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Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 08-Jun-2023 | Report No: PIDC35887

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Congo, Democratic Republic of	P180495		DRC Digital Transformation Project (P180495)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
EASTERN AND SOUTHERN AFRICA	Jan 08, 2024	Mar 14, 2024	Digital Development
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	The Democratic Republic of Congo	Ministère des Postes, Télécommunications et Nouvelles Technologies de l'Information	

Proposed Development Objective(s)

Increase access to affordable, high-quality broadband connectivity, high-impact, in-demand digital services and solutions, as well as industry-relevant digital skills.

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	400.00
Total Financing	400.00
of which IBRD/IDA	400.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	400.00
IDA Credit	400.00

Environmental and Social Risk Classification	Concept Review Decision

Substantial	Track II-The review did authorize the preparation to continue

B. Introduction and Context

Country Context

1. **The Democratic Republic of Congo (DRC) is the largest country by surface area in Sub-Saharan Africa (SSA), located in the heart of central Africa, with an estimated population of roughly 95.3 million.** The country faces enormous development challenges. Despite its abundant and diverse natural resources, including a large mining sector providing critical minerals needed for the global energy transition, conflict and insecurity have prevented DRC from achieving sustainable economic growth and shared prosperity. DRC's long history of conflict, instability, and authoritarian rule has led to weak institutions and stark governance challenges, adversely impacting its progress in developing human capital and infrastructure, and ultimately delivering services to the Congolese people that move the needle on development outcomes and poverty reduction.

2. **DRC is home to the third-largest population living below the poverty line and poverty figures are on the rise.** Although the two latest household surveys (2005 and 2012) have revealed a decline in extreme poverty from 91.5 to 69.7 percent, the total number of poor is expected to increase by around 500,000 annually.[1] Overall, DRC has experienced a 60 percent decline in gross domestic product (GDP) per capita over the course of the 1960-2020 period. The extreme poverty rate (established at US$2.15 per day) was estimated to be around 61.9 percent in 2022. There is thus an urgent need to improve access to sustainable livelihoods and jobs that increase household income, where wider productive use of digital tools could play a key role in providing access to new income opportunities, services, and markets.

3. **DRC's is expected to be home to Africa's second largest population by 2050, with the total population reaching 215 million.[2]** DRC has one of the fastest growing populations globally, with an annual growth rate of 3.2 percent. Currently, 46 percent of the population is aged 14 or below, creating a huge youth bulge. DRC's population remains predominantly rural but is increasingly concentrated in urban areas, where 46 percent of the population now resides.[3] Meanwhile, rural population density is one of the lowest on the continent, which makes service delivery and critical infrastructure provisioning a major challenge in more remote rural areas. For example, only 19 percent of the population has access to the electricity grid.

4. **DRC ranks 164th out of 174 countries in the 2020 Human Capital Index (HCI) and 151st out of 170 countries in the 2021 Gender Inequality Index[4].** The country has an HCI score of 0.37, which is below the 0.40 average for SSA, for example, reflecting weak levels of education attainment.[5] Moreover, across the DRC, girls and women face profound and interrelated barriers to increased empowerment and agency as well as education and employment, in terms of labor market participation and earnings, compared to men.[6] Gender-Based Violence (GBV) is also pervasive; 52 percent of women aged 15–49 report having experienced some form of physical violence and 27 percent report

[1] DRC Macro Poverty Outlook, April 2023.
[2] https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/wpp2022_summary_of_results.pdf see page 6
[3] Https://data.worldbank.org/country/congo-dem-rep. Latest demographic data from 2021.
[4] UNDP: Human Development Report 2021/22.
[5] World Bank (October 2022): Human Capital Country Brief, Democratic Republic of Congo
[6] "Empowering Girls and Enhancing Learning in the DRC." World Bank, Washington, DC, 2021. World Bank's Africa Human Capital Strategy show that girls and women in DRC are highly disadvantaged compared to men.

having experienced sexual violence.[7] Digital tools and services could play a key role in expanding access to critical services that support human development, in light of related challenges.

