders, including MNOs, government and digital entrepreneurs to address major FinTech barriers such as open APIs and credit provision. Looking forward, it would be prudent to build out a vision for the future of FinTech in the Republic of Congo, outlining the requisite legal and regulatory upgrades required, and incorporating this into the National Financial Inclusion Strategy.</p>	<p>Medium</p>	<p>Intermediate</p>
<p>R5. Encourage competition and promote an enabling environment to drive DFS innovation.</p>	<p>Biometric ID and digital addressing systems and can be leveraged to create a digital KYC utility that automates customer due diligence and overcomes barriers to account opening. These systems could also be connected to create a secure store of personal data that could be shared on-demand with providers in order to qualify for credit or other financial services. Additionally, connecting ID systems to real-time payments can further enhance interoperability by enabling customers to perform instant transactions everywhere regardless of devices, provider or account type by simply verifying their biometric identity. Such a system could help to overcome barriers to merchant payments and increase competition by levelling the playing field between banks, MNOs, and fintechns. Increasing the use of DFS depends on ensuring affordability and relevance of use cases to citizens and businesses alike. One way to achieve this goal is through encouraging greater competition, which drives innovation and pushes down costs, thus producing greater value for customers. The government should proceed with the</p>	<p>Short</p>	<p>High</p>

	implementation of the draft Payment System and Services Bill in a way that facilitates risk-based licensing and oversight of fintechs by the BEAC.		
iii. Improve financial stability by modernizing financial systems			
R6. Increase the collaboration between the Central Bank and ARPCE to strengthen capacity and progress around interoperability of non-bank payments architecture.	While the commercial banks are interoperable, only a small proportion of the population has a bank account – there is no interoperability between mobile money providers, banks and international remittance providers. There would certainly be a need to create a platform or exchange frameworks for regulatory actors to discuss and decide on the standards to be applied in the markets; and the same for the development of a common strategy for financial inclusion by involving both the public sector, and the private sector (banks, MNOs, incubators).	Short	High
R7. Renforcer la transparence financière et établir une stratégie de rapport financier.	Strengthen financial transparency and establish a financial reporting strategy to include a regional credit registry, regional balance sheet database, credit information bureaus, and the strict application of the requirement for financial institutions to publish their financial statements.	Short	High
Digital Entrepreneurship			
Action		Time Frame	Priority
i. Lift key regulatory hurdles for digital economy and data-driven business models			
R1. Better regulate Public Private Partnerships as a mean to implement the Vision Congo Digital 2025 strategy.	Among the many projects envisioned in the digital strategy, several of them would benefit from a better cooperation between the public and private sectors. This would help to catalyze the Congolese innovation ecosystem and build a needed trust around concrete actions between the Government and private sector entities.	Medium	Intermediate
R2. Enable data-driven business models with open innovation, led by a cyber-secure digital intelligence agency.	Open innovation and digital platforms are not a big part of the policy debate in Congo. However, they come as important foundations for digital business models through big data analysis and the systematic opening of APIs. The Government could consider the creation of a digital intelligence agency to tackle the issues of open innovation, open data and related concerns of cybersecurity.	Medium	High
R3. Improve the business environment	The business environment for startups lacks specific measures to enable firm creation and investment in a sustainable manner. The passing		

for startups and digital firms.	of a Startup Act, which is in the pipeline of the Government, should include increased transparency on financing opportunities from the government, capacity building as well as promotion of digital culture through better communication with the general public. It is also important to strengthen the integration of support into the entrepreneurial ecosystem. This involves, for example, promoting collaborations between incubators, training institutions and financial institutions. Collaboration between incubators, innovation labs, the private sector and the public sector would also be important for the co-creation of useful solutions meeting specific needs.	Medium	High
ii. Build capacity of firms and civil society organizations of the digital economy			
R4. Encourage digital technology adoption in traditional industries	The Government could seek a combination of supply-side and demand-side measures aiming at bridging the inclusion gap of SMEs in traditional sectors. Supply-side policies should focus on bringing connectivity to the most remote and excluded businesses, as well as facilitate adoption through affordability programs. Demand-side policies should target highly productive companies who would benefit the most from productivity tools offered by digital technologies.	Medium	High
R5. Strengthen incubators, hubs, forums and civil society initiatives for the digital economy.	Incubators and innovation related-events such as have been some of the starting points of the Congolese innovation system. They provide quality training and have participated in the creation of the most advanced startups in the country. Their work should be supported with funding, training of trainers, international exchanges and improved access to mentorship. Communities working in rural areas.	Medium	High
R6. Equip digital entrepreneurs with business management, communication and fundraising skills.	Most digital entrepreneurs in the country started with their own funds and on the basis of self-taught capacities. It is crucial to provide potential entrepreneurs with the skills to conceptualize and meet their objectives.	Short	High
R7. Provide reliable electricity, internet connectivity and affordable electronic devices.	Both incubators and entrepreneurs need better access to infrastructure in order to develop digital solutions. This is also key for traditional entrepreneurs interested in using data and software to increase their productivity and business management practices.	Short	High

iii. Encourage multi-stakeholder collaboration in the innovation eco-system			
R8. Create digital content that brings together the population, firms and the administration.	While the digital culture is lacking in Congo, the public is familiar with smartphone technology, social networks and platforms such as Facebook or WhatsApp. This is an opportunity for the Government and the private sector to work together to develop digital content that can encourage people to increase their use of digital services.	Long	High
R9. Increase the knowledge base and available data on the digital economy.	Very little information is currently available on the status of the digital economy in Congo, preventing any evidence-based strategic planning or evaluation of any progress accrued by digital development programs and policies. A baseline should be established through a joint effort between the Government, the Chamber of Commerce and research institutions interested in taking part in modernizing the sector.	Short	High
R10. Increase collaboration between the Ministry of Digital Economy and other public agencies.	While the Ministry of ICT is a driving force of the digital agenda, more efforts are required to implement projects with other parts of the Government as well as international partners. In terms of private sector development, the Ministry of SMEs must be an integral part of projects to develop the IT sector.	Medium	High

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Acronyms

2G	Second Generation
3G	Third Generation
4G	Fourth Generation
ACNIC	<i>Association Congolaise De Nommage Internet En Coopération</i> (Congolese Internet Naming Agency)
ACSI	Congolese Agency of Information Systems
ANSSI	National Agency for the Security of Digital Systems
API	Application Programming Interface
ARPCÉ	<i>Agence de Régulation des Postes et des Communication Electroniques</i>
AU	African Union
BEAC	Bank of the Central African States
CAB	Central African Backbone
CAR	Central African Republic
CICO	Cash-in-cash-out
CDMA	Code Division Multiple Access
CDN	Content Delivery Network
CEMAC	Economic and Monetary Community of Central Africa
CERT	Computer Emergency Response Team
CGIX	Congo Internet Exchange Point
COBAC	Banking Commission for Central Africa
DE4A	Digital Economy for Africa
DFS	Digital Financial Services
DGDEN	General Directorate for the Development of the Digital Economy
DRC	Democratic Republic of Congo
ECCAS	Economic Community of Central African States
FTTx	Fiber to the X or Fiber in the Loop
G2G	Government Back Office Systems
Gb	Gigabyte
GDP	Gross Domestic Product
GNI	Gross National Income
GSM	Global System for Mobiles
ICT	Information and Communications Technology
IFC	International Finance Corporation
IP	Internet Protocol
ISP	Internet Service Provider
Kbps	Kilobits per second
LTE	Long-Term Evolution
MB	Megabyte
Mbps	Megabits per second
MEPFQE	Ministry of Technical Education
MEPSA	Ministry of Education and Literacy
MES	Ministry of Higher Education
MHz	Megahertz
MNO	Mobile Network Operator

MPTEN	<i>Ministère des Postes, Télécommunications et de l'Economie Numérique</i>
MW	Microwave
NBFI	Non-bank-financial institutes
NIU	Unique Administrative Identifier
PACDICEAC	<i>Plan Consensuel de Déploiement des Infrastructures de Communications Electroniques en Afrique Centrale</i>
PND	<i>Plan National Stratégique de Développement</i> (National Development Plan)
PCN	<i>Couverture Nationale en Télécommunication</i>
PPP	Public Private Partnership
SCPT	<i>Société Congolaises des Postes et Télécommunications</i>
SIGFP	Integrated Financial Management System
SME	Small and Medium Enterprises
SMP	Significant Market Power
SNE	<i>Société Nationale d'Electricité</i>
STM-1	Synchronous Transport Module level 1
Tb	Terabyte
US\$	United States Dollar
USF	Universal Service Fund
WACS	The West Africa Cable System
WBG	World Bank Group
WiMAX	Worldwide Interoperability for Microwave Access

Introduction

The Republic of Congo at a Glance and socio-economic impact of the COVID-19 pandemic

The Republic of Congo is a lower middle-income country in Central Africa. The country draws its resources mainly from oil and natural resources such as forestry and has become the fourth-largest oil producer in the Gulf of Guinea. Fluctuation of international prices on these commodities, and years of mismanagement of natural resource revenues, have left the country in a fragile fiscal position. According to the most recent data, more than 60 percent of the 5.3 million inhabitants lived in urban areas in the two main cities, namely Brazzaville and Pointe-Noire. Over the past 4 years the average annual growth was 4%. Congo's real GDP growth is expected to contract by 2.1 percent in 2020. With the COVID19, the large trade, tourism, transport and supply disruptions induced by lockdowns would negatively impact the non-oil economy (-4 percent in 2020). Tourism and related activities (hotel and restaurant, transport) would be strongly hit. Lower oil prices would reduce government revenues and further delay the clearance of domestic arrears to the private sector, leading to lower private sector investment and production. The country is caught in a debt trap⁴ that is jeopardizing its growth and development agenda and would need strong measures to put its debt dynamics on a sustainable path. High debt servicing costs is weighing on the country's prospects by leading to (i) aggressive tax hassles on the private sector; (ii) reduced fiscal space for social spending and public investment; and (iii) a reversal of the gains in reducing poverty and an increased vulnerable population. This situation heavily constrains the country's ability for effective budget planning and investments for economic and social development. In spite of a GDP per capita slightly above US\$ 2,100, revenues are unequally distributed nationwide, and the country underperforms on many economic and social outcomes. On the World Bank's 2018 Human Capital Index, the Republic of Congo scores 0.42, which is well below the average for lower middle-income countries. The population of the Republic of Congo is largely young and urbanized, but the level of human capital remains low.

The COVID-19 crisis as well as the sharp drop in oil prices, and the subsequent reduction in production are hampering economic performance and socio-economic development. The drop in remittances specially from USA, France and other European Union countries, hit by the COVID19 pandemic, expected to decline sharply at the global level by about 20 percent in 2020, will negatively affect non-labor income in the country. Disruptions in supply chains could induce shortages on food markets and the resulting food price inflation could worsen food insecurity in the country, especially since it heavily relies on food imports. Moreover, the decline in oil-related revenues would jeopardize the country's ability to properly finance social spending programs, generating disruptions in the provision of basic services (education and health). Under the baseline scenario, poverty is expected to increase by 0.7 percentage points while under the downside scenario the increase would be higher at 3.3 percentage points given other adverse impacts on redistribution. According to the first assessment of the National Committee in charge of the Government response to the pandemic COVID-19 (established on March 27, 2020), slightly more than 280,000 people would become more vulnerable because of the current crisis.

⁴ World Bank, Republic of Congo Economic Update "Escaping the high-debt trap", June 2020.

The National Development Strategy & Digital Economy

Box 1: Boosting resilience in the face of pandemics – the role of the Digital Economy

The recent COVID-19 outbreak has forced us to rethink our approach of responding to pandemics using the most appropriate tools, including digital technology. In countries like Republic of Congo, the lack of digital development limits the scope of policy option available to tackle this type of threat. Greater digital adoption would help to boost resilience to pandemics via (i) economic exchanges taking place in the digital sphere; (ii) business continuity through home-based work; and (iii) the delivery of basic services via digital platforms for distance learning and healthcare.

A strong digital ecosystem is proving critical to the public health response to the pandemic, be it by improving information sharing, data collection or management information systems. Low-tech responses are also available, including SMS- or USSD-based health notices or emergency hotlines.

Congo's development framework is laid out in the 2018-2022 National Development Plan (so-called PND in Congo), which focuses on improving governance and institutional capacity, strengthening human capital and diversifying the economy. The PND identifies infrastructure - including ICT, and human capital, as requirements for the diversification of the Congolese economy and the emergence of a prosperous society. Public administration reform is at the forefront of the Plan, which aims to bring the State and public services closer to the inhabitants of each administrative district.

In June 2019, the Government of the Republic of Congo adopted a National strategy for digital economy "Vision Congo Digital 2025"⁵, which is based on three pillars: e-citizen, e-government and e-business. The strategy revolves around three pillars (i) services to citizens, (ii) digitalization of government, and (iii) development of digital private sector. Vision Congo Digital 2025 aims to "build the Congo towards an information and technology-based society", and to ensure inclusive progress for all citizens and businesses nationwide. The development of the strategy was led by the Ministry of postal services, telecommunication, and digital economy. A legal framework has already been adopted (but not yet promulgated) to support the implementation of the strategy and support the development of the digital economy.

⁵ Strategic document "Vision Congo Digital 2025", available for consultation and download from: <https://www.digitalbusiness.africa/download/vision-congo-digital-2025/>

1 Strategic, institutional and legal framework

Box 2: Key Messages on strategic, institutional and legal framework

- Republic of Congo has adopted a National Strategy for digital transformation (*Vision Congo Digital 2025*), which focuses on improving government service delivery and fostering the development of a digital private sector.
- Efforts have been undertaken on legal and regulatory reforms to put in place the foundational elements of digital legal framework. A new legislation was progressively adopted in 2019 and 2020⁶ but the adoption of regulatory instruments for its full implementation remains to be developed.
- Strategic coordination is paramount in achieving the objective of the national digital transformation strategy.

1.1 Importance of an effective Institutional framework

Strong analog foundations including accountable institutions and enabling regulations are important in building dynamic digital economy. Implementation of the digital transformation agenda requires a shared vision and strategic coordination supported by high-level political commitment and efficient leadership. Indeed, digital transformation involves several stakeholders within the government and the general ecosystem at large, that requires that interventions are coordinated, and roles are clarified. As identified in this Digital Economy Assessment framework, digital transformation is a cross-cutting issue that requires interventions across several pillars, identified as digital infrastructure, digital skills, digital entrepreneurship, digital platforms and digital financial services. Roles and attributions across these pillars are devolved to different institutions within the government in collaboration with non-governmental actors. To guide a common and dynamic approach to digital transformation at the country level, effective leadership and clear institutional framework is then important to avoid that inter-dependent institutions and entities work in silo. The basis for such approach requires the adoption and internalization of a common vision and strategy across the different stakeholders. The Republic of Congo adopted the “Vision Congo Digital 2025” as its national strategy for digital transformation. The implementation of this ambitious strategy requires coordination that can be successful only with high level political commitment and cross-cutting leadership.

The adoption and implementation of the enabling legal and regulatory framework is also important. As countries contemplate the implementation of digital transformation, legal and regulatory pre-requisites are needed. These ensure that digital transactions are legally accepted, and that they are done in a secure and protected manner. With more and more online transactions, the volume of exchanged data and information will increase, and without the proper legal and regulatory

⁶ Recently adopted legislations include personal data protection laws, the Cybersecurity Act for the protection; the law on electronic transactions that will apply to digital commerce, digital signature, digital certification; the cybercrime law which defines all the digital related offenses.

framework, government, citizens and business are left vulnerable to security breaches. The government of the Republic of the Congo has taken steps toward adopting the required legal and regulatory framework supporting the ambitious national strategy for digital transformation.

1.2 Diagnostic findings: Current state of institutional framework

1.2.1 Vision and strategy for the digital economy

The ROC's National Development Plan (2018-2022) lays out the country's vision and development priorities. The National Plan revolves around the vision "*Marchons vers le Développement, allons plus loin ensemble*" ("Walk towards development, let's reach further together"). Identified priorities include: (i) Governance, (ii) Human Capital, (ii) economic transformation fostered by the private sector, and (iii) infrastructure and service delivery. In June 2019, the Republic of Congo also adopted the National strategy for the digital economy "Vision Congo Digital 2025". Reflecting some of the priorities of the national development plan, his national strategy for digital transformation revolves around three pillars: (i) services to citizens, (ii) digitalization of government, and (iii) development of the digital private sector. The overarching objective of this vision is to "build the Congo toward an information and technology-based society". The government intends to pursue the liberalization of the ICT sector as well as to grow the interest of stakeholders on the national digital and Smart Africa agendas. The key priorities of the Government of the Republic of Congo are: (i) building on efforts to strengthen digital infrastructure, (ii) improving governance and service delivery using digital technologies, and (iii) promoting a digital private sector.

1.2.2 Institutional framework

The Ministry of Telecommunication and Digital Transformation (MTPEN) has led the development of the "Vision Congo Digital 2025" strategy and leads the digital agenda in the Republic of Congo. However, while the strategy and vision and coordination role are defined, there remains a need for better articulated implementation plans clearly defined roles of other stakeholders and government entities in the process. The consultations undertaken across the different entities (governmental and non-governmental) also showed limited knowledge and appropriation of the national digital strategy, and of what it requires from each of the concerned institutions. The Prime Minister's Office and the Ministry of Telecommunications, Posts and Digital Economy (MTPEN) are committed to improving dialogue between the various key stakeholders in the digital sector ecosystem. The General Directorate for the Development of the Digital Economy (DGDEN) has thus recently been set up to lead the implementation of the national digital strategy. To improve institutional coordination and dialogue with actors in the digital ecosystem, MPTEN recently submitted a draft decree on the creation of a permanent inter-institutional committee for digital development, which would bring together state players but also the private sector and civil society organizations. The mission of this committee is to ensure the coordination of the strategic dialogue for the coordination of sectoral approaches in the implementation of digital transformation. The government recognizes that better coordination is

necessary to ensure better governance between departments and agencies implementation of certain information systems departments and government ICT supervision. The DGDEN is mandated to implement an action plan that would stem from the Vision Congo Digital 2025 strategy, which is being developed with the support of a consulting firm as part of the CAB project. In addition, COVID-19 pandemic has brought the political will to tackle the digital transformation bottlenecks highlighted in this report. Digital technology offers many opportunities in the post-pandemic response and reconstruction, whether by strengthening health systems through the use of digital tools for improving information in the health sector, or by facilitating home based work and distance learning. To take full advantage of these opportunities, fundamental building blocks are needed to support a nascent digital economy.

The Ministry of Posts, Telecommunications and Digital Economy (MTPEN) governs the digital economy sector through structures placed under its supervision, including:

- *Agence de Régulation des Communications Electronique et des Postes* (Posts and Electronic Communications Regulation Agency- ARCEP)- for the regulation of the Telecommunication sector.
- *Direction générale des postes et des Télécommunications* (General Directorate of Posts and Telecommunications - DGPT) - for the coordination of the telecommunications policy.
- *Direction générale du développement de l'économie numérique* (General Directorate for the Development of the Digital Economy - DGDEN) - for the coordination and the implementation of the national digital development strategy.
- *Inspection des postes, des télécommunications et du numérique* (Post, telecommunications and digital inspection - IPTN)
- *Agence Congolaise des Systèmes d'Information* (Congolese Information Systems Agency - ACSI) – for the development certain public sector applications.
- *Agence Nationale de Sécurité des Systèmes d'Information* (National Information Systems Security Agency - ANSSI), newly created by the cybersecurity law, is in charge of the security of government systems.
- The Congo Telecom Company offers telecommunications services.
- As regards the financial sector, including the digital financial sector, regulation is carried out at the regional level by the Bank of Central African States (BEAC).

1.2.3 Legal and regulatory framework: regulatory bodies/ impact of regional bodies

The legal foundations for Telecom regulation are embedded in the following legislations:

- **Regulation of telecommunication market:** The Law No.9/2009 of November 2009 regulates the licensing of telecommunication operators, access to market, management of infrastructure and competition in the telecommunication sector.

The ROC has recently strengthened the foundational legal and regulatory framework for digital transformation:

- **Personal data protection:** The Law 29-2019 of October 2019 defines the conditions for secure use and storage of personal data, as well as the institutional framework ensuring the protection of personal data. An implementing decree establishing a national data protection commission is in the process of being adopted.
- **Cybersecurity:** The Law 26-2020 of June 2020, regulates the national legal framework for the security of information systems and electronic communications networks. Congo also ratified and acceded to the African Union's Malabo Convention in August 2020.
- **Institutional arrangement for IT system security:** The Law 30-2019 of October 2019 defines the implementation of the ANSSI, its role, attributions, and governance, in addition to the provisions of the law on cybersecurity. The operationalization of ANSSI remains to be carried out over the coming months.
- **Electronic transactions:** The Law 37 – 2019 of December 2019 defines the legality of electronic transaction, as well as the acceptance of the dematerialization of procedures and administrative formalities in a secure manner (electronic proof, signature, certificate and archiving).
- **Cybercriminality:** The Law 27-2020 of June 2020 on the fight against cybercrime defines the different crimes related to the use of digital and electronic transactions, and the measures and sanctions against such defined crimes.

Overall, the texts are well drafted and in line with regional laws and international standards. However, for the implementation of these laws to be effective, the adoption of regulatory instruments, the operational creation of the newly created regulatory institutions and the monitoring of their provisions are essential over the coming years.

Box 3 - Regulations and Regionality

The ROC belongs to the CEMAC region. Regional regulations are applicable to the member countries including on monetary policy, financial sector regulation, and public financial management. The experience of countries, such as the Republic of Congo, that have advanced on the front of digital sector regulations and legal framework can serve the other countries in the region and could serve as basis for standardized approach among the member countries. In addition, the Congo has ratified and acceded to the African Union convention, known as the Malabo Convention, on cybersecurity and the protection of personal data.

1.3 Recommendations

Table 1 : SWOT analysis on the institutional, strategic and legal framework

Strengths	Weaknesses
<ul style="list-style-type: none"> - Adoption of a national strategy for digital transformation (Vision Congo Digital 2025) 	<ul style="list-style-type: none"> - Lack of clarity on implementation plans, responsibilities and roles of each stakeholder in the process. - Weak capacity to implement and enforce enabling laws and regulations, resulting in uneven enforcement.
Opportunities	Threats
<ul style="list-style-type: none"> - Ongoing initiatives to coordinate the dialogue on the digital agenda. - Future action plan for the national strategy implementation. - Improvements on the legal and regulatory frameworks (protection of personal data, cyber security and cybercrime, electronic transactions). 	<ul style="list-style-type: none"> - Low ownership of the national digital strategy. - Lack of strategic coordination and lack of a whole-of-government approach can slow down national progress in digital transformation.

The following recommendations could improve the strategic, institutional and legal framework for the digital economy in the Republic of Congo:

Objective 1: Implement the legal and regulatory framework

R1. Strengthen and operationalize the institutions in charge of monitoring and applying the newly adopted legislative framework to offer Republic of Congo resilience against emerging challenges in the digital economy. The adoption of new laws was an important step in making the legal framework more comprehensive and better aligned with international best practices. The next step is to operationalize and / or empower existing and newly created agencies (ARPCE, ARTF, ACSI, ANSSI) in charge of monitoring and applying the newly adopted legislative framework; and strategically to coordinate the efforts of different public and private entities responsible for the development and regulation of the ICT sector. The new sectoral framework clarifies the institutional arrangements at the national level for the security of information systems. The newly created institutions will play a pivotal role in the successful implementation of new policies and laws while taking advantage of regional partnerships and harmonization to strengthen the detection and response capacity in cybersecurity. More specifically, the government could adopt in the short-term specific standards for the computer security of information systems, government platforms and government databases, involving the main bodies responsible for digital development as well as the sectors (Ministry of the Interior, Justice, Health, Civil Status, etc.). All these actors should be involved in the prevention and investigation of cyber security breaches

under the leadership of ANSSI. The Global Cybersecurity Index continues to recommend governments to set a clear cybersecurity strategy, use cloud for cybersecurity purposes, create child online protection mechanisms, benchmarks and metrics to monitor cybersecurity, educate the public, institute professional cybersecurity specifications and create cybersecurity education and research programs.

Objective 2: Improve coordination and planning

R2. Strengthen the leadership and capacities of civil servants and policy makers to promote the digital agenda and design national policies in accordance. This could be done based on good practices, and through training, capacity building and knowledge exchange with other countries. The COVID-19 crisis is leading countries to dramatically accelerate their digitization, given social distancing measures and travel restrictions. Public officials must quickly learn and assimilate best practices and solutions, to be adapted and implemented in the country.