5. **Climate change also poses a serious risk to DRC's sustainable development trajectory.** DRC ranks 178th out of 182 countries in the 2020 Notre Dame Global Adaptation Index,[8] illustrating its high vulnerability to climate change. Notably, climate change poses a systemic threat to agriculture and resource-based sectors, which the local economy continues to rely heavily upon. DRC's rainforest covers two thirds of the country's vast territory and provides livelihoods for the 54 percent of the country's population who reside in rural areas.[9] Climate-related shocks in DRC include floods and droughts,[10] among others. These risks, along with infectious diseases such as malaria, are expected to increase in both frequency and intensity over time due to climate change[11], with poorer rural communities likely to be on the front line. Climate change is thus expected to exacerbate fragility, conflict, and violence (FCV) by intensifying contestation over scarce resources.[12] However, here too, digital infrastructure, platforms and tools hold huge untapped potential in supporting DRC's Nationally Determined Contribution (NDC), and national efforts to enhance both climate change adaptation and mitigation, but will require further investments in resilient and climate-smart underlying digital infrastructure.[13]

Sectoral and Institutional Context

6. **The Government of DRC has articulated a strong vision for leveraging digital technologies to leapfrog.** However, the country lacks many of the digital and analogue foundations needed to drive cross-cutting digital transformation and unlock related potential for job creation and economic growth linked to the productive use of data-driven technologies.[14] In 2019, the Government adopted a *Plan National du Numérique* (PNN)[15], focused around four pillars (infrastructure, applications, content and governance). The PNN inter alia highlights the need to (i) invest in modern digital infrastructure to expand network coverage and better manage data; (ii) support access to new digital content and services, e.g., increasing interoperability between government systems, expanding sectoral public e-services and stimulating digital industry, leveraging digital to transform both public administration and private sector enterprises, more broadly, diversifying the economy; (iii) introduce safeguards to protect data and e-services, as well as manage cyber security risks; and (iv) develop the digital skills base. Nevertheless, many of the initiatives envisioned by the PNN have not materialized due to scarce public funding. DRC therefore still lacks many of the basic building blocks that would be required to move digital transformation forward, including universal digital access, digital public infrastructure (DPI) to facilitate digital service delivery, including digital identification (ID), and digital skills.

Weak access to affordable and quality digital connectivity

[7] DRC, Demographic and Health Survey (DHS), 2013-14.
[8] The ND-GAIN Country Index summarizes a country's vulnerability to climate change and readiness to improve resilience.
[9] World Bank (2016). Managing a valuable resource: Policy notes on increasing the sustainability of the DRC's Forests. Review of the Forest Sector of the DRC (P152956).
[10] Floods in December 2022 killed 169 persons in Kinshasa and washed away a section of the road between Kinshasa and the port of Matadi, temporarily in interrupting traffic along the key supply road for Kinshasa (https://reliefweb.int/report/democratic-republic-congo/democratic-republic-congo-flash-update-3-floods-caused-heavy-rains-kinshasa-31-december-2022).
[11] https://climateknowledgeportal.worldbank.org/country/congo-democratic-republic/vulnerability
[12] Van Bronkhorst, Bernice and Franck Bousquet. Tackling the intersecting challenges of climate change, fragility and conflict. January 27, 2021. World Bank. Available at*: https://blogs.worldbank.org/dev4peace/tackling-intersecting-challenges-climate-change-fragility-and-conflict.*
[13] Preliminary finding of the ongoing CCDR suggest that digital does not feature heavily in DRC climate strategy, nor does climate change feature in DRC's digital strategy. However, the DRC's NDC specifically mentions "implementation of early warning systems", "improved access to ICT communication", and "climate modeling to better predict future impacts".
[14] Begazo, Tania, Moussa P. Blimpo, and Mark A. Dutz. 2023. Digital Africa: Technological Transformation for Jobs. Washington, DC: World Bank.
[15] https://presidence.cd/services/1/plan_national_du_numerique_horizon_2025