R3. Reinforce the strategic coordination mechanism for digital transformation. The government has adopted the national digital strategy which will require further implementation guidance through action plans and defined goals for each stakeholder. The MPTEN and the Office of the Prime minister should also coordinate on the operational model for coordinating efforts on digital economy and formalize the different arrangements in place in order to provide high-level political mandate, clarify roles and provide the powers. In practical terms, this would involve ensuring the existence of resources allocated to institutional coordination at MPTEN level, strengthening the capacity of the interinstitutional coordination committee in order to hold regular meetings, defining the milestones and the results to be achieved as well as the responsibilities.

Box 4 - Best practices for establishing an effective institutional framework for digital transformation

International best practices suggest that there are two main approaches for supporting effective leadership on the digital agenda:

1. **Entrusting leadership to a supra-ministerial entity.** In most cases leadership is conferred to the highest political office through the introduction of an agency that reports directly to the President's or Prime Minister's Office. This model is currently being employed by Brazil, Chile, South Korea, Estonia, Luxemburg, Mexico, and Slovakia. This model helps ensure high-level leadership and supports centralized strategic coordination. Several variations of this approach exist depending on the degree of involvement of other ministers.
2. **Strategic coordination is ensured by a lead ministry.** This model is currently being employed by Belgium, the People's Republic of China, Japan, Poland, Portugal, Slovenia and Rwanda. Here too, there are several variants depending on the nature of the ministry in charge of this coordination: exclusively in charge of digital, having other areas of responsibility, or sharing its prerogatives with several other ministries.

The choice of the best configuration depends on national specificities in terms of institutions, administrative organization, administrative culture or public capacity, inter alia.

Source: OECD (2019). *Going Digital: Shaping Policies, Improving Lives*. OECD Publishing, Paris.

2 Digital Infrastructure

Box 5 - Key Messages on Digital Infrastructure:

- There have been significant improvements in recent years in terms of connectivity and access to internet. Mobile coverage and traffic have increased, while costs have shrunk.
- However, internet services and digital devices remain expensive as percentage of revenue, given the low average purchasing power.
- Reforms should prioritize increasing competition in the digital infrastructure sector, as well as improvements to the legal and regulatory environment. This will help promote investments in infrastructure and drive down cost of accessing internet, while improving the quality of service.

2.1 Importance of Digital Infrastructure

2.1.1 Socioeconomic Rationale for Digital Infrastructure Development

The Republic of Congo (RoC) has the potential to serve local needs and even become the connectivity hub for the region, with additional investments in connectivity. An extensive body of research confirms the impact of increased investment in broadband on economic growth. World Bank research estimates that a 10 percent increase in broadband penetration in developing countries is associated with a 1.4 percent increase in GDP⁷. While digital connectivity does help to accelerate growth and development, harnessing the full potential of digital technology is predicated not just on investments but also on reforming the regulatory environments and ensuring competitive market structures⁸.

2.1.2 Alignment with Country Development Strategy & Goals

Congo's 2018-2022 national development plan (PND) identifies infrastructure, including ICT, as a key requirement for the diversification of the Congolese economy and the emergence of a prosperous society. The Government has already committed to implementing the National Telecommunication Coverage project (PCN⁹), and the Central Africa Backbone (CAB)¹⁰ project. The 4000-km PCN is managed by the state-owned incumbent Congo Telecom and aims to cover 10 provinces¹¹. The CAB projects include the development and implementation of three inter-regional links with Gabon, Cameroon and DRC. They were designed as key building blocks

⁷ Kim, Kelly, and Raja, 2010. Building Broadband: Strategies and Policies for the Developing World. World Bank.

⁸ World development report (WDR) 2016: digital dividends

⁹ The first two phases of the PCN project have been completed (metropolitan loop installed). The third phase is being finalized for the restructuring of Congo Telecom (review of its mandate and functioning³).

¹⁰ Under the CAB project, the Congo-Gabon network was made with the support of the World Bank. Today, the government has established a public-private partnership with a local operator who is responsible for maintenance and operation of this network. For the Congo-Cameroon network project, a delay has been observed due to the COVID-19 pandemic, but by March 2021 the construction of the network should be completed. For the Congo-RCA network, there was a severe delay also because of the COVID-19 pandemic.

¹¹ The key segments are: Pointe Noire – Soweto (3000 km); the center of the country (300 km); North (400 km). In the first phase, metropolitan optical loops have been built in the cities of Brazzaville, Pointe-Noire and Oyo by Huawei. The second phase aims to cover the national territory by creating a terrestrial optical ridge around major population centers and extending (straps) from this trunk to other departments. This phase will see installation of 10 Gb-capacity metro rings in each of the 10 district capitals.

to position Congo as a traffic hub and of improve access to broadband services across the country and the region. However, these projects have run into enormous delay, and only one link (between Republic of Congo and Gabon) out of the initial three planned has been achieved but has yet to be commercialized. A new phase of the CAB project is being launched with funding from the African Development Bank, consisting of fiber network between the Republic of Congo and the Central African Republic (CAR), and between the Republic of Congo and Cameroun¹², as well as the construction of two data centers.

Box 6 : Regionality of infrastructures

Connectivity infrastructures are regional by nature. Additional projects to improve connectivity through inter-regional links with Gabon, Cameroon, DRC, and Central African Republic have been initiated but delayed in their materialization. If realized, these projects hold the potential to improve connectivity across the region.

2.2 Diagnostic Findings: Current State of Digital Infrastructure

It is projected that, given the current level of industry expansion plans and targets, Republic of Congo is on track to reach the interim goal of doubling broadband access by 2021 (albeit from a very low point of 10.9 percent in 2016). However, the Republic of Congo will only be able to attain the ambition of providing 90 percent of the population with access to faster broadband if it accelerates reforms and investments. This chapter provides an overview of the state of development of the broadband market in the Republic of Congo, and the main drivers that can be strengthened to help Republic of Congo accelerate further and reach its ambitions for digital connectivity.

2.2.1 How does Republic of Congo compare in Digital Infrastructure and Services?

i. Broadband Penetration

Like the rest of Africa, people in the Republic of Congo access internet mainly from their mobile. Mobile internet penetration stands at 31.8 percent, putting the Republic of Congo ahead of peers in the region. As of December 2020, there were an estimated 2 million mobile internet subscriptions. The relatively high mobile penetration rate (at 94 percent versus regional average of 84 percent) is a key contributing factor to the growth of mobile internet in the Republic of Congo. Congo's largest mobile operators – MTN and Airtel – have developed extensive networks in recent years, making services more widely available in the cities. Coverage of areas outside of major population centers has also continued to improve. MTN launched an LTE-based offering over 4G in selected areas of Brazzaville and Pointe-Noire in 2016, followed by Airtel in 2018.

The Republic of Congo fares far less well on fixed broadband. With 2,630 fixed broadband internet subscribers and penetration of less than 1 percent (compared to 8 percent in the region), the Republic of Congo has one of the lowest usage rates by Sub-Saharan Africa benchmarks. Yet the level and growth of broadband penetration is among the most important indicators for gauging the readiness for the takeoff or growth of the digital economy in emerging markets. Broadband infrastructure (except mobile networks) is dominated by the state-owned incumbent, Congo

¹² As of March 2020, the Cameroun segment has begun, but not the CAR segment.

Telecom. The fixed broadband market has been hampered by poor availability, prohibitive costs and the slow speed for installations of fixed line services¹³.

On the demand side, high-bandwidth content is becoming increasingly available and appetite for media rich content is growing enormously. There is also a value shift toward higher bandwidth. The biggest contributors to the demand for internet bandwidth are the internet exchange, and cache and content delivery services such as those offered by Google, Facebook and Akamai¹⁴.

A key constraint to further deployment of FTTX fiber¹⁵ is high cost of devices. Commercial banks do not have the credit culture to finance households to acquire devices such as internet boxes, smartphones and computers. And while larger cities and town centers have been covered by FTTX fiber, connectivity in smaller towns and cities, as well as the interconnection between districts, are still lacking. ROC's mobile internet penetration is above those of neighbors, but it is underperforming relative to regional leaders such as Nigeria and South Africa (Figure 3). Digital infrastructure deployment depends on spectrum availability, but digital dividend spectrum (MHz per operator) and other spectrums (sub 1GHz and 1-3GHz bands), have been relatively limited in the Republic of Congo. In addition, network performance is undermined by low mobile download and mobile upload speeds even as mobile latencies have improved steadily.

ii. Network Coverage

Network coverage in the Republic of Congo stands at 64 percent for 3G and 47 percent for 4G. The primary Mobile Network Operators (MNO) in Congo are MTN and Airtel. They both, expanded their 3G and 4G coverage to cover a larger segment of the population in rural areas. With the so-called 'LTE and fiber' license, MTN's 4G network covers more than 55 percent of the population. The country is lagging behind regional peers, with a 3G coverage of 95 percent in Rwanda and 67 in Tanzania for instance. 3G coverage in DRC is at par with Republic of Congo despite the former having ~7 times the land area and a more challenging geography (Figure 2). While the Republic of Congo has invested more in its mobile networks than neighboring countries¹⁶, network coverage is comparatively limited due to late investments in 4G. 4G-LTE networks in Rwanda and Ghana went live in 2014 and in Benin in 2015, but ROC's first 4G network was launched late 2018.

¹³ Top-end speeds on offer have however improved as result of the switch. Congotel's top-tier plan now offers downlink rates of 16 Mbps.

¹⁴ Before the arrival of cache, in-country capacity was dominated by microwave network which had been too slow and only enough capacity to cover operators' backhauling needs. This cache arrangement has reportedly saved ~50 percent of data capacity.

¹⁵ Fiber to the x, or fiber in the loop, is a generic term for any broadband network architecture using optical fiber to provide all or part of the local loop used for last mile telecommunications.

¹⁶ Capex/revenue averaging ~28 percent compared to 17 percent for DRC and 16 percent for Rwanda.

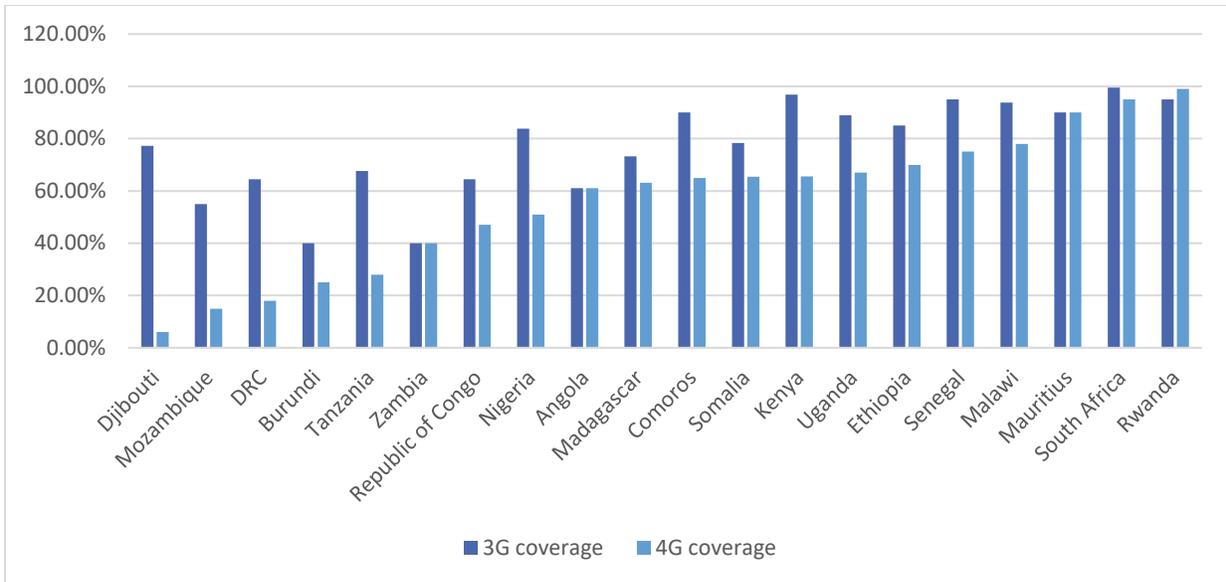


Figure 2: Population coverage of 3G and 4G networks in a selection of sub-Saharan countries (Source: GSMA)

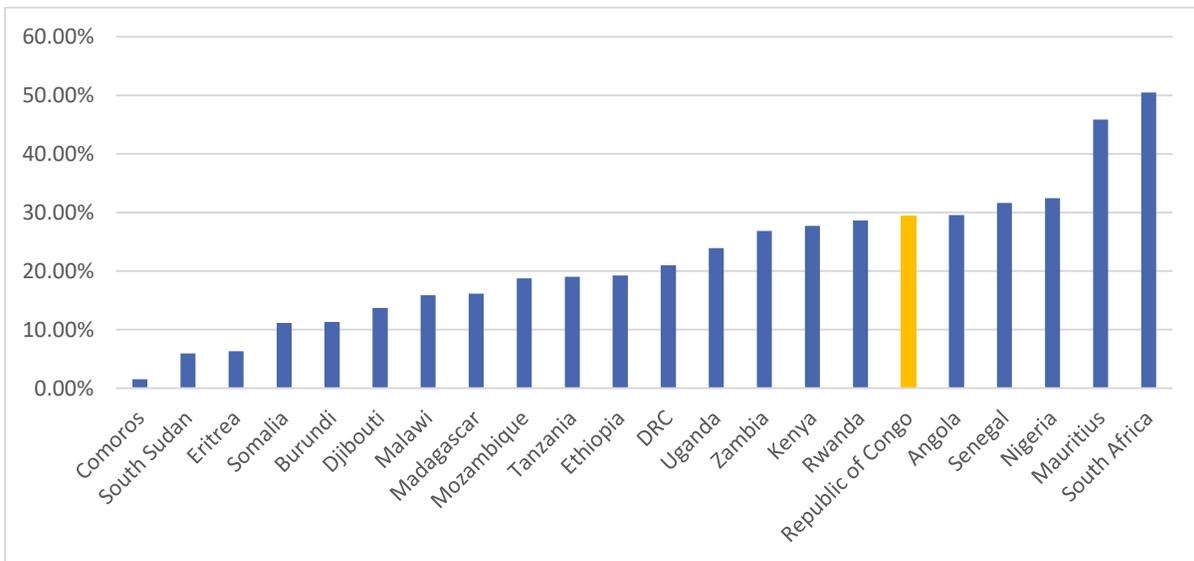


Figure 3: Mobile broadband unique penetration in Sub-Saharan Africa (source: GSMA)

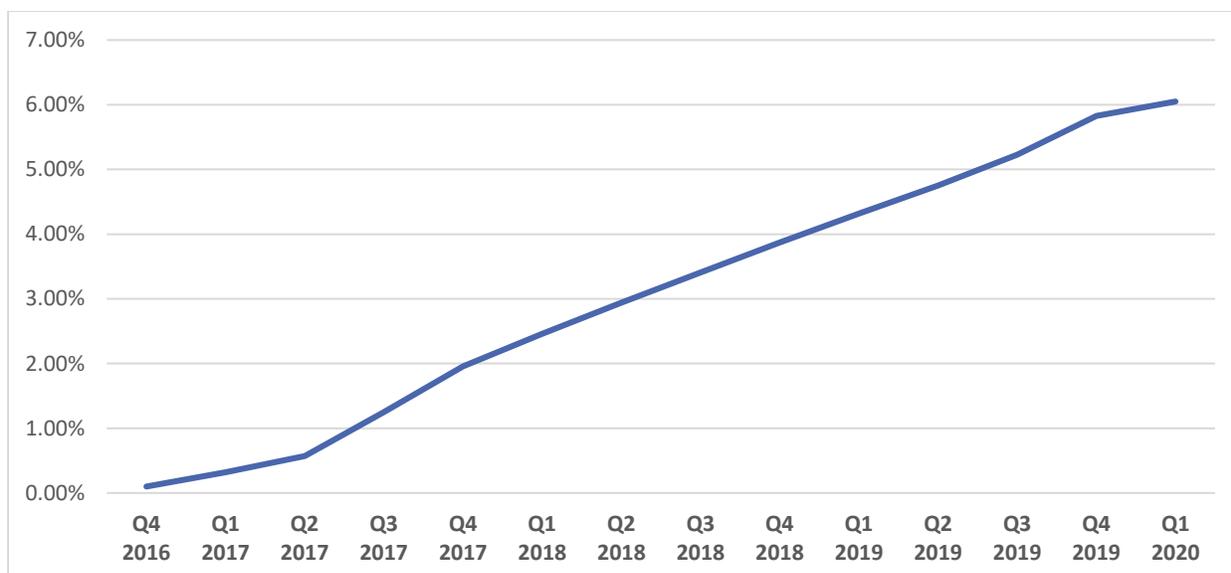


Figure 4: 4G penetration in the Republic of Congo (source: GSMA)

iii. Affordability

Affordability of internet services in the Republic of Congo is in the mid-range for mobile markets in Sub-Saharan Africa (see figure 5). Prices have dropped, with an entry-level service – which offers speeds of 2 Mbps - costing about US\$ 26 in January 2020 (less than half the price in 2018). This is due in part to reducing cost of mobile technology, shift in consumer preferences and regulatory action. In terms of absolute cost of access, 1 GB of internet subscription costs an average of US\$ 8.7 (Compared to US\$ 10.7 in DRC, US\$ 4.2 in Kenya and US\$ 3.4 in Cameroun (Alliance for Affordable Internet, 2020). But at 6.4 percent of average monthly income, 1 GB of mobile internet more expensive in the Republic of Congo than in leading countries in Sub-Saharan Africa¹⁷. It is also more than triple the commonly used target for affordable broadband internet, which has recently set at 2 percent of monthly income for 1GB¹⁸. Countries with relatively high prices for internet connectivity and limited penetration like the Congo are not prepared to use digital tools to deal with the COVID-19 crisis. Actively pursuing its digital agenda will strengthen the country's capacity to respond to this crisis and strengthen its resilience in the face of potential future crises.

¹⁷ 1 GB of mobile internet costs 1.7 percent in Nigeria, 1.21 percent in Gabon and 2.17 percent in Angola (figure 6)

¹⁸ For reference, the “1 for 2” target has been adopted by the UN Broadband Commission, the Economic Commission of West African States (ECOWAS), Nigeria, and Ghana.

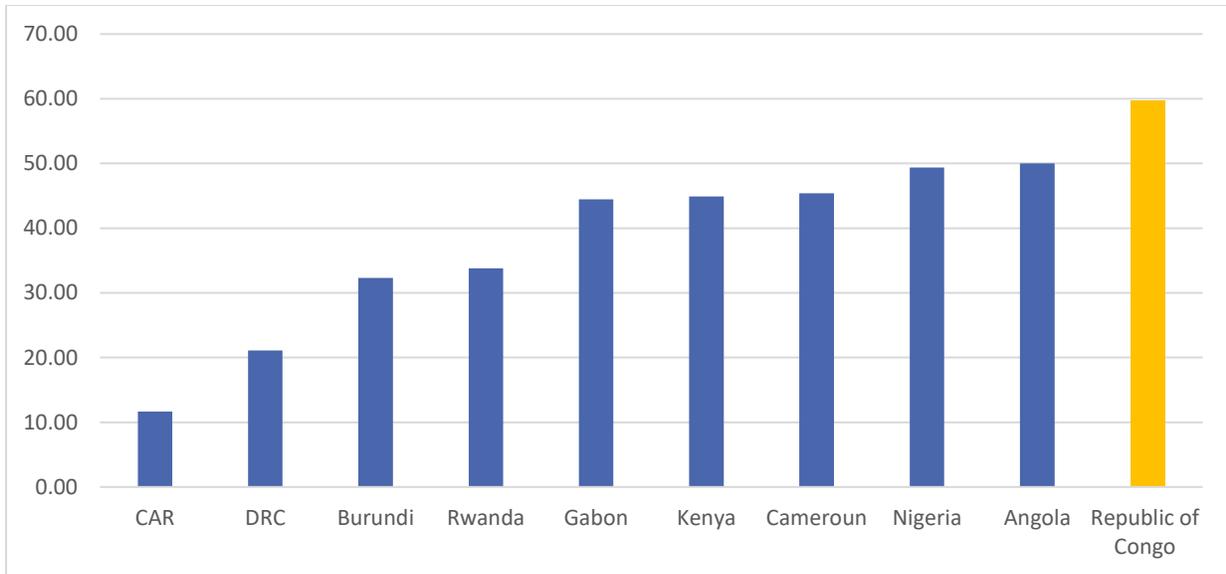


Figure 5: Mobile Affordability Index (source: GSMA)

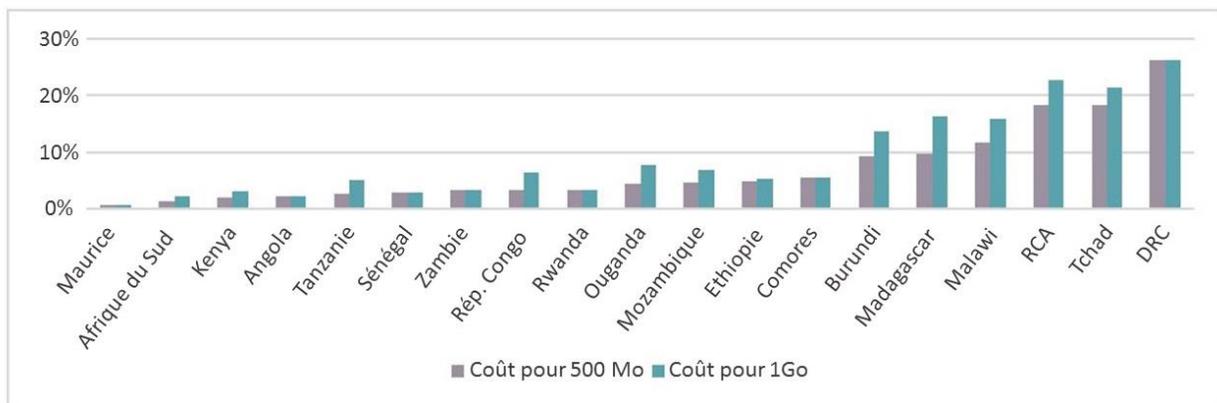


Figure 6 – Cost of mobile broadband as a percentage of GNI per capita⁴ (source : A4AI)

Fiber-based connectivity pricing is decreasing and compares favorably with regional peers. End-users pay XAF 500-700 per Mbps, compared to some XAF 3500 a few years ago. Falling prices are due to rising supply of bandwidth, enabled by 4G deployed and backbone extensions and investment in last-mile connectivity.

2.2.2 Market Structure and Competition

i. First mile: International connectivity

The Republic of Congo is connected to the fiber optic submarine cable (WACS), which ends at the Matombi landing station¹⁹. The landing station is an infrastructure that is not interchangeable or substitutable. At present, there is no alternative to connect fiber optics land networks in the Republic of Congo: the two alternative exits (via DRC and Gabon) are yet to become operational, and the connectivity provided by the satellite is grossly insufficient. The lack of alternatives and the exclusive management of the Matombi landing station by Congo Telecom

¹⁹ The fiber optic network is made up of the landing station, operator backhauled and the backbone. It is within the landing station that the connection to existing land networks (interconnection equipment) takes place between operators and the next management of the landing station. It gives access to wholesale capabilities. After re-configuration, the Matombi station was extended to the co-location areas (of Siafoumou and the CTS owned) by Congo Telecom (figure 8).

has created a monopolistic situation. This may cause risks of access if prohibitive tariffs are applied, as well as a single point of failure risk.

A backhaul (deployed using fiber optic or microwave) connects the landing station with the terrestrial network of mobile operators in order to access the capabilities of the WACS submarine cable. This infrastructure represents a prohibitive cost for smaller players such as some internet service providers (ISPs) who, in order to access WACS capabilities via the landing station, have to use the operators backhauls²⁰. The total international bandwidth capacity available to Republic of Congo is 49 Gbs with annual growth rate of 2 percent in 2018 and 3.1 percent in 2019 according to ARPCE.

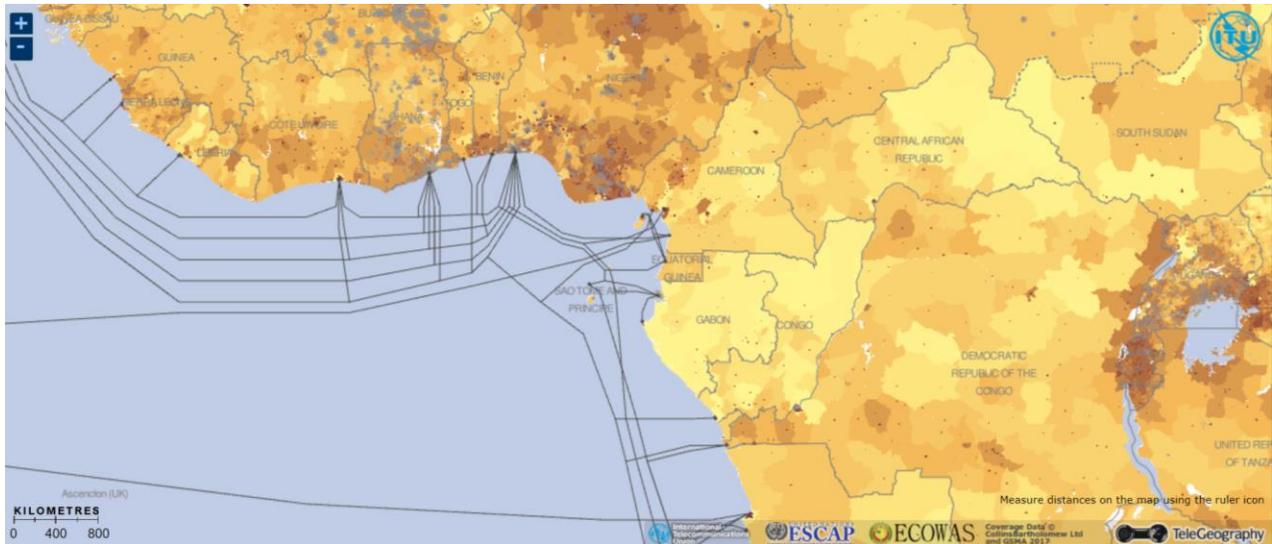


Figure 7: International cable system serving Republic of Congo

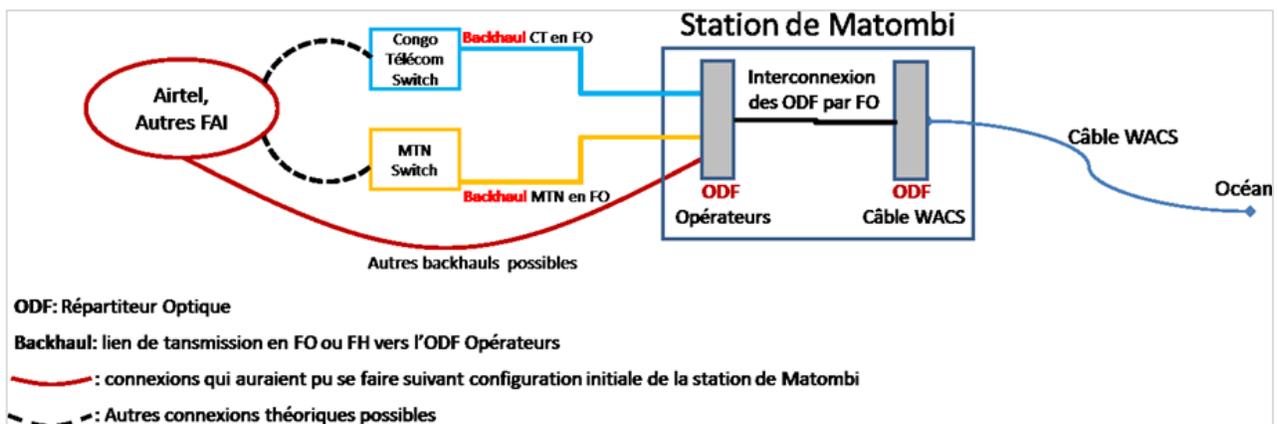


Figure 8: Initial configuration of the landing station

²⁰ MTN has a backhaul between its switch and the co-location zone of Matombi. Airtel also owns a backhaul between its switch and the Matombi co-location area. Similarly, the switch from Congo Telecom to Matombi station constitutes a backhaul. Any other network operator wishing to access the wholesale capabilities of the WACS cable would have to establish a fiber or radio link between its switch and one of the two co-location zones. In the wholesale market, Congo Telecom's volume is currently 62 STM-1 compared to 64 STM-1 for MTN.

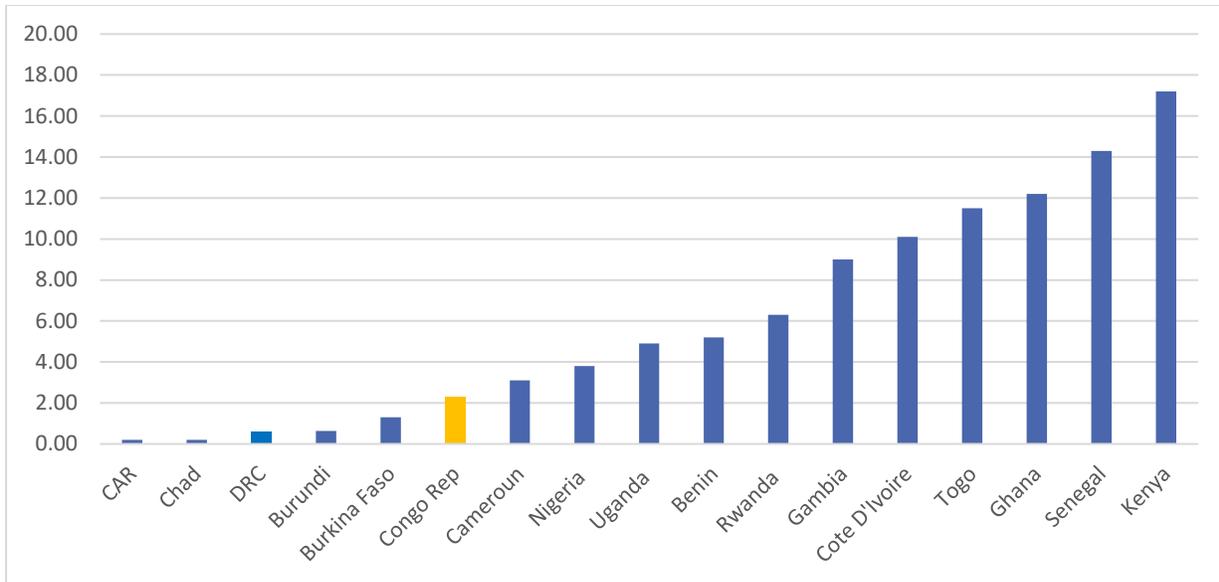


Figure 9: Total used international bandwidth per pop - Kbps in Sub-Saharan Africa (source: TeleGeography)

ii. Internet Exchange Point – Congo Internet Exchange Point (CGIX)

The industry regulator, ARPCE, recently implemented an internet exchange point (the CGIX) to interconnect several internet service providers with internet content providers such as Facebook and Google from a single point. Its purpose is to optimize local traffic to ensure that it no longer depends on the often-expensive international connections. In addition, the IXP is expected to improve the quality of internet service through high bandwidth availability, shorter download times, infrastructure hosting and value-added services. Overall data volume within the CGIX is currently 1.7 Tbs with average throughput of 2 MB.

Co-funded by the Congolese Government and the World Bank, the CGIX was the first in the sub-region when it was inaugurated in May 2013. It was recently retained by the African Union Commission as the referent internet exchange point for the sub-region. Congo telecom is planning to open its own Internet exchange point and data center which it is aiming at Google cache services and content networks.

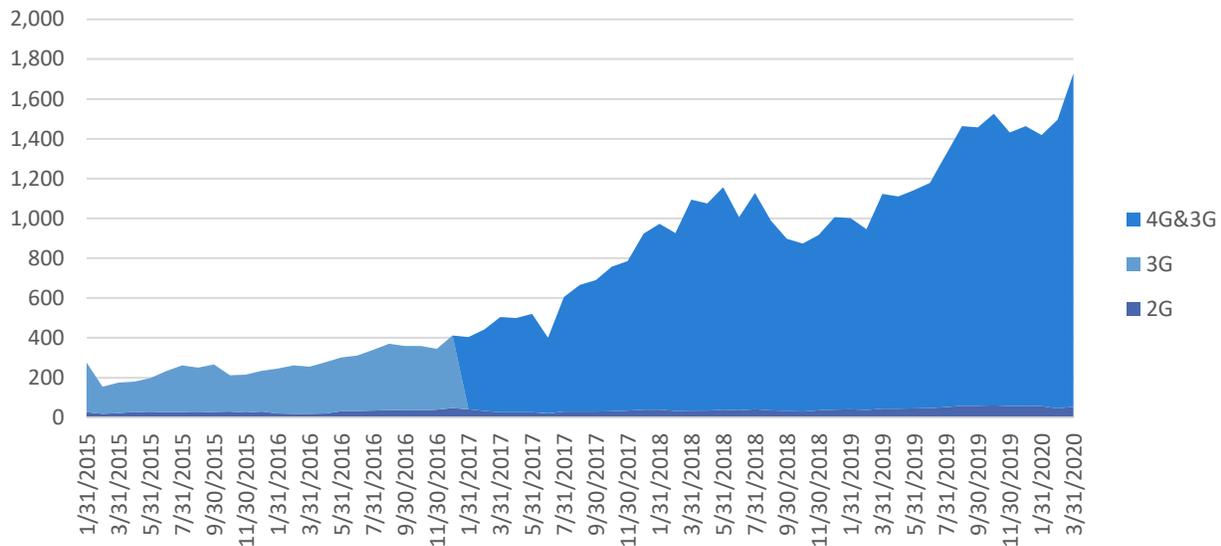


Figure 10: Mobile Data Traffic by Generation (TB per Month) (source: TeleGeography)

iii. Middle mile connectivity

Within the Republic of Congo, the national fiber optic backbone connects international backbones and lower transmission capacity links in the country. On the most important route (from Pointe Noire to Brazzaville), there is only one commercially operated, high-speed fiber-optic backbone. This infrastructure is controlled by the incumbent operator Congo Telecom²¹ which restricts access to operators wishing to transport capacity to the capital city and largest commercial center, Brazzaville. The legal framework allows any operator to build fiber, but in practice, companies such as GVA and MTN face difficulties in obtaining the authorization to construct or operate fiber on this route. Prevented from deploying fiber, mobile operators have deployed low-capacity microwave links between Pointe Noire and Brazzaville²². A second exit that would have offered Republic of Congo a back-up link through Kinshasa, but it has been dysfunctional and of poor-quality following disagreements between operators. MNOs are thus using microwave access (which offers only limited capacity) to interconnect traffic between the two capital cities. Other notable projects in the middle mile include 4000-km National Backbone Project (PCN) being managed by Congo Telecom and the overlapping CAB regional links that pass through the country. MTN has also deployed a combined 400 kilometers of metro ring in Pointe Noire and Brazzaville. The ministry of finance also operates a metro network for its own use.

Other challenges remain. All IP and data transmission are conducted by Congo Telecom which charge high prices. The most expensive connectivity segment for internet service providers is the leg from Pointe Noire to Brazzaville, which is controlled by Congo Telecom. STM-1 connectivity costs US\$ 30,000 per month. While certain operators are less affected by this exclusivity, all are concerned by the dependency on a single line from Pointe-Noire to Brazzaville. In addition, Congo telecom holds a monopoly position in the metro fiber segment. Metro fiber is seen as a highly contestable element in the entire value chain of digital infrastructure in the

²¹ Congo Telecom plans to carry out a new project to extend the fiber optic backbone network between Pointe-Noire and Cabinda (Angola) and using own funds would implement another terrestrial fiber optic network in the north of the country.

²² Both MTN and Airtel operate 500-km radio links on this route.

Republic of Congo. ISPs face several difficulties to deploy WiMAX radios and other equipment, given the high cost of installing masts. Improper city planning and lack of cooperation from the public energy utility, SNE constitute additional limiting factors.

Congo telecom enjoys monopoly on some first mile and middle mile services which provides it with advantages on retail service costs. While the sector is in principle liberalized, other companies face difficulties in deploying connectivity infrastructure which forces them to procure services at high price from Congo Telecom affecting their ability to engage on retail market on a level playing field. The ability of Congo Telecom to deliver quality services is also affected by its questionable administrative culture and governance, which led to a restructuring and a change in management. The entry of Congo Telecom into the retail segment where it enjoys superior pricing advantages, has forced ISPs to reduce prices and margins. Falling purchasing power, due to current macroeconomic stress, has piled additional pressure on providers such as GVA, which has had to disconnect indebted customers in Pointe Noire.

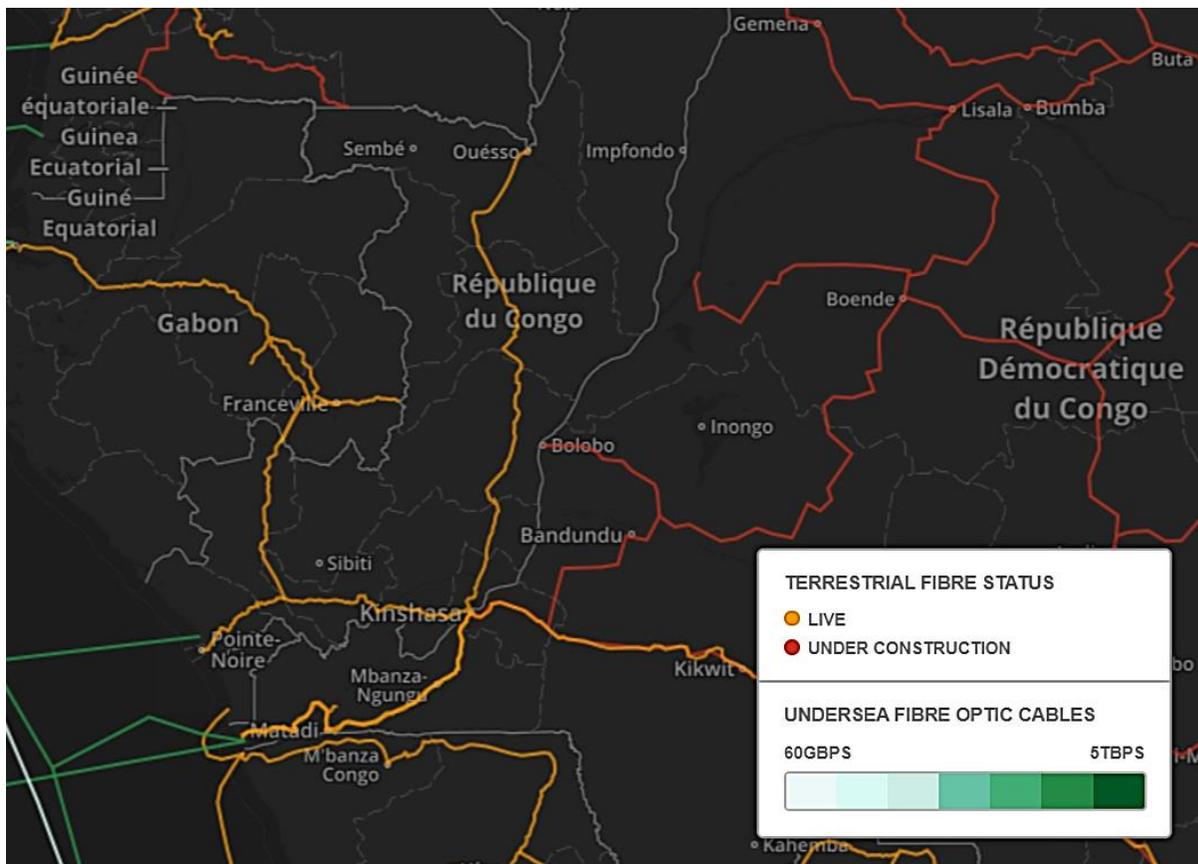


Figure 11: Internet Backbone Networks in the Republic of Congo

iv. Last mile: Access to networks and services

Mobile access networks

There are three companies licensed by the regulator ARPCE to offer mobile cellular services, namely: MTN, Airtel and the state-owned incumbent Congo Telecom. MTN commands 65 percent of the mobile internet market with 1.4 million internet subscribers. Airtel has 740, 000 mobile internet subscribers, representing 35 percent of market share. While the industry regulator

is demanding increased infrastructure sharing, only a third of MTN's sites are currently being shared. In contrast, over 90 percent of Airtel's cell sites are collocated.

Demand for internet services is growing in the Republic of Congo, with the bulk of the growth coming ISPs and multinationals in countries. There are opportunities to organize pools demand (e.g., through e-gov applications), grow e-learning in universities, develop a stronger start-up ecosystem and improve digital skills and affordability of devices. In response to demand, MTN is upgrading its network capacity from 6 Gb (utilization at 60 percent) to 9Gb to a position of higher data uptake.

However, low purchasing power limits opportunities for accelerated growth. In addition, high taxes on voice, data and e-payment, and frequent penalties are a constraint on affordability and the ability of mobile operators to undertake further investment. There is also insufficient local content and applications as well as demand pools.

Fixed access networks

The fixed broadband segment is dominated by Congo Telecom, having shifted its focus away from mobile services. Congo Telecom's investment in fiber has allowed it to roll out faster fixed broadband services for consumers via the deployment of fiber-to-the-home (FTTH) technology. However, lack of human and financial capacity has hampered retail rollouts, with mounting customer complaints. Congo Telecom's financial troubles have stemmed from 'unreconciled' accounts with the State.

Alternatives to Congo Telecom are available from ISPs²³. Pure-play ISPs such as GBS are not licensed to provide FTTx. The MNOs, Airtel and MTN are also beginning to offer WiMAX and FTTx services, although the focus has long been on enterprise customers²⁴. GVA, a local subsidiary of the French media and communication group, offers IPTV services using Congo Electric Power (E2C) poles in Pointe Noire and has recently expanded to Brazzaville. It is planning to grow the network beyond the city enter to less affluent areas but is facing several challenges. Negotiating a long-term contract with the electric utility (SNE) for the use of its aerial fiber has been problematic. Furthermore, the wholesale bandwidth from Congo Telecom is often unstable and pricy.

Internet networks are still confined to the larger cities. Many of the smaller population centers make do with lower-speed services, and there is no large-scale effort to incentivize more advanced usage. This could be supported by demand side measures to favor increased usage, such as improved device affordability and an accelerated skills training, particularly within larger, public universities. These universities could be supplied by operators with labs and experienced faculty. Educating households and businesses on the possibilities that the available infrastructure can provide could also contribute to increased demand and usage.

v. Invisible mile: Policies and Regulations

Healthy and competitive broadband markets lead to more affordable internet access and enhanced choices. Thus, in addition to boosting purchasing power of consumers, policymakers in

²³ There are 12 registered ISPs in the Republic of Congo according to the industry regulator, with the biggest pure-play ISPs being GBS, OFFIS and AMC Telecom. GBS has offered VSAT and WiMAX-based connectivity since February 2009, though uptake is believed to remain extremely low. In addition, mobile network operators Airtel and MTN also offer WiMAX services on their 4G networks.

²⁴ MTN's WiMAX-based package offers unlimited internet at USD165 (with device priced at USD100) in Brazzaville and Pointe-Noire and other large cities.

the Republic of Congo and the industry regulator must work to encourage competition across the entire value of internet services.

Regulatory Overview

In the Republic of Congo, operating electronic communications networks and services is conditional on obtaining a (a) License; (b) Authorization; (c) Approval; (d) Declaration; or a (e) Experimentation, from the industry regulator ARPCE under the authority of the ICT Ministry. Communications markets are governed under Law No.9/2009 of November 2009. The Ministry of Posts, Telecommunications and the Digital Economy (*MPTEN*) has overall authority for the sector while the ARPCE is the body regulating postal and electronic communications. The ARPCE, which was formally launched in 2010, remains subject to oversight by the MPTEN. It also retains the capacity to settle disputes in litigation between regulated companies. ARPCE is also responsible for ensuring that information relating to market access is accessible to the public²⁵.

Universal Service Fund

In September 2017, the country's communications minister, announced the creation of a universal service fund (USF), known as FASUCE ("Fonds d'accès et de services universels des communications électroniques") in Congo. This fund was conceived to finance projects that would improve coverage in rural and underserved regions. It is financed by operators contributing up to 1 percent of their annual turnover. In May 2019, the ICT ministry announced the signing of Decree No.2019/ 123, which set out the terms for managing the USF by the ARPCE and confirmed that the fund would be set up as a trust account open to public records. Further, Decree No.2019/124 set out the terms for implanting universal access services. The implementation decree made the USF operational since December 24, 2019. For the year 2020, Congo has planned to invest XAF 2.244 million in the development of telecom services in rural areas²⁶. As of today, it is reported that more than 66 villages and localities including schools are in the process of being connected under the USF.

Other Regulatory Developments

There is now an adopted legal framework for cybercriminality, cybersecurity and electronic transactions (not published yet), and published legislations on personal data protection (Law 29-2019) and institutional arrangements for IT system security establishing the National Cybersecurity Center (Law 30-2019). The regulator has also created a body to oversee the ROC's local domain suffix (.cg). The Congolese Internet Naming Agency (ACNIC) was inaugurated in 2011.

Following industry consultations in 2013, the ARPCE confirmed that it had designated Congo Telecom as having significant market power (SMP) in the market related to access to fiber backbone networks and in the market for wholesale capacity at landing stations. While the ARPCE began a fresh consultation into the designation of SMP in 2017-2018, it had not published an official decision as of December 2020. In keeping with best practice, ARPCE usually designates operators deemed to have SMP before imposing any relevant obligations on them. Some of these obligations include (i) the requirement to grant reasonable requests for access to network elements; (ii) the requirement to publish detailed technical information and pricing of

²⁵ This includes: all the criteria for granting a license, authorization and approval; the time limits at the end of which a decision is usually taken to follow up on an application for a license, authorization or approval; and the terms and conditions governing activities under the license, authorization, approval, declaration or free entry regime.

²⁶ The amount represents 75% of the budget of 2.992 million FCFA adopted, on March 25, 2020, by the USF committee.

interconnection; and (iii) a requirement to liaise with the ARPCE at least once a year regarding the basic information required for calculating interconnection costs.

The key challenges on the regulatory and policy side stem from lack of regulatory framework (in areas such as cybersecurity), lack of enforcement of anti-competitive measures (such as SMP), lack of coordination between the ministries of telecom, transport and energy, the operators and the industry regulator, lack of an operationalized PPP framework and high taxes on devices and software. A new industry framework recently enabled the creation of a computer emergency response team (CERT), but the application of the legislation for cybersecurity and electronic transaction is facing delay. A new inter-ministerial committee was recently set up, but the implementation decree to operationalize this committee is still being awaited. Limited ambit of the industry regulator of ARPCE has been a frequent concern for operators and other market participants. For instance, any lack of transparency may pose fiscal risk to the government, given the large balance sheet of Congo Telecom.

2.3 Recommendations & Next Steps

Table 2: SWOT analysis on Digital Infrastructure

Strengths	Weaknesses
<ul style="list-style-type: none"> - The deployment of digital infrastructure is a priority for the government. - Significant investments in long-distance connectivity infrastructure, with several national and regional projects (PCN and CAB) that can make Congo a regional hub for connectivity. - Mobile penetration of up to 30 percent, with approximately 2 million mobile Internet subscriptions. - Mobile coverage and traffic have increased while costs have fallen. 	<ul style="list-style-type: none"> - Low access to broadband internet and low spread of internet services beyond the most urban segments of the population. - Low demand due to the relatively high costs of accessing services for a population with low purchasing power.
Opportunities	Threats
<ul style="list-style-type: none"> - The demand for Internet services is increasing in the Republic of Congo. Access possible for the population to 3G (95%) and 4G (90%). - Scale-up plans for USF 	<ul style="list-style-type: none"> - Risks of delays in the implementation of infrastructure projects. - Low competition, affecting costs and quality of services - Significant risk of digital divide (geographic, gender, age).

The following recommendations could support the development of digital infrastructure in the Republic of Congo:

Objective 1: Improve access to existing digital infrastructure and incentivizing new investments

R1. Encourage competition in the market for wholesale and international capacity within the landing station, and the market for transporting capacity on fiber optic backbone to Brazzaville. The legal framework allows all operators to build fiber, however, a single operator remains dominant. The Pointe Noire – Brazzaville link should be fully liberalized and opened to other operators to build, while ensuring new dominant operators are checked in order to create accountability and competition between operators.

R2. Liberalize and foster the markets for FTTx and WiMAX services. Congo Telecom has entered into the retail segment, and given its superior pricing advantages, operators and ISPs have been forced to reduce their prices and margins. In addition, ISPs face several difficulties to deploy WiMAX radios and other equipment, given the high cost of installing masts. This fast-growing segment deserves to be opened up by facilitating the entry of new operators to balance the digital economy and boost it, while ensuring that they are under control.

R3. Realize and commercialize ongoing transformational projects. The already completed Republic of Congo-Gabon fiber link (financed by the CAB project) needs to be commercialized. Immediate arrangements need to be made for testing, industry-friendly pricing and transport of capacity over Congo Telecom’s fiber from Pointe Noire. Ensuring monitoring and follow-up, and open communication between the project manager and key stakeholders (incl. the regulator) are now critical.