7. **Roughly half of DRC's population is unable to access broadband, and the country has some of the highest retail prices and lowest adoption rates in Africa.** Broadband penetration currently stands at just 15.4 percent, based on unique mobile subscriptions,[16] with gender gaps in access.[17] Most existing users connect to the internet using 2G, 3G and 4G mobile access networks, as fixed line fiber to the home (FTTH/FTTx) networks are still nascent. However, existing mobile broadband networks only cover roughly half of the population (with 3G and 4G coverage rates at 54 and 42 percent, respectively). 4G coverage is largely limited to major cities (Kinshasa, Lubumbashi, and Goma), with marked regional disparities in terms of network coverage overall (see figure 1 and 2).[18] DRC currently has among the highest retail prices for broadband in Africa: the average retail price of 1GB of data is equivalent to 10.9 percent of gross national income (GNI), which is well above the regional average of 3.46 percent and 2 percent global affordability target.[19] While DRC's vast and challenging terrain has made network infrastructure deployment challenging and costly, many years of under-investments (e.g., due to insecurity, absence of basic supporting infrastructure and weak demand) means that the DRC has a very underdeveloped broadband market. Gaps along the broadband value chain help explain why prices remain high and access limited.

8. **DRC currently lacks a national fiber optic backbone network able to cost-effective distribute high-speed internet capacity across the country, as well as diverse access points for receiving international capacity.** This adversely impacts both cost and quality of services for consumers, which in turn contributes to low demand[20]. Moreover, DRC currently receives most of its international capacity through the WACS undersea cable, landing in Muanda on the eastern coastline, which is managed by the state-owned incumbent. Recent investment under the AFR RI-Central African Backbone SOP5 project (P132821), featuring a new 620 km fiber link between Muanda and Kinshasa, has allowed other players to directly access this capacity.[21] Other existing access points include an under-river cable from Brazzaville to Kinshasa, along with two terrestrial cross-border links to networks in Rwanda in the west (via microwave) and Zambia in the south (via fiber). Existing fiber backbone transmission links are concentrated along the west-south corridor (Muanda – Kinshasa –Lubumbashi), and shortly due to include fiber deployed across central DRC with a new cross-border fiber link to Rwanda (see figure 1).[22] However, the rest of the country is served by patchy low-capacity microwave links. Operators also continue to rely on satellites links, especially when serving the country's interior and for back-up. While more international cables are set to land in Muanda (2Africa[23], Equiano), expected to at least double available international capacity, reliance on only a few access points and the absence of fiber links between them limits competition and network resilience, which drives up prices and increases the risk of network outages. Meanwhile, existing plans for backbone deployment provide limited coverage of central and northern DRC – a region that is highly exposed to climate risks.[24]

[16] GSMA, 2022, Market Intelligence.
[17] Only 75 women are connected for every 100 men, according to the University of Oxford's Digital Gender Gaps Indicators. See: https://www.digitalgendergaps.org/
[18] GSMA, 2020, Market Intelligence.
[19] Alliance for Affordable Internet, 2022.
[20] Average broadband download speed (Mbps) is 4.9, which is roughly half the regional average in Eastern and Southern Africa of 9.36.
[21] The Société Congolaise des Postes et Télécommunications, SCPT, manages the existing landing station; However, Fast Congo (via a private public partnership) has now direct access to WACS capacity, bypassing the SCPT's connection room, on the back investments under AFR RI-Central African Backbone SOP5 project (P132821).
[22] Liquid is partnering with Meta to lay 2,000 km of fiber in Central DRC to the Eastern border with Rwanda, create a digital corridor from the Atlantic Ocean through the Congo Rainforest, onto the Indian Ocean.
[23] Orange and Airtel have recently announced the creation of a Groupement d'Interet Economique to co-finance the landing of the 2Africa cable and the deployment of an operator neutral landing station. With a total capacity of 180Tbps, 2Africa will at least double the international capacity delivered to DRC. International capacity demand is expected to reaching 88 Tbps by 2035. Salience 2023, Broadband Missing Links and Regional Market Enabling Environment for the Southern Africa Region Supply and Demand Analysis Report (DRC)
[24] WB, 2023. DRC CCDR. *Forthcoming;* Climate change risks screening.