R4. Boost complimentary infrastructure. Complimentary infrastructure such as data centers and steady energy can benefit from partnering with electricity utility, SNE and creating incentives for green energy deployment by mobile operators. The legal framework already allows operators to deploy mini and micro grids, but there is no coordination between key ministries to implement this. Due to lack of industry-grade data centers, CDN networks are still routing internet traffic to London and back to Republic of Congo.

R5. Implement redundancy for the WACS cable. Lack of redundancy to the WACS cable, low bandwidth availability and instability of the existing link have limited-service expansion by many operators. This could be achieved through the development of PPP frameworks to cushion deteriorating fiscal space and operate projects. Not least because of the ongoing macro-economic challenges, Republic of Congo will benefit from more private sector participation in building and managing digital infrastructure.

Objective 2: Strengthen the regulatory environment and policy coordination

R6. Strengthen inter-ministerial, inter-agency coordination. Operationalizing the newly established interministerial committee (*Comité Technique Numérique*), through an implementation decree would help ensure coordination between the ministries of telecom, transport and energy, operators and the industry regulator.

R7. Strengthen the effective operationalization of the universal service fund (USF). The key gap that remains is the last mile distribution of fiber. Larger cities and town centers have been covered by FTTX fiber, but connectivity in smaller towns and cities, as well as the interconnection between districts and departments are still needed. 700 kilometers of total metro ring has been already deployed across the country. The second last-mile challenge is interconnecting the towns and cities with LTE technology by connecting base stations with fiber.

R8. Ensure further SOE reform. Governance of Congo Telecom is a key issue in the digital infrastructure sector in the Republic of Congo. Lack of published catalogs and poor service levels are posing problems for operators who depend on Congo Telecom for their own operations. Given the dominant role of Congo Telecom, re-positioning it has a huge potential for changing the fortunes of the digital economy for the better. ‘Furthermore, unreconciled’ accounts between the state and Congo Telecom does not bode well for transparency and poses fiscal risks.

3 Digital Skills

Box 7 - Key messages on Digital Skills:

- Formal digital skills training offers in the Republic of Congo are very limited and fragmented. Nascent non-public training structures (e.g., non-formal institutes, Non-Governmental Organizations (NGOs) and associations, social enterprises) play an ever-important role and need to be further supported.
- There is a significant gap between urban and rural areas in terms of basic infrastructure access, including access to electricity, high cost and coverage of internet, and access to digital devices. The misalignment between available skills and market demand reveals a lack of coordination in defining training content and curriculum.
- The demand for digital skills is expected to continue to grow in light of the government's digitization efforts and modernization of the administration, and the development of e-financial services including mobile banking.

3.1.1 Socioeconomic Rationale for Investing in Digital Skills Development

Digital skills are essential components in building an inclusive digital economy. Greater use of information and communication technology (ICT) increases the demand for digital skills required to seize opportunities and remain competitive in the labor market. A quality, equitable basic education system is the foundation for a better education and skills development system, as youth with stronger basic skills are more trainable and more likely to be successful at higher levels of education and in the labor market. Solid basic literacy skills are pre-requisites to building digital skills. In addition, complementary skills, such as information processing and communication, are also an issue. The inability of the general population to effectively use ICT further hampers the government's ability to reach all citizens through digital service delivery tools. As the Republic of Congo strives towards digitalization, a lack of basic skills required to use and engage with these new platforms could potentially exclude the segments of the population who need it most.

Underpinning the development of digital skills are basic foundational skills that include literacy and numeracy. Children can expect to complete 8.8 years of pre-primary to secondary school by age 18. However, when years of schooling are adjusted for quality of learning, this is only equivalent to 5.2 years, resulting in a learning gap of 3.6 years (Figure 12). The poor quality of education and learning outcomes negatively impacts foundational skills essential for post-secondary studies and the labor market. Foundational skills include working collaboratively, thinking critically, and

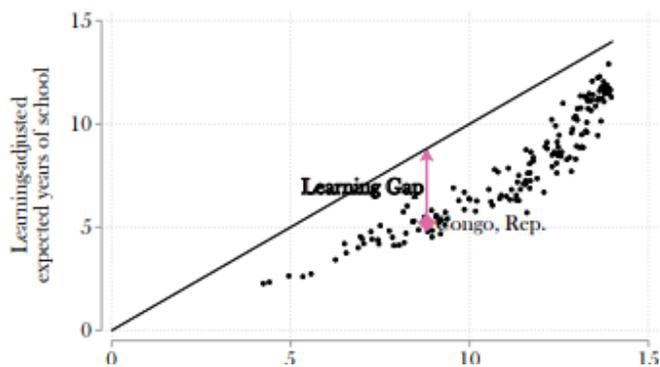


Figure 12: Learning gap (years) based on the World Bank's 2018 Human Capital Index for the Republic of Congo

communicating effectively. Additionally, learning how to use modern technology, solving complex problems, and understanding multifaceted systems are essential. However, the current education system in the Republic of Congo does not seem to adequately prepare its learners to access these skills. Despite efforts to revise the national education system, there seems to be a mismatch with market needs. Unemployment in Congo among those aged 15-29 is estimated at 32.7 percent in 2017²⁷. Human capital and skills disparities account for the bulk of spatial variations in income and poverty in Congo²⁸.

3.1.2 Alignment with Country Development Strategy & Goals

The Republic of Congo recognizes that digital skills are a critical component of a digital economy. The country adheres to the African Union’s objective to lay the foundation for a vibrant digital economy by 2030. The 2019 national strategy for the digital economy, “Vision Congo Digital 2025”, highlights the importance of digital skills. Human capital and capacity building are an underlying theme of the three strategic pillars: (i) services to citizens, (ii) digitalization of government, and (iii) digital private sector development. The national digital economy strategy is in line with the President’s “*Marchons vers le Développement, allons plus loin ensemble*” vision, which presents the digital economy as the next frontier to development. It underscores the need to use education as a key lever for development, in order to strengthen human capital and digital skills to produce a well-trained and qualified workforce.

Building digital skills starts with education. The Education Strategy for 2015-2025 was developed under the leadership of the three ministries in charge of education, the Ministry of Education and Literacy (MEPSA), the Ministry of Technical Education (MEPFQE) and the Ministry of Higher Education (MES). The Republic of Congo’s formal education system consists of four subsystems: primary education, secondary education, vocational training, and higher education and research. The strategy covers three major themes: (i) providing quality education for all; (ii) responding to the need for quality human resources in an emerging economy; and (iii) creating a well-performing education system. This long-term strategy is an important starting point, on the basis of which further system wide improvements can be launched, including a coordinated dialogue amongst relevant stakeholders.

²⁷ World Bank. 2017. Republic of Congo Poverty Assessment Report: Education, Jobs and Social Protection for a Sustainable Reduction of Poverty. Washington DC: World Bank Group.

²⁸ World Bank. 2019. Republic of Congo FY 2020-2024 Country Partnership Framework. Washington DC: World Bank Group.

3.2 Diagnostic Findings: The State of Digital Skills

3.2.1 Definition of Digital skills

Digital skills exist in a spectrum of various levels of complexity. In this report, the digital skills pyramid²⁹ (Figure 13) is applied as a framework to analyze the current state of digital skills development in the Republic of Congo. This model is premised on the principle that digital skills exist on a spectrum from basic to advanced levels of complexity. Basic digital skills refer to the foundational ability to operate information and communications equipment and make effective use of various software applications such as word processing, spreadsheets, and web searches. At the next level, digital specialist skills refer to the ability to design, develop, and maintain digital tools, carrying out tasks such as web design, programming, and managing ICT systems. At the advanced level are e-business skills, which refer to a more complex range of abilities to apply, create, and invent new business models, products, and services using digital technologies.



Figure 113: Digital skills competencies

3.2.2 Basic digital skills training

Formal basic digital skills training offers are very limited and fragmented. The Republic of Congo's formal education system consists of four subsystems: primary education, secondary education, vocational training, and higher education and research. Basic digital skills training is nonexistent in primary and secondary schooling, both for students and teachers. For over 90 percent of public schools³⁰, ICT education is an unaffordable luxury, as they have no electricity, no computers, no internet connection, no trained teachers, and little to no teaching material. Higher education and technical and vocational institutes present a very limited and fragmented offer of digital skills. During the assessment, it was mentioned that the government is working on a project to create a public institute dedicated to digital themes at Denis Sassou-N'Guesso University in Kintélé. Such a project could offer opportunities for additional initial and continuing training in basic, intermediate and advanced digital skills. With the support of the United Nations Economic Commission for Africa, the same university plans to set up an observatory on artificial intelligence.

Computer science training is available in some private schools, but their weak equipment and the high cost of internet seems to be limiting. One of the exceptions includes the francophone digital campus in Brazzaville (*Campus du Nouvel Espace Universitaire Francophone, CNEUF*), which is well-equipped thanks to an innovative partnership between the public and private sector³¹. This new structure has the potential to play a greater role in this sector, as it aims to provide digital training through distance learning, a platform of exchange between academia and the private sector, as well as entrepreneurship training. Private institutes also offer

²⁹ Van Welsum, D. and B. Lanvin (2012), "e-Leadership Skills – Vision Report, Prepared for the European Commission, DG Enterprise and Industry, October 2012.

³⁰ Global Partnership for Education, 2015. Appraisal report of the Republic of Congo Education Strategy 2015-2025.

³¹ With the financial support of Francophonie University Association and the MTN Foundation

basic digital skills training, but a standardized certification is not yet available. As a result, there appears to be a low supply of basic digital skills in the general workforce, including in government ministries.

Considering the lack of formal basic digital skills training by the formal education system, “informal” training plays an ever-important role. Informal or non-formal education comprises non-state actors such as incubators, non-governmental organizations, social enterprises, foundations and associations. Incubators and training institutes such as Yékolab and Kosala provide basic digital skills training in Brazzaville and Pointe Noire. The Digital Young Entrepreneurs Association (*Association des Jeunes Entrepreneurs du Numérique au Congo, AJENC*) appears to be one of the only providers of digital training in rural Congo. This initiative is particularly important to support digital inclusion in vulnerable groups. The World Bank-financed Skills development for employability Project has facilitated the training of 100 out-of-school young women and men in computer graphics, using private training providers.

3.2.3 Advanced digital skills training and E-Business skills

Specialist and advanced digital skills developed through higher education degree programs and vocational training appear to be limited and fragmented. Secondary education and general university education in public schools do not seem to offer professional skills related to digital professions, which may be explained by their lack of ICT infrastructure and unavailability of trained teachers. Private schools do offer some training programs for specialized and advanced digital skills; however, given the lack of standardized certification, the level of their graduates varies greatly. Training programs tend to focus on theory and do not place enough emphasis on practical experience, which is problematic for transitioning graduates to the labor market. Data on the annual training capacity of trainers, experts and professionals in the national formal education system in the digital field is not available, as there is no mandated structure to monitor the sub-sector. Additionally, the business model of private schools like the *Grande Ecole du Numérique* needs to be adapted and should include partnerships with the private sector from the start, to maximize the relevance of the training content as well as youth employment upon completion of their training program. There is a marked disparity³² between better-equipped urban areas and less-equipped rural areas, as well as a stark contrast between better-equipped private institutions and less-equipped public institutions.

Informal training for advanced digital and e-business skills also plays a critical role in filling the gaps of the formal education system. Advanced digital and e-business skills training appears to rely primarily on non-state actors, including incubators and training institutes such as Yékolab or Kosala. Yékolab, which provides training to youth in advanced digital skills, including developing mobile applications, Java, and website design. This incubator also promotes digital entrepreneurship and provides e-business skills training. Yékolab also launched Yékolab for kids, a robotics school for children aged 7 to 17, in collaboration with AgoraTIC, a Paris-based ICT training center.

Entrepreneurial activity in the sense of creating new business opportunities or devising new ways of doing existing business is limited, but there are a few successful initiatives. Development of specific digital skills will stimulate innovation in the production of innovative

³² Global Partnership for Education, 2015. Appraisal report of the Republic of Congo Education Strategy 2015-2025.

digital platforms and entrepreneurship³³. Activity in ICT-related fields tends to be focused on software development, IT systems installation and maintenance, and training. E-Business skills training is carried out primarily by informal training. International events in Brazzaville and Pointe-Noire, such as Salon Osiane and JCertif are also important initiatives to promote digital culture and training and encourage the young generation to be more involved in digital entrepreneurship. Based on informal training, there are a few promising digital start-ups³⁴, such as Warayo and Wortis.

3.3 Demand for Digital Skills

The government and firms in the Republic of Congo experience difficulties in finding employees with computer or general IT skills³⁵. Employer demand for basic and advanced digital skills seems to be underestimated by training institutes. Large private sector companies in telecommunications and banking are among the largest employers of professionals with advanced digital skills. The lack of qualified local workers often results in companies paying higher costs to access qualified foreign workers. Locally trained IT engineers generally seem to be hired at lower grade levels due to a lack of a standardized certification ensuring the quality of their training, and a lack of practical experience. There also appears to be a disconnect between the needs of the private sector and the locally trained workers. ICT training needs within companies will continue to increase, as they need to evolve to 21st century demands.

The public sector demand for digital skills at the basic and advanced levels will continue to increase. The current and envisaged rollout of e-government, e-citizen, and e-commerce services brings substantial demand for a wide range of digital skills in terms of technical management and support. The government's digitalization of its services requires a significant shift in the administration. This will involve significant IT basic training for all agents, as well as increasing the availability of specialized IT staff. Stakeholders cited numerous technical skills needs for improving and expanding digital platforms in the Republic of Congo, ranging from digital infrastructure, system design and implementation, procurement and contract management, and performance management. Development perspectives of digital financial services and the African Continental Free Trade Area will further contribute to the rising demand for e-business digital skills.

3.4 Constraints to Attracting & Developing Digitally Skilled Labor

Insufficient availability of digital skills is holding back the potential for a vibrant and resilient economy in the Republic of Congo. There is a much higher demand for digital skills, at all skills levels, than the current supply can satisfy. Several challenges constrain effective digital skills development in the Republic of Congo:

- **Basic ICT infrastructure is insufficient.** The great majority of schools have no electricity, computers, and other basic requirements for digital skills development. In 2018, only 10

³³ The government has signed a partnership with the Kosala business incubator and an international operator as part of the Seeds for the Future partnership and will launch the second edition of the innovation award.

³⁴ Additional detail is provided in the chapter on digital entrepreneurship.

³⁵ According to UNICONGO, the Congolese Business Confederation representing private sector entities ranging from small and medium enterprises to large corporations, there is a much higher demand for skilled ICT professionals than is available.

percent of public schools, primarily in urban areas, had access to electricity³⁶, with little to no access to a computer. Currently, access to electricity and limited access to computers seem to be reserved to private education in urban areas³⁷. The rolling-out of the fiber optic cable presents opportunities to increase internet access for the general population at a lower cost, which should be further exploited. As part of the CAB project, the government interconnected all 10 establishments of the Marien Ngouabi University in optical fiber to the fiber of Congo Telecom. A virtual university would allow students across the country to access online courses, with connection to Internet centers. With the USF, the government has started connecting other schools. The MTPEN and the Ministry of Higher Education are currently working on a business model to cover the costs of high-speed bandwidth. In 2020, they equipped 13 establishments (high schools and universities)³⁸ with ICT and internet equipment as well as energy (with solar panels). They have set up a toll-free number so that students and teachers can contact ARPCE in the event of a breakdown. However, where ICT structures do exist, technical support for teachers and administrators, as well as maintenance of ICT equipment, should be strengthened.

- **Lack of qualified teachers and trainers.** Creating a digital learning environment requires teachers to possess basic digital skills to deliver training and translate it into practice. However, research³⁹ and stakeholder consultations suggest a greater human resources issue in the education sector, with a lack of teachers for the growing population, combined with a lack of proper teacher training. There is a teaching capacity gap⁴⁰ at the primary and secondary level, and a very limited supply of qualified teachers and trainers in higher education and vocational and technical training. The limited number of qualified teachers at university and Technical and Vocational Education and Training (TVET) level is adversely affecting the quality and breadth of advanced-level courses in digital skills. Bridging this gap will most likely require a multi-pronged approach, including skills upgrading of existing teachers, provision of ongoing training, as well as the recruitment of new or visiting faculty members from the private sector or from overseas.
- **Adequate alignment of curricula and teaching materials with market needs is critical to ensure that the future labor market has the depth and breadth of digital skills required.** The limited intragovernmental and public-private dialogue, combined with a lack of coordination in the mechanisms to define curriculums, evaluation, and certification. The absence of a standardized certification appears to be a concern for employers, as they have difficulty finding qualified local talents. Deliberate linkages between digital skills development activities and the needs of the labor market are not apparent. The needs of the private sector should be taken into account when elaborating the content of curriculums, to better prepare students to enter the job market.
- **Insufficient reliable data and statistics in the education and training sector, as well as for the job market demand for digital skills.** Production of reliable statistics is essential to monitor and evaluate progress, and to plan the management of resources effectively.

³⁶ Republic of Congo Ministry of Education, 2019. *Annuaire Statistique 2017-2018*. Direction des Etudes et de la Planification.

³⁷ Ibid.

³⁸ The 13 establishments include the general school, the national polytechnic school, general and technical high schools (polyvalent of Pointe-Noire, Poaty Bernard of Pointe-Noire, Denis-Sassou N'Guesso, etc.).

³⁹ Global Partnership for Education, 2015. *Appraisal report of the Republic of Congo Education Strategy 2015-2025*.

There has recently been some progress in the production of statistics in the education sector. However, additional reliable and timely data is needed to provide an accurate picture of labor-market demand for digital skills and the related supply for effective decision-making. There does not appear to be a systematic tracking of employment of young graduates and youth unemployment.

The COVID-19 pandemic reveals and exacerbates the constraints raised, but also provides an opportunity to boost the development of digital skills and distance learning:

- The Ministry of Technical Education established a partnership with private telecommunications companies (Airtel and MTN) to establish two online exchange platforms for students and teachers. Connection is available for free to teachers and students. To cope with the COVID-19 pandemic, this same ministry has set up a digital platform to offer distance learning courses so that students can continue to prepare for the June 2020 exams. This experience nevertheless encountered considerable challenges that the government should take lessons from and understand why there was a low rate of student use of the digital tools put in place.
- With the support of UNICEF and the Global Partnership for Education (GPE), the Ministry of Primary, Secondary Education and Literacy ensures the continuity of learning for all children at the level of basic education, thanks to the development and dissemination of educational content through radio (with distribution of radios to the most vulnerable), television, Internet, distribution of paper learning materials and SMS communications with parents to help them in supervising children during their learning at home. The government in collaboration with Kosala had set up an IT solution allowing students to access the results of exams and competitions from their personal terminals, without having to travel (DigiDec platform).

Box 8 - Regional spill-over for digital skills

In the past, the ROC has collaborated with regional peers in the development of digital skills. This was done by sending cohorts of trainees to Gabon for specialized IT training. Additional approaches that can be considered would be to implement regional collaboration in strengthening locally sourced training, while also collaborating with local companies and administration to co-create trainings that respond to the needs of these entities.

3.5 Recommendations & Next Steps

Table 3 : SWOT analysis on Digital Skills

Strengths	Weaknesses
<ul style="list-style-type: none"> - Digital skills considered as essential component of digital economy by the government. 	<ul style="list-style-type: none"> - The formal education system lacks the capacity and infrastructure (approx. 10% of schools have access to electricity) to increase the availability of basic and more specialized digital skills. - Few specialized local training institutes and few practical training programs in ICT. competencies (developers, network technicians, programmers, etc.) and little recognition of local training. - Insufficient reliable data and statistics in the education and vocational training sector, as well as on the demand for digital skills in the labor market.
Opportunities	Threats
<ul style="list-style-type: none"> - Significant demand for digital skills. - Growing non-formal education offer with non-state actors such as business incubators, NGOs, foundations and associations. - Regional collaboration possible to strengthen local training. 	<ul style="list-style-type: none"> - Lack of public-private dialogue to define needs and the development of an adequate policy for digital skills training provision

The implementation of the following recommendations could support the development of digital skills in the Republic of Congo:

Objective 1 : Create an environment conducive to the development of digital skills within the national education system

R1. Increase coordination and develop a clear roadmap. Developing a vibrant digital economy requires strong collaboration and dialogue within key ministries and relevant stakeholders, including the three ministries in charge of education, the ministry of Telecommunications, and private sector representatives from business associations. The national strategy for digital and the national education strategy are good starting points, but a clear roadmap with realistic milestones and concrete actions combining the two strategies needs to be elaborated. Vulgarization of the roadmap will be essential for relevant actors to adopt and implement this initiative effectively.

R2. Improve digital skills data collection and research. Reliable and timely data that provides an accurate picture of labor-market demand for digital skills and the related supply is needed for effective decision-making. Systematic tracking of young graduates and youth unemployment should be implemented. Information on the number of existing and projected ICT vacancies would also assist efforts to assess and develop the Republic of Congo’s digital skills base, both for the government and for the private sector.

Objective 2 : Expand access to other basic and advanced digital training (beyond the national education system)

R3. Provide additional training opportunities in basic digital skills, with an emphasis on teachers and government employees. For training on advanced skills, it will be important to assess the needs for advanced expertise in Congo by carrying out an in-depth analysis of the demand for skills by private actors or for government functions, particularly in the context of the digitization of the administration and digitization of certain public services. Teacher training is an essential step towards digitization. Potential options for training include basic digital skills, development of online courses, and use of digital learning platforms (eg. ICDL training). Digital platforms also provide significant opportunities for online and agile learning and could help address gaps in adult education and in basic IT capacity in administrations. Beyond providing initial training, it is important to identify public or private structures that have the skills to provide continuing training, especially for training IT specialists on new technologies, webmastering, Information System, communication tools or software, in cybersecurity, handling and management of data, etc.

R4. Leverage non-state actors of basic and advanced digital skills training. The government should also contemplate leveraging non-state actors more readily to expand access to training to young people, vulnerable groups in rural areas but also disadvantaged urban population. This could be undertaken through a more comprehensive mapping of existing providers in ICT skills training (non-formal actors for ICT education, NGOs and social enterprises), including modest government sponsorship to support their expansion and the replication or scale-up of successful models. Lessons learned from other successful initiatives in neighboring countries should also be examined. Furthermore, the private sector and higher education should expand partnerships to enhance digital skills and foster the Republic of Congo's competitiveness.

In Focus : Gender and ICT

The Republic of Congo ranks well on the Gender Inequality Index (GII) among its peers: it is placed 145th out of 162 countries in 2018⁴¹ (value: 0,579). Almost half of women (46.7 percent) have reached at least a secondary level of education, compared to 51.3 percent of men. Literacy rates are low. Maternal mortality remains high: for every 100,000 live births, 442 women die from pregnancy-related causes.

Accessing Internet services

While primary data around the digital gender divide is not available, estimates suggest that women's use of the internet is much lower than men's in the Republic of Congo. The Digital Gender Gap⁴² calculates a gender gap of slightly below 20 percent in internet use and about 13 percent in mobile use. The rate of cell phone ownership among women is evaluated overall in sub-Saharan Africa at 69%, with a gap of 10% lower compared to men⁴³. This shows a greater gap compared to the others SSA countries. Yet, there is not a large proportion of women compared to men who have received less education. This can be explained by a lack of digital skills or the confidence to use mobile and internet services.

Accessing digital financial services

Financial and economic inclusion is low for women in the Republic of Congo. About 21 percent of women aged 15 and above have an account at a financial institution or through a mobile payment provider⁴⁴. Yet, the economic indicators for women are good: female participation in the labor market at 66.9 percent compared with 71.6 percent for men⁴⁵. Although none of the MNOs have data disaggregated by sex, it is assumed that there is equal use of mobile money by men and women. The payment of electricity bills and television subscriptions as well as the purchase of telephone credit are increasingly used services. Cash-in/Cash-out remains the main use of mobile money, accounting for around 80 to 85 percent of all transactions⁴⁶. Often mentioned reasons for opening an account are the lack of money in many cases, but also the lack of documents⁴⁷. Additionally, Women, Business and the Law⁴⁸ noted several obstacles to women's engagement in economic activity in the Republic of Congo; going to court, building credit, getting a job, unequal wages. Per capita, the Gross National income (GNI) for women is \$4,989 dollars compared to \$6,621 dollars for men⁴⁹. This figure is significantly higher compared to other CEMAC countries, but significantly lower than other emerging SSA countries. Legal and regulatory reforms are required to address these inequities.

Accessing ID and digital services

⁴¹ PNUD (2019), Human Development Report, which can be retrieved from : http://www.hdr.undp.org/sites/all/themes/hdr_theme/country-notes/fr/COG.pdf

⁴² Digital Divide between men and women, which can be retrieved from : <https://www.digitalgendergaps.org/>

⁴³ GSMA Intelligence, 2018.

⁴⁴ Global Findex, 2017

⁴⁵ PNUD (2019), Human Development Report, which can be retrieved from : http://www.hdr.undp.org/sites/all/themes/hdr_theme/country-notes/fr/COG.pdf

⁴⁶ In-person interview with Charles Tra Bi (Airtel), March 6, 2020

⁴⁷ World Bank Group (2017) Global ID Coverage, Barriers, and Use by the Numbers: Insights from the ID4D-Findex Survey

⁴⁸ World Bank Group (2018). Women, Business and the Law

⁴⁹ PNUD (2019), Human Development Report, which can be retrieved from : http://www.hdr.undp.org/sites/all/themes/hdr_theme/country-notes/fr/COG.pdf

Formal identity is likely an additional hurdle for women in the Republic of Congo. According to "Women, Business and the Law"⁵⁰, a woman cannot submit a passport application as easily as a man. The World Bank's Identification for Development (ID4D) team has found that women and the poor are less likely to have an ID card. In the low-income countries (LICs) surveyed, 44 percent of women do not have ID, compared to 28 percent of men⁵¹. While cell phones and the internet can become vectors of long-standing threats (such as bullying) as well as new ones (such as online identity theft), these services can also make women feel more secure. Measures facilitating access to a digital identification are possible to be taken for women who do not have a formal identity or are in the process of taking the necessary steps. In Somaliland, for example, a telecommunications company introduced a simplified KYC (Know-your-Customer) account to allow women without ID to register for their mobile money service. The KYC account does not require official identification: only a name, photo, date of birth and contact details.

Influence over the digital agenda

Political representation remains unequal in the Republic of Congo. However, the candidacy of women in the presidential, legislative and provincial elections of December 2018 in the Republic of Congo was respected (more than 15% of candidates). In the National Assembly, only 10 percent of the seats are held by women (50 out of 485 seats). In the period from 2006 to 2018, the number of women elected and appointed did not reach 20%. Several challenges remain for the emergence of women's leadership within political parties.

Women can be the biggest beneficiaries.

Less affected than its neighboring CEMAC countries by gender-based violence, there is still a need to support the development of women and girls in the Republic of Congo. There is no law prohibiting discrimination in employment based on sex, sexual harassment in employment and involving penalties. The use of technology can help women report cases of abuse, both during the pandemic and after the crisis. Bridging the gender gap requires making relevant content, products and services available, as well as supporting the development of an ecosystem of applications and services to meet the needs, preferences and capacities of women and girls.

Data gaps

Overall, better gender data is needed to inform key interventions. A gender assessment should be carried out to identify and address gaps, in greater detail.

Recommendations :

- ❖ **R1. Any digital strategy or policy should be sensitive to the barriers faced by women.**
- ❖ **R2. Dedicated digital literacy programs are needed for women to ensure equal access.**
- ❖ **R3. Preferential financial schemes could facilitate women's access to digital devices.**
- ❖ **R4. Any new ID systems should ensure the enrollment of women.**
- ❖ **R5. Better data is needed to identify and track the digital gender gap.**

⁵⁰ World Bank Group (2018). Women, Business and the Law

⁵¹ World Bank Group (2017) Global ID Coverage, Barriers, and Use by the Numbers: Insights from the ID4D-Findex Survey

4 Digital Platforms

Box 9 - Key messages on digital platforms:

- Several government entities have started digitalizing their services, and several other projects are in preparation. However, without coordination, the plurality of projects may create the risks of duplication, cost inefficiency and non-interoperability of systems. Institutional and operational coordination of the government digital transformation is important in order to ensure a whole-of-government approach, economies of scale, interoperability of systems and improved systems to citizens.
- The country has adopted the foundational legislations for the implementation of public platforms: cybercrime, cybersecurity, digital transaction and protection of personal data. However, these instruments need to be implemented.
- Capacity is limited within the government to support the digital transformation agenda. This reflects a more general issues of digital skills and digital trainings, either basic or specialized within the country.
- In the context of COVID-19, distance learning and digital learning platforms will provide opportunities for partnership with the private sector.

4.1 Importance of Digital Platforms

4.1.1 Socioeconomic Rationale for Digital Platform Development

Digital Public platforms have the potential to transform the way government, citizens, private sector and civil society interact with each other. They can improve the efficiency of government functions, support the expansion of access to public services in remote areas, and provide opportunity for the most vulnerable to have a voice and hold the government accountable. A whole-of-government approach to digital transformation can help reap all the benefits of digitalization. With the use of shared services and interoperable systems, Governments can reduce the administrative burden experienced both by citizens and businesses, but also by government users themselves. Secured and interoperable government systems improve information sharing across institutions while also allowing the implementation of the “Once-only” principle, whereby Government does not request an information more than once from its constituents.

The Republic of Congo could leverage the potentialities of digital transformation to improve service delivery and the overall digital economy. Thanks to investments in connectivity (see pillar 1), digital transformation can help improve access to service delivery, especially for people in remote and rural areas. High population concentration in urban centers also provides opportunities to leverage digital solutions to deliver more cost-effective services, provide citizens with tools to demand for transparency and accountability in service delivery and participate in policy discussion. If well managed, urbanization could be a key driver for Congo’s economic growth and structural economic transformation. Lastly, if challenges are well identified and

appropriate actions are taken, the ICT sector has the potential to create jobs, value creation and foster economic development, especially given the country’s young population.

Digital Public Platforms

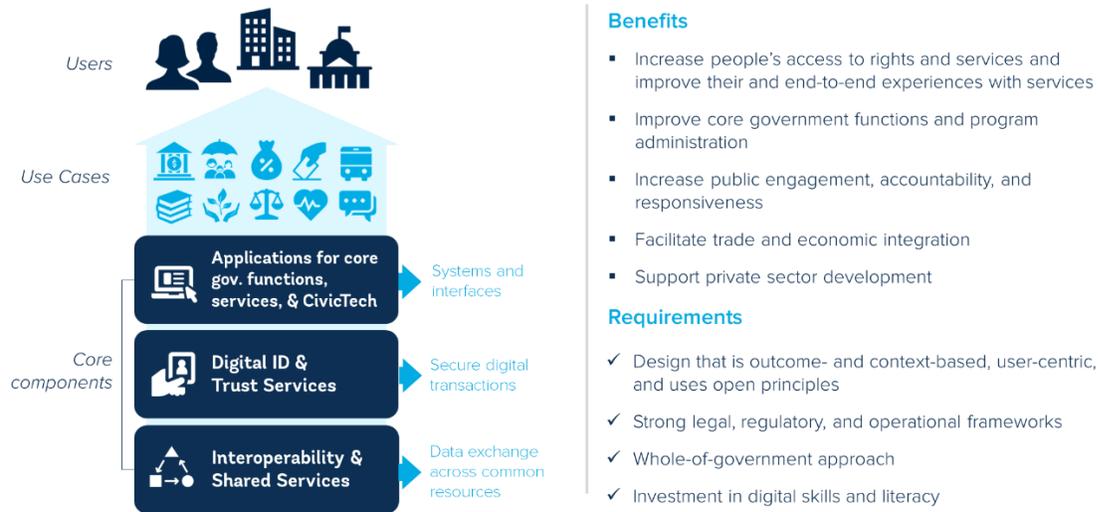


Figure 14: Digital Public platforms: benefits & requirements (source DE4A Assessment Tool)

4.1.2 Alignment with Country Development Strategy & Goals

Digitalization of government services, and the development of public sector digital platforms, are an important part of the national strategy “Vision Congo Digital 2025”, covering two of its pillars. The e-citizen pillar focuses on services and digital content for the General public. The e-government pillars aim at building digital services and contents for government and public administrations and finally e-business focuses on digital services and content for businesses. Through this strategy, which aligns with the President’s “*Marchons vers le Développement, allons plus loin ensemble*” vision, the government of the Republic of Congo seeks to ensure inclusive progress across the country for all citizens and businesses.

4.2 Diagnostic Findings: Current State of Digital Platforms

The Republic of Congo scores 0.35 out of 1.00 on the 2016 Government Digital Adoption Index (published in 2018) which places the country around the average score across the continent. Several digitalization projects have been launched. However, most of these are focused on internal government systems, and have been largely developed in silo. In general, however, the implementation of digitization projects is constrained by the public administration’s limited connectivity infrastructures, as well as weak implementation capacity.

Indicator	Source	ROC	Regional average
E-Government index (EGDI)– ranking (and score)	United Nations, 2018	0.3024 (164/193 countries)	0.3423
Digital Adoption Index (DAI) (Government cluster)	World Bank, 2016	0.35	0.41
% ID coverage for adults	ID4D – Findex, 2017	88%	63,3%

Table 4 : Key available indicators for public digital platforms

4.2.1 Policy, legislations and regulations and Institutions

The Ministry of Posts, Telecommunications and Digital Economy leads the implementation of the “Vision Congo Digital 2025” strategy. However, there is no defined coordination mechanism for the digitalization of specific government services⁵². Ministries conduct their digitalization efforts rather in silo and without a clear common goal across the government. This results in limited and fragmented resources allocated to each digitalization project, development of systems that do not communicate between them, and fragmentation of limited skilled human resources. The Office of the Prime Minister has started coordinating the Directors of Information Systems across different ministries, but on an ad-hoc basis and for information sharing purposes.

Government has recently adopted the legal and regulatory framework required for the development of the digital sector, in line with the “Vision Congo digital 2025” strategy. This includes the personal data protection law; the Cybersecurity Act; the cybercrime act; the legislation on electronic transactions that will apply to digital commerce, digital signature; and the cybercrime law which defines all the digital related offenses⁵³. The legislation requiring for the operationalization of the National Agency for the Security of Digital Systems (ANSSI) was also adopted in 2019. The operationalization of this agency as well as the cybersecurity monitoring bodies defined by the cybersecurity law remain to be carried out.

Ministries and government entities are at different levels of digitalization and have all been focusing on internal back office systems, with the Ministry of Finance at the most advanced stage. The Congolese Agency of Information Systems (ACSI) is mandated to support government entities in defining IT architectures and specifications, developing systems and ensuring the quality of the systems delivered by service providers. However, it lacks adequate staffing and has not been involved in any government project in recent years.

4.2.2 Interoperability layers and shared services

Government entities have each developed their own systems to address their specific functional needs, and there are no shared services, registers and interoperability systems.

⁵² A study has been launched by the government to identify orientations for a government digitalization master plan.

⁵³ The Cybersecurity bill addresses all preventive, protective and discussion measures, technical, organizational, legal, financial, human, procedural, and other measures to ensure security of the use of electronic communications networks and information systems, whereas the cybercrime law defines the digital related offenses

Many platforms are hosted in individual government agencies and have been developed separately (mostly without using any standardization protocols) and were not necessarily designed to be linked to external platforms or a shared services system. Nonetheless, system interoperability is envisioned in the government digital strategy, and at operational level in specific entities. Ideally, such an interoperability system could be implemented across all government systems. The Ministry of Finance has defined a digital architecture that revolves around different functional systems that are linked through an interoperability bus. Strategic and operational coordination will be required to ensure system interoperability through standards and technical requirements. It was also noted the lack of a coherent strategy on the issue of data storage systems and infrastructure such as the use of government clouds or the pooling of government data centers. These aspects are managed in silos by the different ministries creating the risk of duplication of costs for the government.

The government has recently adopted an integrated approach for the security of its systems, including for resilience, preparedness, and security response. This mandate was previously left to the responsibility of each ministry and thus very much depended on the resources and capacity allocated by each institution to such arrangements. The recent establishments of the ANSSI the cyberattack alert and response center have the potential to improve security management when these institutions are operationalized and if they are given the appropriate means to ensure their mandate.

4.2.3 Digital ID

The civil registration system is largely manual in rural areas. In the urban areas of Brazzaville⁵⁴ and Pointe Noire, digitalization is uneven across the different civil registration centers. No standardized system is used in these centers, and without web-based systems, registers are stored locally. There is therefore no consolidated information on civil registers. The government, through the Ministry of Interior, has developed a civil registration digitalization roadmap with the aim of standardizing systems, and creating a consolidated database of civil registration. A potential consolidated system has already been prototyped, but project implementation across different centers is pending due to budget constraints. The development of such a unified register, and the implementation of a foundation ID, would lay the foundation for a whole-of-government digital system, easing the access to service for citizen through facilitated authentication across different government databases and systems (such as social protection database, or tax registers). The implementation of such a digital system will require the revision of the 1984 family code, which does not provide for digitalized civil registration. A draft law is currently under preparation considering aspects of digitalization. Data from ID4D-Findex⁵⁵ indicates that 12% of the adult population does not have an ID (672,501 people), but this proportion remains significantly higher compared to other CEMAC countries which is on average 37%. The number of birth certificates stands at 95.9%, thus remaining higher than the CEMAC countries⁵⁶.

Since 2008, the Government has contracted a private sector firm to digitalize the biometric database of national Id Cards. Photos and fingerprints are collected and stored digitally during the process. Most citizens in the country have a national ID card valid for a period of 10 years. No

⁵⁴ For instance, of the 10 civil registration centers (9 arrondissements and 1 district) within Brazzaville, only 2 are digitalized.

⁵⁵ To access data from ID4D-Findex (2018), source: <https://datacatalog.worldbank.org/dataset/identification-development-global-dataset>

⁵⁶ Ibid.

authentication system other than visual verification is used at different points of access to services. Passport services are also contracted with the same firm and require the separate collection of additional sets of fingerprints and photos. None of these systems are interoperable or linked to vital records. Additionally, some government institutions including the Ministry of Finance, the tax administration and Ministry of civil service have started working on a Unique Administrative Identifier (NIU), the establishment of a national directory for the identification of natural persons⁵⁷ and planning an additional biometric census of taxpayers and civil servants. The NIU project also includes the implementation of a digital signature infrastructure and certification system using key public infrastructures. The implementation of these projects in addition to existing system requires coordination and prioritization to build on existing systems, avoid duplication of efforts and avoid unnecessary repeated collection of biometrics.

A cross-sectoral project on the unification of identity management systems has been initiated by the government. However, several uncoordinated initiatives to collect biometric information have been identified (taxes, civil servant base, social protection etc.). The non-coordination of such initiatives can lead to high costs for the government, as well as security risks. for the maintenance of multiple registers. The implementation of a single identity registry will require coordination between different identification initiatives for greater efficiency, cost savings and economies of scale for the Government. Such a unified system could form the basis of a set of government systems exchanging information with each other in a secure manner through a system of interoperability.

4.2.4 Core Government Back Office Systems (G2G)

The ROC is characterized by an array of back-office systems developed in silo to address specific government functional needs of different public institutions and ministries without an integrated approach. The Ministry of Finance and its different departments have been leading the digitalization of back office systems. The government is currently working on a revenue management platform including back office processing and electronic tax services to citizens. An IT master plan exists to integrate all various departments, but this plan has not yet been implemented, and several systems are not interoperable.

SYDER is the system used for budget execution. The system was developed to cover functional needs as they arise and thus does not cover the entire expenditure chain, limiting its efficiency in having a comprehensive overview of public financial management, as well as efficiency of public financial management functions. HR Payroll system was developed jointly by the Ministry of Finance and Ministry of Civil Services for the management of civil servant payrolls.

On the revenue side, the customs administration is using the United Nations Conference on Trade and Development ASYCUDA World system. It is a web-based system allowing for real-time transmission of information with interconnection across 17 customs offices. The customs administration is currently finalizing the integration of online services to citizens from the pre-clearance processes, to clearance and payment. A post-clearance process could also be added by

⁵⁷ The establishment of a centralized database would make the information grouped together in the same area: criminal records, declaration of births and deaths, birth certificates, etc. The definition of a unique identifier for people in a centralized database would authenticate in a safe manner the identities of people and also strengthen confidence, particularly in the financial sector for the "Know your customers" aspects of due diligence.

interfacing with the Congo Terminal system, but has not been included in the current integration reform due to technological challenges.

The tax administration has developed a set of systems aiming at improving the efficiency of back office tax management. Their development did not follow an integrated approach and systems were rather developed for the management of specific taxes and sectors, mirroring the organizational arrangement of the tax administration. These set of systems do not communicate with each other and do not provide citizen/business interface for tax declaration and payment.

The IT master plan developed by the Ministry aims to consolidate the Integrated Financial Management System (SIGFP) to cover the entire budget management chain. Under the proposed architecture all revenues systems will be interoperable with the budget management system. The tax administration system will be consolidated, and tax-payers service delivery interface will be developed. While the budget management system developed under the Oracle Business Suite has been delivered, implementation has been delayed. The civil service management system will also be consolidated with the development of an integrated human resources management system.

4.2.5 Service delivery platforms and CivicTech (G2C and CtoG)

Most government entities have online presence but provide very limited online services. Government websites present extensive information, and are fairly well maintained and updated, but do not provide two-ways transactions. There is no unique government portal⁵⁸, and each ministry maintains its website without a standardized presentation. Most ministries use the standardized “gouv.cg” domain but do not have an integrated online presence. However, government agencies do not use the government domain, creating a plethora of websites for the different services they deliver (such as information on company registration, e-bourse etc.), some of which are not updated or functional. The customs administration is among the most advanced on the use of digital platform, with ASYCUDA World, developed by the UNCTAD. ASYCUDA manages all steps of the customs processing in an integrated manner. The customs administration and ARPCE is working toward the integration of services such as integrated payment systems⁵⁹. The Ministry of Health has developed an E-health projects which will require the allocation of resources to its realization.

Box 10 - E-health platform:

The Ministry of Health has developed an action plan for the development of E-Health services. A first generation of digitalized health services is focused specifically on monitoring and evaluation of health projects, or collection and transmission of health sector data. The reform action plan developed by the Ministry would seek to develop an E-Health system that would cover all aspects of health sector management including patient case management, interaction between patients and health sector providers, with the aim of improving efficiency of health management and quality of care.

⁵⁸ The government embarked on a project in this direction in 2020.

⁵⁹ Entered into force in July 2020, a new electronic stamp of 50 FCFA (customs regulations) was instituted by the 2019 finance law as part of the dematerialization of payments to secure State revenue. This dematerialization concerns financial transactions carried out by direct debit or electronic payment. Electronic payments are recorded on the ARPCE time stamping, certification and archiving system.

The implementation of such a project faces different challenges:

- Infrastructure: It would require upgrading the connectivity of healthcare centers.
- Implementation of necessary regulations: acceptance of electronic transactions, e-signatures, and proper protection of personal data.
- Strengthened change management: building the acceptance of digital systems, providing capacity building to healthcare professional across the country.

This will also require allocation of enough resources for the implementation of this ambitious project.

4.3 Constraints facing the development of Public Digital Platforms

4.3.1 Institutional coordination

The lack of coordination of digitalization efforts leads to cost-inefficiency, risks of duplication and non-interoperability of systems. There is no clarity on the operational coordination of the “*Vision Congo Digital*” strategy, and especially for the public sector digitalization pillar. As a result, Government is unable to take advantage of existing systems, potential shared resources, and system interoperability. The multitude of projects already developed by different institutions require further funding. But in the context of scarce resources and without clear coordinated prioritization across government, these projects could be left unrealized or non-integrated. Better coordination would ensure mutualization of resources, improved quality insurance and cost-efficiency of digitalization initiatives.

4.3.2 Capacity: skills and resources

Most government IT unit are understaffed. The limited availability of specialized IT skills in the country affects government capacity to carry out the digitalization of its services. This reflects both the limited availability of specialized training in the country and the disconnect between the locally available training and government needs. In the past, government IT trainees received formal training in Angola, and formed the core staffing of ACSI⁶⁰. In recent years, there have been no plans for fit-for-purpose IT capacity building within government. IT engineers trained in local private training institutes are hired below grade⁶¹, while foreign trained engineers are hired at a grade corresponding to their degree. This results mainly from the lack of certification of the engineering training from private institutes and lack of recognition of the local training. This issue affects not only the public sector but also impacts private sector capacity to develop local content and adequately expand their activities.

Financial resources are also inadequate given the extensive number of projects initiated, constraining government entities in achieving their stated vision. Such a situation calls for better pooling of resources through a coordinated whole-of-government approach, and strategic sequencing of initiatives for better prioritization in the allocation of resources.

⁶⁰ However, these personnel have since left ACSI making ACSI ineffective in its role of supporting the development of government digital tools.

⁶¹ As bachelor's degree holders even though they hold engineering degree

4.3.3 Interoperability, Infrastructure and connectivity

Digital systems are developed across government entities and agencies without interoperability, thereby reducing the efficiency of digital systems and the quality of service to citizens. There are no standards for platform development and data management, and entities seeking to interface their systems face significant challenges as a result⁶². This issue also applies within ministries⁶³, and at a larger scale, across systems in different ministries. Now that the law on electronic transactions exists, the security of electronic transactions between administrations but also with users and external partners must be ensured. Certification of transactions and user authentication should be strengthened as part of the government's efforts to establish shared services.

Government connectivity remains an issue both in terms of availability and quality. Given the limited uptake of digital systems for most administrations, limited investment has also been done toward connectivity in the public sector. Finally, instability of electricity supply also affects the capacity of administrations to have greater uptake on digital platforms.

4.3.4 Limited uptake and low number of systems providing services to citizens

Uptake of digital public sector platforms is limited for several reasons. On the demand side, despite improved coverage in the past years, internet usage among the population in the ROC remains low, due to high cost of services and limited digital skills. On the supply side, public sector digitalization efforts have focused mainly on government core back-office systems with limited transactional services and content for citizens. To increase the uptake of digital platforms, government should on the one hand improve the offer of outward digital services that address the needs of citizens based on life-event. On the other hand, efforts have to be undertaken toward the implementation of a strategy aiming at reducing the cost and quality of internet services (as noted in pillar 1) and improving digital service usage by citizens. The first pillar of the “Vision Congo Digital 2025” seeks to improve the digitalization of service delivery to citizens.

Box 11 - Potential for regional platforms:

Supporting the CEMAC integration and the free trade area project (ZLECA) being created across the entire African continent, there are opportunities for leveraging regional platforms. Potential applications may include:

- Implementation of regional shared infrastructures such as interoperability systems allowing secure information exchanges-
- The implementation of such shared services could improve collaboration on aspects such as trade facilitation, free-movement of persons, and revenue mobilization (customs, taxes), or management of civil registration and Id, verification for access to cross-border services.

⁶² This is for instance the case faced by the customs administration when interfacing ASYCUDA with the systems of private sector entities involved in the process (such as the manutention company), in its effort to integrate customs processing from pre-clearance to removal of goods.

⁶³ For instance, between the different tax systems for the tax administration, or between Id register and passports register which are both managed by the same ministry.

4.4 Recommendations & Next Steps

Table 5 : SWOT analysis on Digital Platforms

Strengths	Weaknesses
<ul style="list-style-type: none"> - Willingness to adopt other digital solutions in the public sector. - Several digitization projects conducted within government (in particular within the MFB, resulting in integrated digital systems for financial management and revenue mobilization). 	<ul style="list-style-type: none"> - Lack of an integrated e-government approach - No shared infrastructure or services. - Low interoperability between government IT systems - IT systems are mainly developed in silo, and focused on internal back-office systems - Low capacity to support the digital transformation agenda, mainly related to the lack of connectivity, digital skills and training. - Few digital services focused on the citizen.
Opportunities	Threats
<ul style="list-style-type: none"> - The context of COVID-19 is contributing to the rise of digital services, including distance learning. Digital learning platforms are promising opportunities for PPPs. - Opportunity to expand the delivery of digital public services, especially in urban centers. - Legal framework that is evolving favorably for the implementation of public platforms - Unique identification number (UIN) and unified registry project. - Opportunities to leverage regional platforms through shared systems and services. 	<ul style="list-style-type: none"> - Poor institutional and operational coordination can lead to risks of duplication, inefficient costs and non-interoperability of systems - Duplication of projects with regard to identity management and development of siloed systems that could evolve towards non-interoperability of systems and high costs for the government

The implementation of the following recommendations could support the development of digital platforms in the Republic of Congo:

Objective 1: Improve the institutional framework

R1. Implement a coordination structure and coordinated approach for government digitalization. The experience of countries that have succeeded in their digitalization efforts show that central digital units can catalyze change, support the building of interoperable systems across government department, ensure cost efficiency and implement a strategic vision in a sequenced and coordinated way. This is even more relevant for the Republic of Congo, with several smaller and larger sized digitalization projects within and across government departments. Essential tasks include the identification of different ongoing or planned digitalization projects within the government, the definition of standards protocols and architectures to ensure that each developed system builds upon each other and can be made interoperable, and the identification of IT skills

and capacity gaps in the administration with a strategic plan to improve fit-for-purpose capacity, aligned with the digitalization agenda of the different entities. A central operational digital transformation unit would also provide support to ministries and department in the implementation of their digital transformation initiatives.

R2. Elaborate a clearly prioritized and costed action plan for government digitalization.

Given the proliferation of digitalization projects across the government, a consolidated action plan should be devised to prioritize and cost these different projects. It would also be important in that context to identify all ongoing or planned digitalization projects. The government could prioritize services that address citizens' most pressing needs and start developing outward digital platforms for service delivery by identifying priority sectors such as health where a plan for digitalization is already developed. Such systems should be developed through a user centric approach, responding to citizens' life events and around their needs⁶⁴. The prioritization process can be undertaken based on a set of criteria such as service usage, services that are the most costly and time consuming for citizens to access, low hanging fruits for digitalization, readiness of specific digitalization plans, and/or services that have highest potential for which digitalization will improve access and quality identification of public sector services. Such identification will require a more in-depth analysis, including structured consultation with citizens and users.

R3. Strengthen digital skills in the public sector. The implementation of digital transformation in the public sector will require availability of fit-for-purpose skills across the government. This includes basic and advanced skills for IT tool usage, as well as technical skills for the roll out and maintenance of digital platforms. The government, private sector and training institutions could create a "job coalition" to define skills and needs for employers and co-create corresponding training, that can support the government's digitalization through an adequate digital talent pool.

Objective 2: Establish an environment of trust

R4. Support the deployment of shared state infrastructure and systems. Improved connectivity and redundancy provide the opportunity for the Government to create a secure and shared public network. The state could invest more in shared systems such as shared service registers and databases, shared interoperability framework, connection and payment networks, single online portals, content management systems, certification authorities or data storage and management solutions: government cloud, infrastructures such as public data centers (some of which are already being created under the CAB project). These systems help to share resources and reduce duplication of costs and efforts across different government agencies. They also help modernize processes and benefit from economies of scale. The ability to share data across borders - whether for customs, immigration or e-commerce use - will be an essential prerequisite for developing a larger digital market in the region. In practice, there will be a need to set up a strategic and operational coordination body for the digitization of public entities which, among some of its missions, will take charge of the implementation of digitization standards, facilitate consultation on prioritization of projects, and ensure the interoperability of systems conforming to a common framework.

⁶⁴ Including extensive consultations at several stages of the development process to identify the needs and challenges faced by citizens.

R5. Secure resources and strengthen the legal environment for the implementation of integrated digital identification systems. In addition to investments in digital identification systems, legislative updates are needed for a unique identifier to be adopted. Along with the modernization of the identity system, it is also recommended to consider the modernization of the civil registration system which ensures the verification of information relating to the civil status of the population. Many policies depend on specific demographics. The steps needed to build an identification management system are to create a unique identifier for individuals and businesses, to improve access to legal identification throughout the country and to ensure that government systems are interoperable in a sustainable way. Projects across government impacting identification systems (specifically, those dealing with biometrics), should be coordinated and supported by people with the appropriate technical skills. Steps could be taken to ensure that all identification numbers (ID, Tax) are gradually consolidated and replaced with a single number for use by the whole government. Thus, an investment in an up-to-date civil register can improve the government's ability to more accurately forecast the level of public service expenditure needed in a given geographic area. The national identification platform has the potential to become important for Government-To-Person payments (G2P) for example for the payment of agricultural subsidies, social cash transfers or the processes of Identity authentication for opening bank accounts and granting small business loans to support private sector growth, among other things. In this process, the country can also learn from other countries such as Rwanda, Kenya or Lesotho (see example box 14), which are considered to have developed the strongest national identification systems in Africa.

Box 12 - Spotlight on Digital ID: Lesotho as a Pioneer in Africa

In 2009, the Government of Lesotho decided to provide all citizens with a biometric national ID as a foundation for other critical government systems. As a result, in 2011, the government passed the National Identity Cards Act and the Data Protection Act. The transition to a digitized and centralized ID system began in 2013. Over the course of three years, enrollment reached over 85 percent of the eligible population. The Department NID-CR is now piloting an API to facilitate verification and the authentication of identity by government agencies (e.g. pensions and payroll) and the private sector (e.g. banks and insurance companies).

Roll-out of the NID was the cornerstone of the 2018–19 biometric census of civil servants and civil pensioners, which leveraged the NID to verify and authenticate the identity of civil servants, identify anomalies within the government payroll, and eventually improve the efficiency of government spending on wages and civil pensions. Similarly, the NID is being used for the Old Age Pension (OAP) proof of life verification exercise. The envisioned interface with the HR management system, OAP system, and National ID platform would ensure that the National ID becomes the unique identification number for these types of government payments. The credit bureau has also launched the Credit Information Sharing Initiative, which matches consumers with identity data to access credit.

A generic interface has been developed that enables the NICR platform to be connected to the digital platforms of other public and private sector entities. At the time of the assessment, the following government systems had a basic connection to the NID platform for making queries: MCST's e-services platform; Ministry of Labor; Ministry of Tourism; Old Aged Pensions; Ministry of Public Services. Due to increased instances of fraud in the financial services sector, the private sector has also already demonstrated interest in the National ID system for authentication. Recently, the first MOU for data protection with third-party users was signed between a commercial bank and the MoHA. Additionally, the use of the generic interface with the bank's systems has been tested. The next phase of improvements to the NICR system will include increasing service providers' ability to conduct biometric authentication and increasing the robustness of the platforms' data privacy and protection functionalities.

However, a number of steps will still need to be taken before Lesotho's existing legal framework is ready to support data sharing with the public and private sector. The scope of permitted disclosures may need to be amended to cover the categories of recipients and data sharing purposes envisaged by the government, particularly for administering pensions and salary payments to public servants. Data minimization principles should be adopted, and governance arrangements bolstered to improve accountability and transparency. Sector-specific template agreements for ID data sharing with government agencies or the private sector, as well as a data sharing code of conduct, may also help to reinforce individual privacy rights, improve transparency and build confidence. Cybersecurity legislation may also be considered to provide legal protections, especially to critical digital infrastructure.

5 Digital Financial Services

Box 13 - Key Messages on Digital Financial Services

- The digital financial services market is fragmented and lacks a coherent strategy for integration into an inclusive financial services market and the digital economy.
- There are only one million mobile money subscribers, with activity limited to withdrawal and deposit. It is essential to design and implement a financial inclusion strategy, which also includes support for financial literacy.
- Costs of financial services (banks and mobile money) are high: MTN, the largest mobile phone provider in the Republic of Congo, charges 3.5 percent per transaction.
- There is limited opportunity for FinTech, as mobile operators do not open their APIs to local innovator.
- DFS are particularly relevant in the context of the COVID-19 pandemic insofar as they are contactless means of transaction. Thus, digital payments are increasingly used to facilitate the delivery of monetary aid to the most vulnerable people, especially refugees, by humanitarian and development partners⁶⁵.

5.1 Importance of Digital Financial Services

5.1.1 Socioeconomic Rationale for Digital Financial Services Development

The role of DFS in the Republic of Congo’s socio-economic development has been significant, steadily increasing financial inclusion for the unbanked in the last decade. The two mobile money providers – Airtel and MTN, have several million mobile money clients, and alongside *Banque Postale* and MUCODEC, offer accessible tools that have enabled access to financial services and increased resilience for the people of the Republic of Congo. As usage continues to increase, appetite and aptitude for more sophisticated digital financial services grows, and the government of the Republic of Congo recognizes the role of DFS in the sustained socioeconomic growth of the country.

As the Republic of Congo seeks to further diversify its economy from oil and towards new and innovative industries, a robust range of digital financial services is paramount for both consumers and businesses. A present, cash-in-cash-out (CICO) the most used DFS, and innovative fintech is limited. The expanded market requires consumers and businesses offer secure places to save, provide widespread access to credit, cheaper remittances, and other tools to smooth consumption. At present there are several barriers to innovative FinTech – access to credit, laws prohibiting non-bank-financial institutes’ (NBFIs) credit offerings, limitations around open APIs, alongside a lack of a robust innovation hub.

5.1.2 Alignment with Country Development Strategy & Goals

The Government of the Republic of Congo has acknowledged the important role of DFS in driving economic growth, reducing poverty, meeting developmental needs, and creating

⁶⁵ GSMA (2019). *Navigating the Shift to Digital Humanitarian Assistance: Lessons from the International Rescue Committee’s Experience*.

formal sector jobs. The 2018–2022 National Development Plan (NDP) aims to leverage the opportunities offered by innovation to achieve the Sustainable Development Goals, emphasizing education, economic diversification through agriculture enabled by digital transformation. The ‘Congo Digital 2025’ strategy specifically calls for the promotion of ‘digital products and services for the productivity⁶⁶ and competitiveness of the sectors of the national economy’. Specifically, the strategy calls for the adaption of laws and regulations ‘to allow coexistence of the banking world and that of mobile telephony’, noting the successes of mobile banking in Kenya, and a desire for advanced digital financial services.

At a regional level, several key organizations have made provisions for the development of DFS programming in their strategic planning. In June 2019, the African Union launched ‘The Digital Transformation Strategy for Africa’ which noted that DFS was a ‘critical enabler of the digital economy’. It includes two headline targets to be reached by 2030: 1) Universal Access to Digital Financial Services, and 2) an Africa-wide payments infrastructure. The government acknowledges the country’s low access to formal financial services and supports the development of payment or money transfer mobile services in Congo – such as those of the company DigiPay (with Digitransfer) or the Congolese Posts and Savings Corporation (SOPECO) (with *Poste Mobile*⁶⁷) to ‘strengthen financial inclusion and money transfer services for rural populations through the networking of post offices nationwide’. In addition, with the support of an international consulting firm under the CAB project, the government is currently working on a strategy for the promotion of digital financial services. Following their studies, the government will have a general inventory of financial inclusion, a directory of all the digital financial services offered by users, the status of access to the various socio-professional categories, income level, geographic locations and an analysis of the legal and regulatory arsenal of digital financial services. This study will assess the obstacles to the development of DFS and also to assess the effects of DFS on financial inclusion in the different sectors of activity (agriculture, social protection, education, health, etc.).

Along with five other nations in the region, the Republic of Congo is a member of the Economic and Monetary Community of Central Africa (CEMAC), a body with the mandate to promote trade, institute a genuine common market, and create greater solidarity among peoples and towards under-privileged countries and regions. Its financial sector, including DFS is governed by the Bank of the Central African States (BEAC) and the Banking Commission for Central Africa (COBAC). Chaired by the Governor of the BEAC, COBAC is the institution responsible for the supervision of credit institutes, and MFIs. The COBAC has regulatory power (drawing up regulations and instructions of a prudential nature) and a jurisdictional power to sanction establishments in breach. Applications for approval (establishments and their managers) are processed by COBAC but subject to the favorable opinion of the Minister of Finance in the Republic of the Congo⁶⁸. Other regional regulatory bodies include the Financial Market Surveillance Commission (COSUMAF) for financial market institutions and intermediaries, and the Inter-African Conference on Insurance Markets (CIMA) for the insurance sector.

⁶⁶ With the support of the African Development Bank (AfDB), the government has launched a project to develop a national strategy to promote digital financial services.

⁶⁷ Its API palette digitizes deposits, withdrawals, account-to-account money transfer, receipt of salaries, merchant payment and payment of utility bills. All of its functions are therefore accessible via this new SOPECO application.

⁶⁸ World Bank Group (2017) Republic of Congo Financial Sector Development Strategy (FSDS)

5.2 Diagnostic Findings: Current State of Digital Financial Services

5.2.1 State of Digital Financial Services

Indicator (% age 15+), Source: Global Findex 2017	Congo	SSA average
Account ownership	26.1	42.6
Financial institution account	23.3	32.8
Mobile money account	6.2	20.9
Gender gap in account ownership	5.1	5.7
Made or received digital payments in the past year	17.8	34.4
Sent or received domestic remittances through an OTC service	24.6	11.0
Used a mobile phone or the internet to access an account	5.7	20.8

Table 6 : Key available Indicators for the State of Digital Financial Services, Global Findex 2017.

The financial services market in the Republic of Congo is fragmented and lacks a coherent strategy for a fully inclusive financial services market and digital economy. According to the Global Findex, the overall rate of financial inclusion in the Republic of Congo stands at 26,1 percent.⁶⁹ According to the Global Findex, of the nearly 2.2 million Congolese adults who are unbanked, more than 600,000 do not use formal financial services because they consider them too expensive or due to lack of trust⁷⁰. Lack of digital and financial literacy are problematic countrywide. The Lisungi project through its communication campaign, SOPECO through the promotion of the new wide range of products, and MUCODEC through its FM Radio, all focused on education, promotion and financial functionality. All these institutions attempt at their level to increase a digital culture within the Congolese population.

i. Infrastructure

BEAC established, and manages, the CEMAC region's payment components, namely SYGMA (for real time gross settlement), SYSTAC (mass payments clearance), CIP (the payments incident center) and GIMAC (the Interbank Banking Group of Central Africa). All of these components are integrated and operational. Non-banking service providers such as MFI and e-money institutions can have indirect access to SYGMA and the GIMAC while only check issuing institutions can participate in SYSTAC. The GIMAC has 56 members, including 52 banks and four MFIs across the six CEMAC countries. It was created to ensure interoperability and interbanking in the financial sector.

There is limited interoperability of DFS today despite the presence of the GIMAC. The GIMAC has 56 members, including 52 banks and four MFIs across the six CEMAC countries. It was created to ensure interoperability and interbanking in the financial sector. The various payment points are only interoperable through the card payment network whether the transactions are processed via the regional label (GIMAC) or international (VISA and Mastercard). The BEAC has taken steps to establish full interoperability through the GIMAC platform and enhance mobile interoperability within the region and across borders. However, the market for full digital payment interoperability in the Republic of Congo is largely untapped.

⁶⁹ Global Financial Inclusion (Global Findex) Database 2017

⁷⁰ World Bank Group (2017) Republic of Congo Financial Sector Development Strategy (FSDS)

CEMAC has adopted various texts at the regional level that constitute the regulation governing mobile money. This regulatory scheme covers various e-money providers, including mobile telephony, internet payments, and prepaid cards. The texts grant credit institutions the exclusivity of issuing e-money, put limits on growth and the scaling up of e-money services. This means that a DFS provider must partner with a bank to operate, and the partner bank acts as a guarantor to cover all of the money in circulation. Domestic money transfers are not considered e-money in the Republic of Congo.

ii. Banking sector

The Congolese financial sector is small, concentrated, and is largely dominated by the banking sector – which has eleven active commercial banks. Additionally, there is one regional development bank headquartered in Brazzaville (The Development Bank of Central African States, “BDEAC”), and country offices for several other development bank and regional financial mechanisms. With 68 microfinance institutions and savings and loans cooperatives, this group represents about 10 percent of banking sector assets⁷¹. According to the World Bank Doing Business 2020 indexes, the Republic of Congo ranks 132 out of 190 economies on ‘Getting Credit’, and 6/12 for the ‘Strength of Legal Rights’ index⁷². Across the entirety of the Republic of Congo, there are approximately 1,300,000 bank accounts, and 11 banks in total. Over an adult population of three million⁷³, this equates to around 26,1 percent bank account penetration in a bank or other type of financial institution (opened by themselves or through someone else). However, it is difficult to isolate the personal market as members of the liberal professions, small entrepreneurs and traders open accounts in their name for the needs of their business and are often confused with individuals⁷⁴. The banking sector is not focused on banking the unbanked; while anyone is welcome to open an account, transaction costs are high, and accessibility is an issue. For example, Crédit du Congo has just 20 branches across the country. Furthermore, the survey revealed a high concentration of bank locations in urban centers; in 2015, 74 percent of all bank branches were in Brazzaville and Pointe-Noire, leaving the non-Urban population underserved⁷⁵. Rural regions represent several challenges for both banks and microfinance institutes, liquidity constraints, and limited no commercial and financial interest there.

Choices for cross-border remittances are limited to commercial banks and costly remittance providers. Without a bank account, you need to use Western Union or MoneyGram to send money outside of the Republic of Congo; both costly options with limits on how much can be sent. Bank transfers, mobile money and money transfer are supposed to be interoperable; this should take place in the coming year⁷⁶. Ecobank, which has branches across the African continent, and recently launched ‘Rapidtransfer’ which allows its customers to send and receive money both domestically and across 33 of their country branches, through an integration with MFS Africa that covers all MNOs in the MFS Africa Hub.

***Banque Postale du Congo* is striving to include people without a regular income but need some access to banking services.** They have also forged partnerships with the WFP and Lisungi

⁷¹ World Bank (2020), Financial Sector Evaluation.

⁷² Ibid

⁷³ Global Financial Inclusion (Global Findex) Database 2017

⁷⁴ World Bank Group (2017), Republic of Congo Financial Sector Development Strategy (FSDS)

⁷⁵ BEAC and CNC (2015). Survey on Financial Inclusion in the Republic of Congo - Final Report.

⁷⁶ In-person conversation with Charles Tra Bi (Airtel), 6th March 2020

program. The Bank offers both SMS banking and E-banking, allowing remote oversight and notifications of their transactions. Additionally, in 2019, they worked with the Ministry of Posts, Telecommunications and Digital Economy to set up single windows for customs clearance at the offices of *Banque Postale* branches⁷⁷.

iii. Mobile money

There are two mobile money providers in the Republic of Congo – Airtel money and MTN mobile, with approximately 500,000 and 1 million users respectively, compared to 300,000 in 2016. However, MTN's active usage is measured by a single transaction in a year, and their lion's share of users is primarily composed of urban dwellers in Pointe Noire and Brazzaville. Transaction costs are high, every payment has a 3.5 percent transaction fee, with 1 percent directed to the regulator (ARPCE) and the remaining 2.5 percent going to the MNO. At present there is no interoperability between MNOs, and each MNO must mirror 100 percent of their e-money in an account with Treasury.

The primary usage of mobile money is cash-in-cash-out (CICO), with this comprising approximately 80-85 percent of all transactions⁷⁸. While neither operator had sex disaggregated data, both assumed equal usage of mobile money by men and women. Bill payment for electricity, Canal Plus (television fees) and betting as well as airtime purchase are available, and increasingly used. Given the limited accessibility of bricks and mortar banks, mobile wallets offer real opportunities for financial inclusion. MTN has 25,000 agents and claims that no one in the Republic of Congo is more than 15 minutes away from an MTN vendor. The recently adopted 2020 Finance Law mandates the digitalization of all government payments. This has not yet been fully enacted; to date electricity payments are the only bills included.

All mobile money is regulated by the ARPCE. From a regulatory standpoint, MNOs are considered infrastructure providers, and not financial service providers. All issues pertaining to consumer protection, fintech, gender and pricing, are under the responsibility of the Central Bank and the MNOs. ARPCE only steps in when the MNOs request its intervention following a fraud incident.

iv. Microfinance

The Republic of Congo's microfinance sector is growing, dominated by the network of credit unions, still concentrated in Brazzaville and Pointe Noire. Microfinance sector loans comprised of over 5 percent of the total lending of commercial banks over the same period. The regional banking commission (COBAC) supervises and regulates microfinance institutions (MFIs), and as this sector increases in size, COBAC needs to provide greater oversight and implementation of prudential rules, strengthening corporate governance, management practices and the sector's regulatory framework in general. Almost half of the operating microfinance institutions belong to a confederation, *Mutuelles Congolaises d'Epargne et de Crédits* (MUCODEC), which offers both micro and mezzo financing⁷⁹. It comprises of 45 agencies, 342 enterprises and 356,000 members – the average loan size is CFA 1.2 million (USD 2,000). However, the microfinance services

⁷⁷ 'Inauguration of three (3) Single Clearing Windows and three (3) Postal Bank Branches in Cabosse, Souanké and Ewo', 30 August 2019, *Banque Postale du Congo*.

⁷⁸ In-person conversation with Charles Tra Bi (Airtel), 6th March 2020

⁷⁹ World Bank, Financial Sector Evaluation, 2020

mainly focus on the salaried population in the public and private sectors, those enjoying stable incomes.⁸⁰ Community savings groups, known as ‘*mutuelles*’ and ‘*tontines*’ are popular, and in the absence of accessible formal financial services, these provide greater security and improved resilience.

The Ministry of Finance leads the financial inclusion strategy, with support from the Ministry of Planning and the Central Bank. There are currently no working groups to implement the strategy. However, in 2015, BEAC and the Conseil National du Cr dit (CNC) undertook a Financial Inclusion Survey to establish a baseline situation of access conditions and habits of use of Congolese financial services.

v. Digital Government payment systems

Digitalizing cash-based interventions and social safety net payments has been fraught with hurdles. The World Food Program (WFP) and United Nations High Commissioner for Refugees (UNHCR) or the Lisungi project⁸¹ offer social safety net payments and cash assistance to refugees, Internally Displaced Persons and the stateless. Executing these Cash-Based Intervention (CBI) transactions has proven challenging; liquidity, biometric recognition, MNO technical capacity, network accessibility, and transparency concerns have all frustrated efforts. Consequently, the disbursement mode is not uniform; over the last 10 years, these organizations have used mobile money, biometric recognition, e-cards, e-vouchers and cash to pay beneficiaries.

Government to Person (G2P), Government to Business (G2B), Person to Person (P2P), as well as limited Person to Government (P2G) payments have been digitized. All government salaries are paid into bank accounts with Telecompensations; these payments are managed by the Central Bank and Treasury. In terms of P2G payments (outside of electricity, these are not yet digital) – you can either pay by check or visit the Government’s tax office in person. Customs duty can be paid at the *Bank Postale*.

Initiated by the government, a digital payment hub project has been set up to enable the materialization and sustainability of the source of income from the levy on electronic transactions. It consists, among other things, in automating the collection of receipts linked to electronic transactions and controlling the flow to prevent operators from presenting false turnover⁸². This project also ensures the interconnection of financial and credit institutions. The success of this digital hub project involves three actors: (i) the technical operator who contributes and installs digital technology using their own funds; (ii) the regulator (ARPCE) which lists, authorizes and regulates fund transfer operations and ensures their regularity; and (iii) the state which collects the license fee.

⁸⁰ World Bank Group (2017) Republic of Congo Financial Sector Development Strategy (FSDS)

⁸¹ The Lisungi project is currently deployed in a number of targeted regions and has provided cash allocations to more than 200,000 households, including indigenous populations. The Social Register lists more than 60,000 households and promotes their access to health and education services. The expansion of the project will provide direct cash allocations to refugees and more households among the local population.

⁸² As enshrined in the 2019 finance Act, 1% of the commission for electronic money transactions must go to the Congolese state. Indeed, according to a projection made by the Ministry of Posts, Telecommunications and the Digital Economy, during a technical meeting on the modalities of the implementation of this project which took place on March 11, 2019, around 34 billion FCFA in three years, or a little over eleven billion per year, could be collected by the State and contribute to the latter’s budget.

5.2.2 Constraints to the Development of Digital Financial Services

FinTech, while slowly growing, is still at a nascent stage in the Republic of Congo. Outside of several mobile bill payment services, there is limited FinTech innovation as of yet. This growth has been limited by several key factors, under the following issues:

- **Institutional** - There are no laws requiring open APIs, although a dialogue has started at the national level under the leadership of the government⁸³. The mobile operators open them on a case-by-case basis where they see value. One example of this is AgriZoom, a Crowdfunding and E-commerce platform that allows farmers and others to raise funds and enables market access. Their access to the MTN's API means that they can collect money directly.
- **Policy and legal** - FinTechs are not able to offer credit; the central bank limits this product to banks and MFIs. The risk in allowing FinTechs to offer these products is perceived too high, and MNO-led credit products have previously been suspended due to licensing issues. MNOs must work with a bank or MFI if they want to offer loans. The absence of an up-to-date national and regional financial inclusion strategy limits the development of digital financial services in the Republic of Congo, along with the absence of other regulations.
- **Identification** - The lack of a robust digital identification system prevents financial service providers from digitally authenticating transactions and logging into a digital system back-end (such as credit registers, social registers) to a unique identifier, and thus develop an ecosystem more conducive to the expansion of DFS.
- **Technological** - In terms of IT/ web development skills, local resource is limited and retaining local talent and avoiding the 'brain-drain' is a challenge. Firms often end up resorting to using foreign consultants to build tech applications and run into issues with maintenance and sustainability issues if their local tech support is not able to troubleshoot or fix bugs.

From a regulatory standpoint, all FinTech innovation - except lending - is allowed, however, from a practical perspective the barriers are significant.

The credit market is underdeveloped and the Regional Public Credit Registry lacks coverage. Additionally, the guarantee frameworks are underdeveloped and the Republic of Congo (nor any other CEMAC member country for that matter) lacks a securities guarantee registry. Insolvency frameworks are ineffective because of the court system's limited capacity.

There is limited interoperability of DFS today despite the presence of the GIMAC. The various payment points are only interoperable through the card payment network whether the transactions are processed via the regional label (GIMAC) or international (VISA and Mastercard). The BEAC has taken steps to establish full interoperability through the GIMAC platform and

⁸³ The government recently brought together operators and young digital entrepreneurs for a roundtable. They realized that there was a trust issue between mobile carriers and entrepreneurs, not just APIs. Rather, the barriers were around the requirements of MNOs that start-ups could not fully meet. The solution proposed by mutual agreement was to find an integrator / relay between these actors, for all private digital platforms. Yekolab had volunteered as an integrator.

enhance mobile interoperability within the region and across borders. However, the market for full digital payment interoperability in the Republic of Congo is largely untapped.

Box 14 - Regionality and Financial Sector

Regulation of financial sector is ensured by the BAEC. As such, member countries benefit from high quality legislations and regulations. Nonetheless, their implementation is left to each country, which requires adequate institutional capacity. Financial regulations have then strong aspects of regionality which can be leveraged in developing regional financial integration. Interoperability of mobile financial services would be one of the opportunities to be considered but requires dialogue at the regional level toward a framework for an integrated approach.

5.3 Recommendations & Next Steps

Table 7 : SWOT Analysis on digital financial services

Strengths	Weaknesses
<ul style="list-style-type: none"> - The increased use of DFS by the population. 	<ul style="list-style-type: none"> - The DFS market is fragmented and does not have a coherent strategy. - Slow rise in innovative digital finance. - Limited availability of open APIs allowing digital platforms to integrate digital payment systems. - Few individuals with skills in IT / web development. - Limited retention of local talent.
Opportunities	Threats
<ul style="list-style-type: none"> - The appetite and aptitude for more sophisticated digital financial services is increasing. - Diversification of the economy towards new and innovative industries. - Intensification of G2P and social electronic transfers could support the expansion of services 	<ul style="list-style-type: none"> - Consumers and businesses need secure options for saving, accessing cheaper credit and remittances, and other tools to smooth consumption. - Legal framework lacking flexibility to increase the supply of and access to credit, by non-banking and financial institutions for example.

The implementation of the following recommendations could support the development of digital financial services in the Republic of Congo:

Objective 1: Build trust through the development of a robust financial and data infrastructure

R1. Support adoption and implementation of the financial inclusion strategy. This involves encouraging and expanding mobile money products, services and usage beyond CICO, and supporting the government in mainstreaming financial and digital literacy efforts amongst rural

and vulnerable communities. This should also include a consumer protection framework for low-income populations and low-literacy consumers to improve their understanding of the costs and benefits of more formal, digital financial services⁸⁴.

R2. Evaluate pricing around financial services to promote financial inclusion. From monthly internet banking fees, to the 3.5 percent fee on all mobile money transactions, every level of financial service provision across the country is cost prohibitive. Price is an important component of the business case for those considering adopting financial products and services, and these transaction costs are more keenly felt amongst the unbanked population.

R3. Support bill payment aggregation and fintech development, especially in the context of the COVID-19 crisis. To reduce fragmentation of the bill payment process, build confidence and promote the use of digital financial services, the government could work with utility companies to create a common aggregator that will help facilitate bill processing, improve speed, and reduce cost. In the fintech area, the current hub could be enhanced with the creation of an Innovation Fund that will help support fintech development through matching grants. Powering FinTech is a one way to support the most impacted businesses and communities, as economies are increasingly relying on fintech to stay afloat, and demand for services such as mobile payments, food delivery, and e-commerce shopping will grow exponentially.

Objective 2: Strengthen ecosystem cooperation and common inclusion

R4. Establish a formal working group or a platform amongst key local stakeholders, including MNOs, government and digital entrepreneurs to address major FinTech barriers such as open APIs and credit provision. Looking forward, it would be prudent to build out a vision for the future of FinTech in the Republic of Congo, outlining the requisite legal and regulatory upgrades required, and incorporating this into the National Financial Inclusion Strategy.

R5. Encourage competition and promote an enabling environment to drive DFS innovation. For example, biometric ID and digital addressing systems and can be leveraged to create a digital KYC utility that automates customer due diligence and overcomes barriers to account opening. These systems could also be connected to create a secure store of personal data that could be shared on-demand with providers in order to qualify for credit or other financial services. Additionally, connecting ID systems to real-time payments can further enhance interoperability by enabling customers to perform instant transactions everywhere regardless of devices, provider or account type by simply verifying their biometric identity. Such a system could help to overcome barriers to merchant payments and increase competition by levelling the playing field between banks, MNOs, and fintechs. Increasing the use of DFS depends on ensuring affordability and relevance of use cases to citizens and businesses alike. One way to achieve this goal is through encouraging greater competition, which drives innovation and pushes down costs, thus producing greater value for customers. The government should proceed with the implementation of the draft Payment System and Services Bill in a way that facilitates risk-based licensing and oversight of fintechs by the BEAC. The BEAC should also allow fintechs to connect to GIMAC and participate in the country's interoperability scheme in order to level the playing field and allow them to compete directly with banks and MNOs. Finally, the government should continue to resist proposals to

⁸⁴ World Bank Group (2017) Republic of Congo Financial Sector Development Strategy (FSDS)

impose new taxes on mobile money transactions, which risks driving up prices and slowing Republic of Congo's transition to a cash-lite economy.

Objective 3 : Improve financial stability by modernizing financial systems

R6. Increase the collaboration between the Central Bank and ARPCE to strengthen capacity and progress around interoperability of non-bank payments architecture. While the commercial banks are interoperable, only a small proportion of the population has a bank account – there is no interoperability between mobile money providers, banks and international remittance providers. There would certainly be a need to create a platform or exchange frameworks for regulatory actors to discuss and decide on the standards to be applied in the markets; and the same for the development of a common strategy for financial inclusion by involving both the public sector, and the private sector (banks, MNOs, incubators).

R7. Strengthen financial transparency and establish a financial reporting strategy to include a regional credit registry, regional balance sheet database, credit information bureaus, and the strict application of the requirement for financial institutions to publish their financial statements.

6 Digital Entrepreneurship

Box 15 - Key Messages on digital entrepreneurship:

- The emerging entrepreneurship ecosystem functions thanks to a handful of dynamic young entrepreneurs and activists
- Digital entrepreneurship is constrained by elevated costs of connectivity and devices, as well as electricity problems, and weak digital culture
- Incubators and hubs need to be reinforced, known and encouraged for more innovative projects to emerge
- Entrepreneurs and resources should be connected to promote mentoring and training networks
- Digital entrepreneurs are an important part of a country's ability to respond adequately to the COVID-19 pandemic.

6.1 Importance of Digital Entrepreneurship

6.1.1 Socioeconomic Rationale for Building Digital Entrepreneurship Ecosystems

A robust entrepreneurship ecosystem is key for the development and growth of the digital economy. Harnessing the potential of disruptive technologies to drive digital transformation requires addressing the main barriers to digital entrepreneurship. While African countries have made great strides in fostering innovation ecosystems, progress has been uneven and clustered in a few countries and urban centers.

The Republic of Congo has one of the least conducive business environments in the world, according to the Doing Business indicators. The country ranks 180th of 190, suggesting that much can be done to foster private sector-led innovation and leverage the benefits of digital transformation for local businesses⁸⁵. Whether in key economic sectors or in the burgeoning innovation system, digital initiatives are happening, led by a handful of relatively isolated but dedicated entrepreneurs and civil society organizations.

Digital entrepreneurs are also an important part of a country's ability to respond adequately to the COVID-19 pandemic. Indeed, many of the services and applications used for contact tracing,

Box 16 - Regional collaboration on digital entrepreneurship

The Republic of Congo has taken important steps to increase international collaboration in the digital sector. A 2018 visit to South Africa led to the signature of a Memorandum of Understanding for investment in the sectors of internet connectivity, e-government, e-education and postal services. The Minister Leon Juste Ibombo also participated in visits to Morocco, South Korea and China seeking partnerships to develop the national ecosystem.

The “*Prix de l'innovation numérique*” was launched with Huawei and included startup incubation time in Shenzhen, China for the winners.

Several startups based in Kinshasa, DRC are also active in Brazzaville and Pointe Noire.

⁸⁵ Doing Business 2020 Economy Profile: Congo, Rep.

distance learning or remote working require a private sector that is tech-savvy and with the requisite digital skills. This capability needs to be developed in the IT sector, as well as in the more traditional economic sector, whenever greater digitization can be applied. In addition to improving resilience to the pandemic, this is also likely to lead to productivity gains based on the use of effective digital tools and methods.

6.1.2 Alignment with Country Development Strategy & Goals

Digital trust, capacity building and digital content creation are the three components of e-business in the “Vision Congo Digital 2025” strategy. These include several key projects to accompany, support and promote the emergence of a high-capacity innovation ecosystem. The strategy proposes several private sector development projects such as the promotion of e-commerce, the creation of a technopark in Pointe Noire, support to technology adoption, and university-enterprise collaboration. The *Plan National de Développement 2018-2022* makes a priority of reducing the cost of equipment and digital services and restoring the network of post offices to better enable the development of e-commerce. However, to date, most of these projects remain at the inception stage.

6.2 Diagnostic Findings: Current State of Digital Entrepreneurship

6.2.1 State of the Digital Entrepreneurship & Innovation Ecosystem

Indicator	Source	ROC	SSA
% of firms using emails with clients/suppliers	World Bank (2009)	56.2	44
Digital Adoption Index, Business sub-index	World Bank (2016)	36	37
Imports of ICT goods (% of total imports)	UNCTAD (2017)	1.72	5.02
Exports of ICT goods (% of total exports)	UNCTAD (2017)	0.02	0.52
Ease of Doing Business	World Bank (2020)	39.5	51.8
Number of days required to get electricity	World Bank (2020)	134	110

Table 8 : Key available Indicators on the State of Private Sector Digital Transformation

Digital entrepreneurship can be divided into two distinct categories: digital solutions entrepreneurship and digitally enabled entrepreneurship. The former refers to businesses that create or adapt new forms of digital technologies, such as digital startups or tech firms. The latter refers to businesses that adopt digital technologies to perform core or supportive business functions.

In the Republic of Congo, the digital economy is estimated to represent close to 6 percent of the country’s GDP⁸⁶. Most of Congo’s successful entrepreneurs were incubated in the country’s two principal incubators, Yekolab, Bantuhub or Fongwama, or met at one of the country’s entrepreneurship forums, JCertif or Salon Osiane. Several digital firms are based outside of Brazzaville in the economic capital Pointe Noire.

⁸⁶ Government data for 2019 (Ministry of Posts, Telecommunications and the Digital Economy)

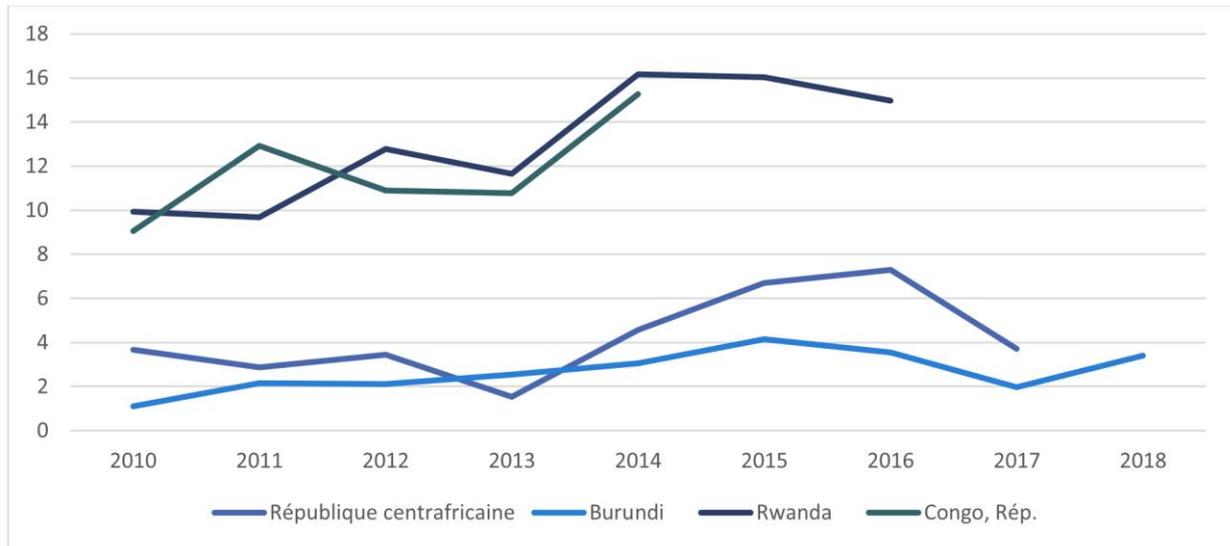


Figure 15 - Value of ICT goods imports per capita, USD (source: UNCTAD)

i. Digital solutions firms and startups

Digital solutions firms, and notably startups, tend to be potential candidates for rapid growth due to the low marginal costs of replication and economies of scale associated with digital technologies. Their presence indicates that the Congolese ecosystem is a fertile ground for technology-intensive businesses. However, the sustainability of such business models is far from being ensured without the necessary regulation, support and visibility of these endeavors.

Congo boasts several successful and advanced digital businesses, some of which have been awarded in international startup competitions. Examples of local ventures include AgriZoom, a platform marketplace which matches farmers with suppliers, investors and customers, acting both as an e-commerce and a crowdfunding service; Niochi which is a digital tourism platform where people can access information on entertainment, accommodation and wellbeing services; M-Rapid, a food delivery service working with the national post; or Lopango, a provider of original digital content, big data analysis and free internet hotspot.

These firms were created out of a desire to offer useful content, rather than pure profit-seeking behavior. However, some entrepreneurs point out that the population is not equipped to fully use digital services. A widespread feeling among entrepreneurs is that demand is low for these services, which has led to fewer content creation than would be otherwise possible. One of the challenges will be to develop digital content that can truly find a demand and encourage people to increase their use of digital services.

Box 24 - COVID-19 solutions developed by Congo's digital entrepreneurs

Several Congolese digital firms have seized the opportunity left by the COVID-19 pandemic to roll out digital services to the population. Below are a few of these most recent initiatives:

- The application Congo Zoom offers real-time information on the evolution of cases in Congo
- The incubator Kosala proposed a contact tracing solution to the Ministry of the Digital Economy
- The startup AgriZoom also scaled up its home delivery business as well as on-demand grocery shopping

There is little data available on which businesses are using digital technology in the broader economy. The Chamber of Commerce does not have access to a digital registry of firms, and few entrepreneurs actually interact with the Chamber. Some key enablers are not met, which acts as a barrier to technology adoption in the economy. These include the high cost of internet and electronic devices, and at a more advanced level, the difficulty to create value from big data due to closed APIs and the lack of digital authentication.

Startups and civil society organizations are working to help spread digital technology. The startup WORTIS offers an electronic cash register using cloud technology digitize the management of sales, inventory and accounting⁸⁷. This solution is sold to Small and Medium Enterprises (SMEs) in the restaurant, wellbeing, garments and retail industries. In rural Congo, the *Association des Jeunes Entrepreneurs du Numérique au Congo* (AJENC) provides training to rural entrepreneurs in basic digital skills, social network marketing and cybersecurity⁸⁸. Following the trainings, a beekeeper was spotted by a Rwandese entrepreneur on his Facebook page which opened new opportunities as he started exporting honey products to Rwanda.

ii. Use of digital by traditional sectors

Forestry and petroleum are two of the most important sectors for the Congolese economy, with some of the largest firms operating in these industries.⁸⁹ Foreign firms operating in these sectors make use of digital technology mainly by following guidelines from their parent company. For example, Total E&P Congo is implementing digital solutions in client relations, industry 4.0 and open innovation. It is unclear, however, to which extent local partners and suppliers are benefiting from these strategies.

Agriculture is also a strategic sector with ongoing World Bank activities. The African Development Bank is rolling out a new project to develop production and distribution through support to research and entrepreneurship. However, supporting digitalization in the agriculture sector has been deemed risky due to a lack of experience. Based on lessons learned from the experiences of other countries in sub-Saharan Africa, a Smallholder Farmer E-Voucher program can provide a platform for collaboration between government and digital businesses and activate new digital service markets for them (World Bank, 2019). Other sectors could also benefit from

⁸⁷ Interestingly, this company has headquarters both in Congo and in France but develops most of its activity from the suburbs of Paris due to better market opportunities in France.

⁸⁸ AJENC is one of few actors to be active in rural Congo, providing training in Ewo, Nkayi, Owando and Impfondo.

⁸⁹ Oil and forestry rents respectively account for 36.7% and 4.7% of GDP according to 2017 World Bank data.

similar initiatives, especially as the COVID-19 crisis generates strong constraints in terms of supply chains, customer interactions, personnel management, etc.

An interconnected network of Congolese firms supported by the Chamber of Commerce and UNICONGO could help increase opportunities in these key sectors. An improvement in the business environment would also result in easier technology adoption, by reducing aversion to technology, increasing experience and reducing the risk for investors.

iii. Constraints of the Digital Entrepreneurship & Innovation Ecosystem

This section is structured on the Babson Entrepreneurship Ecosystem model, which captures the most widely held understanding of what entrepreneurial ecosystems consist of and how they work. Each of the six interdependent domains has several subcomponents, which determine entrepreneurial opportunities and drive digital entrepreneurship.

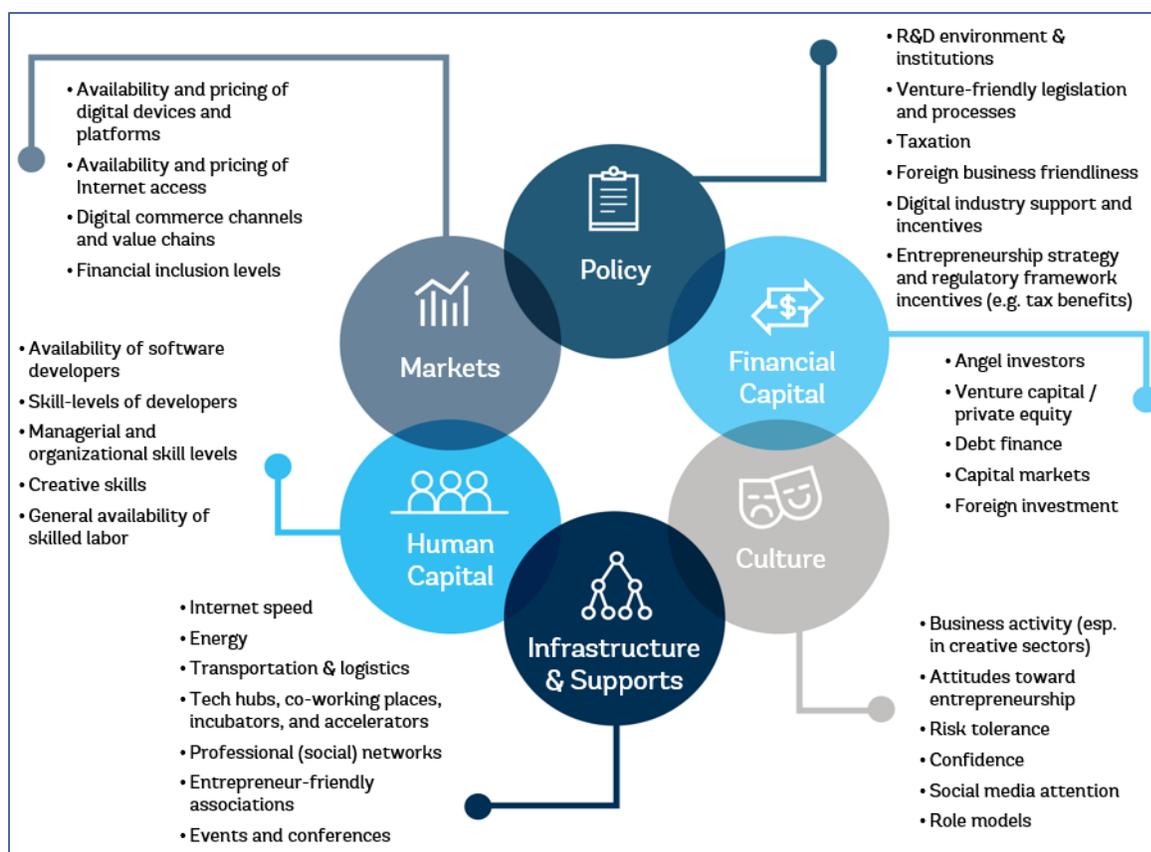


Figure 16 : The Babson ecosystem for digital entrepreneurship

iv. Policy

The public governance of the sector centers around the Ministry of Posts, Telecommunications and the Digital Economy, and related agencies⁹⁰. This group of actors displays a strong will to make progress on the digital economy but could be strengthened by being more inclusive. Agencies within the Ministry of SMEs could provide inputs related to the current

⁹⁰ The Congo Digital Vision 2025 mentions the ARPCE, the DG for Posts and Telecommunications (DGPT), the DG for Development of the Digital Economy (DGDEN), the Inspection of Posts, Telecommunications and Digital (IPTN), as well as Congo Telecom as the line agencies in charge of supporting the Ministry of the Digital Economy.

landscape of the ITC sector in Congo, which is relatively unknown to the decision makers. Digital entrepreneurs also see opportunities in the creation of a “digital intelligence agency” to tackle issues related to open innovation and open data, cyber-security and regulation of APIs.

The ARPCE and DGDEN have recently begun levying a 1 percent tax on electronic transactions, including C2C, B2C transactions as well as digital platforms and e-commerce. This policy is an element of the implementation of in the “Digital Hub” project, managed by DGDEN. The tax on electronic transactions is perceived as a barrier by digital entrepreneurs, who see it as a lack of support from the regulator. While the tax seems profitable for the Government, it may indeed reduce the growth potential of the digital economy.

Public agencies support digital entrepreneurs directly, but the processes attributing financial support to startups and incubators lack transparency and accountability. In the absence of a Startup Act⁹¹ clearly defining the roles of agencies and conditions for obtaining public funding, collaboration between digital entrepreneurs and the government remains limited. Aside from financial support, they also demand concrete Government actions to lift key constraints to digital businesses and innovation (for example by facilitating the imports of equipment through customs, improving PPP regulation or improving investment opportunities).

There is also a lack of integration between actors in the innovation system. Financial institutions, universities, incubators tend to fulfill unnatural roles because the ecosystem lacks an overall integration. Bottlenecks in the education system (as noted in Pillar 2), mean that incubators tend to prioritize training in business management or advanced digital skills rather than actual incubation. This lack of synergies leads to an underperformance of the innovation ecosystem which can be tackled only by a better integration of all local forces including entrepreneurs, incubators, research and education institutions.

v. Financial capital

There are no national investors in the tech sector, despite a significant need from Congolese startups. This may be due to key business environment constraints, such as difficulties importing ICT goods or getting electricity, which are particularly impactful in the digital sector. Potential investors are also often unfamiliar with digital technology and lack a technical understanding, which means that they tend to overestimate the risk of investing in the digital sector, according to local entrepreneurs. Therefore, most digital ventures function on their own funds. Digital entrepreneurs identify the lack of an open innovation strategy in Congo as an important barrier to attracting national or foreign investment. Digital incubators who are in contact with entrepreneurs could scale up their action in terms of support to investment seeking.

There is currently no national strategy for investment promotion. The APICONGO agency oversees the promotion of Congolese companies but lacks capacity to put forward studies and recommendations, a constraint also faced by the Chamber of Commerce. APICONGO is not aware of the Vision Congo Digital strategy, which indicates a lack of coordination outside the scope of the Ministry of Digital Economy. They published the electronic guide for investment⁹² in January 2018 in partnership with UNCTAD and the International Chamber of Commerce. The guide is

⁹¹ The government is working on the adoption of the law on the status of startups, which will define the tax measures and allow the promotion and support for the development of startups. This law should be accompanied by the creation of a fund with resources dedicated to start-ups.

⁹² Available at <https://www.theiguides.org/public-docs/guides/congo>

regularly updated (more or less comprehensively) and includes strictly informational content for entrepreneurs and potential investors. The African Development Bank is working with the government on an investment strategy through the PACIGOF program⁹³. Overall, investment seeking capacities are lacking, which require both a better strategic positioning from the Government and capacity building in project management for digital entrepreneurs.

Congolese banks are not inclined to finance loans for entrepreneurial projects. Most are commercial banks that don't do a lot of lending. Those that do require assets with high collateral value, such as land, which isn't available to digital entrepreneurs. The Government supported SMEs with the *Fonds d'Impulsion, de Garantie et d'Accompagnement des Entreprises* (FIGA), supposed to facilitate access to loans. Discussions on the FIGA started in 2015, but it became effective only in January 2019, which denotes a certain tardiness in passing regulations in the banking sector.

vi. Culture

It is widely acknowledged that a lack of digital culture in Congo holds back innovation, and the creation of digital content and solutions. The vulgarization of digital technology is not happening at a wider scale, as evidenced by the lack of private digital platforms in the country in usually buoyant markets like transport or accommodation. This could be supported by the government through a law promoting digital culture, which needs to be accompanied with better communication to the public.

The general entrepreneurship and risk culture are also lacking, as young people often start projects without the necessary knowledge to manage a business. Most entrepreneurs are self-taught and need to receive training from the available business incubators. Others find opportunities through partnerships with multilateral organizations like the World Bank, UNDP or WFP, which allows them to develop their ideas in hackathons for example. In general, people who innovate are those who have traveled and seen what is happening in other countries.

Digital solutions directly increase transparency, which on one hand is appreciated by business owners, but on the other hand is repelling managers and policy actors who do not desire this improved accountability. It may be important to prioritize adoption of digital solutions with large businesses to develop a snowball effect, building on some available technology including the electronic cash register developed by WORTIS.

vii. Infrastructure and supports

As noted in Pillar 1, there are significant infrastructure problems to address access to electricity issues, costs and reliability of internet connection. Power cuts mean that programmers that don't have a generator may lose several hours or days of work if electricity suddenly goes off. Other physical infrastructure issues include roads and post offices, which hampers the development of e-commerce. The *Société des Postes et de l'Épargne du Congo* (SOPECO) is tackling this issue by launching mobile post applications and is currently involved in a project to revamp online addressing in partnership with a Congolese startup.

In rural Congo, mobile operators have largely improved connectivity in 2G/4G. As noted above, AJENC has been providing training in rural areas which have met a higher-than-expected

⁹³<http://www.adiac-congo.com/content/diversification-de-leconomie-le-pacigof-un-nouveau-plan-pour-redynamiser-la-croissance>

demand through its program Digital Week Academy (DWA). While these programs initially targeted 80 people, more than 300 participated and the military expressed interest in getting trained in cybersecurity. AJENC is currently trying to scale up their program into a community-based digital campus – a permanent center equipped with devices for rural population to access e-learning resources. The association is currently looking for funding partners to implement this project.

Brazzaville and Pointe Noire have a dynamic landscape of incubator hubs. Yekolab, Fongwama, Bantuhub and Kosála are the main ones currently active. The *Campus Numérique de la Francophonie* and the Chamber of Commerce both have the ambition of acting as incubators, but they lack the means of doing so. In addition, special events organized yearly like the JCertif or the Salon Osiane have been highly praised for the quality of their training and the ability to bring together the actors of the Congolese digital economy⁹⁴. The incubators in activity are some of the most dynamic actors in the ecosystem. Their services include training, consulting, provision of material and technical resources. Most startups in Congo are related to one of these incubators, one way or another. However, incubator hubs struggle to actually nurture businesses as their training activities take up an important share of their limited resources. This is because incubators tend to fulfill gaps in the supply of skill training, which otherwise would be handled by the education system. Box 21 describes the mission of Congo's main digital incubator hubs.

viii. Human capital

Both public and private sector actors acknowledge that the availability of digital skills is a major constraint to the development of the digital sector. However, it would be wrong to say that Congo does not have any supply of digital skills. On one hand, digital incubators have implemented trainings of their own, which have proved successful in training a small number of highly skilled software developers. Events like Osiane and JCertif have also contributed to training key elements of the current innovation ecosystem, including founders of Yekolab, AJENC and Fongwama. On the other hand, the education system does not fulfill its role as the main provider of digital skill training.

More information on the availability of various types of trainings is also lacking, including vulgarization of basic skill training for traditional businesses. While there is a general acknowledgment that these skills are needed to ensure a smooth transition in the digital economy, it has not been up to scale for the country's needs of digital skills. The lack of business management skills also remains an important constraint for the development of digital entrepreneurship. Finally, the low level of digital skills means that information systems often don't meet cybersecurity

Box 28 - Digital incubator hubs

Yekolab is the largest hub, created in 2014 in Brazzaville and 2017 in Pointe Noire. It is largely financed by ARPCE. Its missions are to train youth, to incubate businesses and to research innovative ideas. It functions as a training and business center focusing on developing advanced digital solutions.

Fongwama is a community of open source developers which opened in 2015. It partners up with other actors (AJENC, WFP) to develop software, organize hackathons and support entrepreneurship projects.

Kosála is the latest addition to Congo's digital hubs. It aims to support business creation, providing a co-working space, incubation and consulting services, as well as an array of technical resources and skills.

⁹⁴ See www.osiane.cg/ and www.jcertif.com/

standards, and thus not usable on a larger scale. The lack of skills creates a lack of trust which further undermines digital culture, impeding all foundations of the digital economy.

ix. Markets

Not much is known about the digital market in Congo, as there are no reliable and up-to-date record of the number of digital companies. This means that there is no baseline against which to evaluate any private sector development policy or program implemented by the Government in the digital sector, the country’s incubators or international donors. In addition, the last World Bank Enterprise Survey dates from 2009 although it shows a rather positive picture of the Congolese digital economy. The Chamber of Commerce estimates that between 20 to 30% of registered company disappear within three years.

Capacity building and additional agencies are needed to support the diversification of the economy. This includes structures mentioned in this chapter such as the Startup Act, the Digital Intelligence Agency or the interconnected network of Congolese firms. Organizations like UNICONGO and the Chamber of Commerce should work together with the Ministry of SMEs to develop a register of digital firms.

Financial inclusion is also an important barrier, as financial services are most often used conservatively. Bank accounts are used for savings rather than credit, and mobile money is used for money transfer rather than payments to merchants. Financial education would be beneficial to lift some of these behavioral issues which have to do with digital culture and the lack of widespread digital content in the economy.

Digital commerce channels exist in the agriculture sector (Agrizoom), tourism sector (Niochi) and retail (Aseveli, M-Rapid) but they lack an enabling regulatory framework as well as a more informed demand. Infrastructure is also lacking as to roads and post offices, despite some progress by the Post Office and the increasing availability of services such as Google Maps that are being used by entrepreneurs to develop solutions. Import fees are another barrier faced by many digital entrepreneurs who sometimes pay two to three times the purchase price in tariffs, charges or unpredictable “compensation” at the customs level.

6.2.2 State of private digital platforms

Private digital platforms are multisided online marketplaces that enable producers and users to create value together. They remove market frictions, facilitate interactions and matching by exploiting and managing direct and indirect network effects. In Congo, the Government is not specifically engaged on the development of private digital platforms. Incumbent industries are not yet facing the disruption that other countries may face, for example in the transport or accommodation sector. Firms are not engaging in peer-to-peer solutions and sharing economy models due to the low demand for such services, driven by the lack of a digital culture in the population.

Indicator	Source	Congo, Rep.	Sub-Saharan Africa
UNCTAD B2C E-commerce	UNCTAD (2019)	14	29

Rate of Facebook usage	Facebook (2020)	13.3%	16.2%
Rate of LinkedIn usage	LinkedIn (2020)	2%	3.8%

Table 9 : Key available indicators of private digital platforms

Key foundational elements are also absent and prevent the development of private digital platforms. Basic missing elements include for example affordable high-speed internet and reliable electrical supply needed to maintain and update data-intensive digital platforms. Other more advanced issues include the lack of cyber-security of information systems, and the reluctance to systematically open the sharing of APIs to stimulate open innovation for private agents.

i. E-commerce

There is a birthing industry of e-commerce in Congo that is active at a very small scale. E-commerce sites face barriers in the logistics of delivery and significantly high import tariffs. The type of services proposed by these websites varies greatly, from peer-to-peer models (Le Courtier), to food delivery (M-Rapid), general products (Asepli) and grocery items (AgriZoom). As discussed above, a number of foundational elements are missing to enable further growth of e-commerce models. Digital infrastructure, enabling regulation as well as stronger managerial capacities would bolster these businesses to thrive. Additional efforts to vulgarize technologies like e-commerce and strengthen the digital culture in the administration and in the population, are also needed.

The national post is working on an online marketplace system based on guidance from the Universal Postal Union (UPU). It is also leading one of the Government's strategic programs to digitize the addressing system in Congo. However, the national post lacks the means (both financial, technical and managerial) to work on these issues, despite several promising ideas. This has led to interesting partnerships for example with M-Rapid using some of the national post's drivers to support its delivery activities.

ii. Social networks and online groups

Another sign of the nascent digital culture is that customers are often more prone to connect with businesses on social networks rather than on their websites. This was identified by Asepli who started to sell directly on their Facebook page and through WhatsApp groups. The website Le Courtier also sells products directly on its Facebook page. Social networks have become the main marketing tool used by e-commerce companies. This may well be one of the largest opportunities for e-commerce, given that the public is already present on these platforms and is familiar with how to use them on a mobile phone.

iii. Big data and innovation

Digital platforms generate data, but there are little opportunities to use this data to create value in Congo. This further prevents the development of e-commerce business models, FinTech and other productive uses of data in the digital economy. Some of the largest constraints to develop big data models and analytics are the lack of partners to work with, as mobile operators' APIs are closed to private actors, and the low level of cybersecurity currently embedded in these solutions, and the lack of digital culture and understanding.

In 2019, the Ministry of Posts, Telecommunications and the Digital Economy implemented the *prix de l'innovation numérique and hackatons (PNUD project)*, which served as a way to

catalyze startups and platforms from the Congolese innovation system⁹⁵. The prize received more than 100 submissions with a generally low quality. In addition, some leading actors of the Congolese economy such as Yekolab, Fongwama or several startups did not participate in the competition, highlighting an important issue of coordination between the private and public sector. The prize winners received ICT training in China as part of Huawei’s Seeds for the future program. The government is also planning the creation of a Technopole to better serve the needs of startups.

6.3 Recommendations & Next Steps

Table 10 : SWOT analysis on digital entrepreneurship

Strengths	Weaknesses
<ul style="list-style-type: none"> - Brazzaville and Pointe-Noire are locations for motivated and digitally trained young people, with the presence of several efficient and advanced digital companies. - Existing sources of support for entrepreneurs in Brazzaville and Pointe-Noire, through digital incubator poles. 	<ul style="list-style-type: none"> - Digital culture is still weak in general in the country marked by low demand, and hampered by the high cost of access to technologies. - Lack of strategic engagement in the development of private digital platforms. - The lack of business management skills also remains a major constraint.
Opportunities	Threats
<ul style="list-style-type: none"> - Emerging solutions for e-commerce and delivery services in the capital - Existing networks of African technology hubs, a resource for Congolese entrepreneurs and support in the creation of public-private partnerships. - An interconnected network of Congolese businesses supported by the Chamber of Commerce and UNICONGO could increase opportunities in critical sectors. 	<ul style="list-style-type: none"> - An unfavorable business environment: high prices of digital tools, lack of electricity supply, entry cost to launch an e-business, limited access to financing / investments, etc.

The implementation of the following recommendations could support the development of digital entrepreneurship in the Republic of Congo:

Objective 1: Lift key regulatory hurdles for digital economy and data-driven business models

⁹⁵ <http://www.adiac-congo.com/content/challenge-le-prix-de-linnovation-numerique-revele-des-applications-utiles-107223>

R1. Better regulate Public Private Partnerships as a mean to implement the Vision Congo Digital 2025 strategy. Among the many projects envisioned in the digital strategy, several of them would benefit from a better cooperation between the public and private sectors⁹⁶. This would help to catalyze the Congolese innovation ecosystem and build a needed trust around concrete actions between the Government and private sector entities.

R2. Enable data-driven business models with open innovation, led by a cyber-secure digital intelligence agency. Open innovation and digital platforms are not a big part of the policy debate in Congo. However, they come as important foundations for digital business models through big data analysis and the systematic opening of APIs. The Government could consider the creation of a digital intelligence agency to tackle the issues of open innovation, open data and related concerns of cybersecurity.

R3. Improve the business environment for startups and digital firms. The business environment for startups lacks specific measures to enable firm creation and investment in a sustainable manner. The passing of a Startup Act, which is in the pipeline of the Government, should include increased transparency on financing opportunities from the government, capacity building as well as promotion of digital culture through better communication with the general public. It is also important to strengthen the integration of support into the entrepreneurial ecosystem. This involves, for example, promoting collaborations between incubators, training institutions and financial institutions. Collaboration between incubators, innovation labs, the private sector and the public sector would also be important for the co-creation of useful solutions meeting specific needs.

Objective 2 : Build capacity of firms and civil society organizations of the digital economy

R4. Encourage digital technology adoption in traditional industries. Most SMEs active in the petroleum, forestry, agriculture and retails sector are lagging in terms of technology adoption. As some solutions are already available, including the Congolese startup WORTIS described in Section 5.2.1.2, these should be encouraged and scaled up. The Government could seek a combination of supply-side and demand-side measures aiming at bridging the inclusion gap of SMEs in traditional sectors. Supply-side policies should focus on bringing connectivity to the most remote and excluded businesses, as well as facilitate adoption through affordability programs. Demand-side policies should target highly productive companies who would benefit the most from productivity tools offered by digital technologies.

R5. Strengthen incubators, hubs, forums and civil society initiatives for the digital economy. Incubators and innovation forum have been some of the starting points of the Congolese innovation system. They provide quality training and have participated in the creation of the most advanced startups in the country. Their work should be supported with funding, training of trainers, international exchanges and improved access to mentorship. Communities working in rural areas, such as AJENC, should also be encouraged to mainstream digital culture in the country.

⁹⁶ The CAB project recently signed a partnership with CFCO (Chemin de Fer Congo Océan) for the use of railway lines for the deployment of optical fiber on the Pointe-Noire / Mbinda segments. As part of the PCN project, a partnership has been signed between Congo Telecom and Énergie Électrique du Congo (E2C) for the management and maintenance of aerial optical fiber (via the E2C, Brazzaville / Pointe-Noire pylons).

R6. Equip digital entrepreneurs with business management, communication and fundraising skills. Most digital entrepreneurs in the country started with their own funds and on the basis of self-taught capacities. It is crucial to provide potential entrepreneurs with the skills to conceptualize and meet their objectives. This should contribute to an overall strategy to promote entrepreneurship and risk culture among the youth. Entrepreneurs operate too often in a closed space and struggle to even find information on how to find partners to grow their networks, obtain funding or investment or manage an optimal supply chain.

R7. Provide reliable electricity, internet connectivity and affordable electronic devices. Both incubators and entrepreneurs need better access to infrastructure in order to develop digital solutions. This is also key for traditional entrepreneurs interested in using data and software to increase their productivity and business management practices.

Objective 3 : Encourage multi-stakeholder collaboration in the innovation eco-system

R8. Create digital content that brings together the population, firms and the administration. While the digital culture is lacking in Congo, the public is familiar with smartphone technology, social networks and platforms such as Facebook or WhatsApp. This is an opportunity for the Government and the private sector to work together to develop digital content that can encourage people to increase their use of digital services. This can include for example information on various available trainings, vulgarization of basic digital skills or digital financial education on the use of digital payments and online banking.

R9. Increase the knowledge base and available data on the digital economy. Very little information is currently available on the status of the digital economy in Congo, preventing any evidence-based strategic planning or evaluation of any progress accrued by digital development programs and policies. A baseline should be established through a joint effort between the Government, the Chamber of Commerce and research institutions interested in taking part in modernizing the sector. This includes for example the development of statistics on the ITC sector, the creation of an interconnected network IT firms through a professional association dedicated to the sector, as well as increased capacity of key institutions to put forward studies and recommendations to the Government.

R10. Increase collaboration between the Ministry of Digital Economy and other public agencies. While the Ministry of ICT is a driving force of the digital agenda, more efforts are required to implement projects with other parts of the Government as well as international partners. In terms of private sector development, the Ministry of SMEs must be an integral part of projects to develop the IT sector. Other opportunities include the application of digital content and solutions in programs of multilateral organizations such as UNDP or WFP who are already in partnership with Congolese startups.

Conclusion: A Way Forward

Information and communications technology could provide leap-frogging opportunities to accelerate economic development in the Republic of Congo. Significant progress has been achieved in recent years: deployment of fiber optics and connectivity between the main major cities has considerably improved access to broadband. The volume of mobile traffic and access to mobile internet have increased, while cost of mobile internet has been cut by half. Government has launched several digitalization initiatives, aimed both at improving the efficiency of back-end systems as well as service delivery. An entrepreneurship ecosystem is emerging thanks to a handful of dynamic young entrepreneurs and activists, and nascent incubators and hubs.

Yet realizing the digital potential of the Republic of Congo will require strong commitment and leadership given the extensive remaining challenges. The country fares poorly on fixed broadband penetration, among the most important indicators for gauging the readiness for digital economy take-off in emerging markets. Additional infrastructure investments are needed to increase bandwidth, improve network quality and coverage, and deploy supporting complements such as data centers. This will benefit the many start-ups and established businesses, which require a more affordable access to digital connectivity to increase their productivity, thereby contributing to a diversification of the economy.

Bridging the digital divide is also key to fostering inclusive growth. This will require training in basic digital skills, and greater accessibility and affordability of mobile services, broadband, and devices. Pro-competition regulation, and investments by the Universal Access Fund, can help drive down the cost of internet, and invest in connectivity for schools and students in particular. Government should also place greater emphasis on user-centered approaches in service design, with new models of technology development. These focus less on digital, and more on user-friendly services, whether offered digitally or in-person. Supporting the deployment of such public and private digital services for citizens and businesses will lead to increased internet usage, thereby generating economies of scale and also driving down cost.

The RoC will need to boost the supply of advanced digital skills, the cornerstone of a digital economy. The current demand for specialized digital skills far outweighs the number of graduates, a situation that is likely to worsen as the digital economy expands. Investments in the design and roll out of adequate and accredited training in specialized digital skills should be conducted in close collaboration with the private sector to match skills adequacy to demand. This will lead to a more dynamic and entrepreneurial digital sector, including for the provision of digital financial services.

The ongoing COVID emergency illustrated the importance of setting up a 'digital economy' in supporting resilience and an effective response capacity. This crisis is an incentive to orchestrate and accelerate the critical elements of the digital economy. Covid-19 has revived the need to invest in critical infrastructure, improve market competitiveness, strengthen the integrity, trust and security of data and digital transitions, forge stronger links with the "real" economy and increasing equity in the production and consumption of digital content. Greater digital adoption can (i) continue economic exchanges in a context of restricted circulation (through electronic commerce and digital payments), thus reducing market disruptions; (ii) support business continuity through

homework and virtual tools for businesses and citizens; and (iii) support the continued delivery of essential basic services - for example, through distance learning, e-health and digital safety net payments, etc. This is in line with the Republic of Congo's ambition to diversify its economy and accelerate its growth, taking advantage of digital technologies. The digital sector is fueled by a rapid proliferation of innovation, so it is crucial to update and maintain a forward-looking regulatory framework and promote an enabling environment that keeps pace with change.

Going forward, coordination and prioritization will be key ingredients to foster the digital economy in the RoC, given the magnitude of the challenges facing the country. The Government needs to translate high-level strategies into detailed policies, ensure strong collaboration across institutions, and avoid the proliferation of projects that absorb the already limited resources. Instead, an iterative approach, can help build a strategy based on progressive achievements and successes, and allow for the synchronous and interrelated growth of each pillar of the digital economy.

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ANNEXE – DE4A Indicators

Core Indicators	Current Status		Previous Status		Trend & Benchmark	Observations
	Year	Value	Year	Value		
Pillar 1: Digital Infrastructure						
Mobile broadband Internet subscriptions per 100 population	N/A	N/A	N/A	N/A	16.7 (SSA)	Source: Global Information Report, 2016
Fixed broadband subscriptions (per 100 people)	2014	0.11	2013	0.1	0.43 (SSA, 2018)	Source: ITU
Mobile network coverage, % pop.	N/A	N/A	N/A	N/A	82.5 (SSA)	Source: Global Information Report, 2016
Average monthly wholesale price of international E1 capacity link from capital city to Europe (2 megabits per second, in US\$)	N/A	N/A	N/A	N/A		
Average monthly retail price of high-speed internet service (1 megabites per second per month, in US\$)	N/A	N/A	N/A	N/A		
Pillar 2: Digital Skills						

<i>Educational system</i>						
Internet access in schools – as score from 1 to 7 in Global Competitiveness Index (WEF, 2018) ⁹⁷	N/A	N/A	N/A	N/A	3.3 (SSA)	Source: Global Competitiveness Index
Quality of math and science education – as score from 1 to 7 in Global Competitiveness Index (WEF, 2018) ⁹⁸	N/A	N/A	N/A	N/A	3.4 (SSA)	Source: Global Competitiveness Index
Local availability of specialized training services – as score from 1 to 7 in Global Competitiveness Index (WEF, 2018) ⁹⁹	N/A	N/A	N/A	N/A		
Adaptation of the Education System to the labor market, (Index, 0-4)	N/A	N/A	N/A	N/A		
Do any formal or informal institutions link the education system with the needs of firms on the labor market? (Index, 0-4)	N/A	N/A	N/A	N/A		
% of firms identifying inadequately educated workforce as the biggest obstacle	N/A	N/A	N/A	N/A	19.1 (SSA)	Source: Enterprise survey, 2013
Tertiary education enrollment (% of population at tertiary education level)	2013	9.3	2012	100	9.0 (SSA)	Source: UNESCO Institute for Statistics. Benchmark here is from UNESCO estimation for SSA
<i>Availability of Skilled Labor</i>						
Availability of scientist and engineers (1-7, best)	N/A	N/A	N/A	N/A	3.4 (SSA)	

⁹⁷ The Global Competitiveness Report 2017-2018. See: <http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017-2018.pdf>

⁹⁸ Ibid

⁹⁹ Ibid

Researchers in R&D (per million people)	2000	32.5	1999	36.3	482 (SSA)	Source: UNESCO Institute for Statistics
Brain drain: capacity to retain and attract talented people (1-7, best)	N/A	N/A	N/A	N/A		
Perceived capabilities (% of 18-64 population who believe they have the required skills and knowledge to start a business)	N/A	N/A	N/A	N/A	39.9 (South Africa)	No previous data available.
Pillar 3: Digital Platforms						
E-Government ranking (and score) in global survey (UN, 2018)	2018	164/193 (0.30)	N/A	N/A	(0.33) (SSA)	E-Government Survey
Number of online transactions for government services (per year)	N/A	N/A	N/A	N/A		
Value of online transactions for government services (US\$, per year)	N/A	N/A	N/A	N/A		
Number of digitally-enabled unique identity proofs issued (per 100 people)	N/A	N/A	N/A	N/A		
Country Rank (and value) in the UNCTAD B2C E-Commerce Index, Index (0-100) (UNCTAD)	2019	147 (14)	2018	144	(27.4) (SSA)	
ICT use for Business-To-Business Transactions, 1-7 (Best) (INDEX (1-7)) (WEF)	N/A	N/A	N/A	N/A	4.20 (SSA)	
Pillar 4: Digital Financial Services						
% of adults with a transaction account	2017	26.1	2011	5.5	42.6 (SSA)	Source: Global Findex

% of firms with a transaction account	2009	86.7	2009	94.1	85.6 (SSA)	Source: Enterprise Surveys
% of adults making or receiving a digital payment in past 12 months	2017	17.8	2014	9.2	34.4 (SSA)	Source: Global Findex.
% of adults who used the internet to pay bills or to buy something online in the past year	2017	4.4	2014	0.76	7.6 (SSA)	Source: Global Findex
% of firms accepting digital payments	N/A	N/A	N/A	N/A		
# of retail electronic/digital transactions per capita	N/A	N/A	N/A	N/A		
Pillar 5: Digital Entrepreneurship						
Performance: Number of registered firms in ICT sector per 100,000 people in the working age population - (based on firm-level census or registered firms)	N/A	N/A	N/A	N/A		
Performance: Number of greenfield FDI (ICT & internet infrastructure, R&D, Business Services) per 100,000 people in the working population	0,105	2017	0,072	2016		UNTAD
Policy: Doing Business distance to frontier (DTF)	2019	48.89	2010	45.21	51.61 (SSA average)	
Infrastructure & Supports: Number of tech hubs & accelerators in the country per 100,000 people in the working age population.	1	2016	N/A	N/A		World Bank
Infrastructure & Supports: % of firms with access to email or website	27.4	2009	N/A	N/A		Enterprise Survey

Financial Capital: Venture Capital deal flow by country (Number of deals, Capital Invested (USD))	N/A	N/A	N/A	N/A		
Markets: ICT service exports (% of service exports, BoP)	2016	6.4	2015	0.8	14.7 (SSA)	Source: WDI, November 2018
Culture: Risk taking index (Global Preferences Survey)	N/A	N/A	N/A	N/A		