Figure 1. Backbone network: Orange depicts deployed fiber

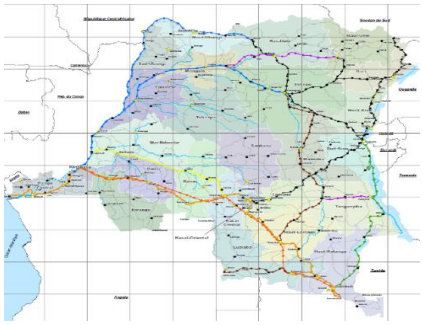
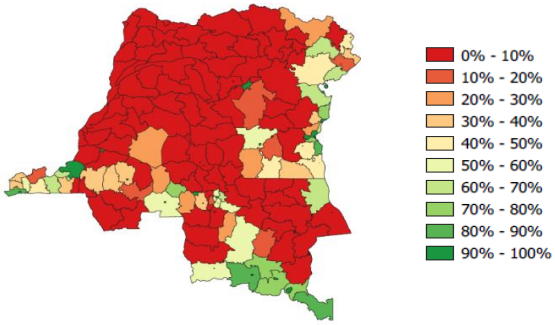


Figure 2. 4G coverage



9. **Greater access to affordable and high-quality broadband will require sizable investment in network infrastructure to bridge existing gaps, complemented by efforts to boost demand for e-services and continued regulatory reform.** Analysis undertaken by GSMA in 2020 shows that planned investment will only go so far in terms of expanding the market frontier, leaving roughly 50 million people without high-speed 4G mobile broadband coverage.[25] Meanwhile, existing and planned fiber network links due to be deployed suggest that operators have a proclivity towards duplicating infrastructure along the most profitable backbone routes and focusing on the more populous urban hubs, which still leaves more remote and rural communities unconnected. The UN Broadband Commission has estimated that some 8-9 billion will be needed to achieve universal broadband access in DRC.[26] While most of this investment is expected to come from the private sector which is interested in exploring untapped and emerging commercial opportunities in DRC, including in some rural areas[27], further support is needed to create a more enabling environment for network investment, grounded in infrastructure sharing that can reduce deployment, maintenance and service costs, and catalytic public financing that can help re-risk and accelerate network deployment in areas that are not commercially viable. This will need to be complemented by efforts to stimulate demand that make continued network investments and maintenance sustainable, such as enabling relevant and attractive e-services, expanding connectivity and productive usage in key sector (e.g., education), increasing affordability and access to devices[28], as well as building knowledge and skills.

10. **Adoption of the 2020 Telecoms Law creates a platform for increasing private sector investments; however, improving sectoral governance in ways that eliminate market efficiencies is still a work in progress.** Several operators are active in the local telecoms market, including mobile network operators (MNOs), wholesale connectivity providers, pure-play internet services providers (ISPs) and satellite providers etc.[29] Recent decrees have established a new telecoms industry regulator, *Autorité de régulation de la poste et des télécommunications* (ARPTIC)[30]; a universal services fund that if operationalized can help channel investment to areas that are less commercially attractive using a mix of private and public funds, *Fonds de Développement du Service Universel des*

[25] Analysis of the market frontier conducted by the GSMA (industry association of mobile network operators) suggest that national 4G coverage is only set to increase by 5.1%, and most of this will be driven by increased urban coverage. This leaves 52 percent without access.
[26] UN Broadband Commission, 2019, Connecting Africa Through Broadband: A Strategy for Doubling Connectivity by 2021 and Reaching Universal Access by 2030, Broadband Commission Working Group on Broadband for All: A "Digital Infrastructure Moonshot" for Africa.
[27] Examples include Orange, which has launched a rural connectivity project to deploy 2,000 sites, partnering with NuRan; Africell fiberizing 200 cell towers by 2024, partnering with Raga Net; BCS, which intends to deploy 12,000km of fiber and connect 1,900 schools, 1,640 hospitals, and government buildings.
[28] Smartphone ownership is extremely low in DRC at just 13 percent, according to GSMA Intelligence.
[29] Airtel, Vodacom, Africell, Orange (MNOs); CSquared, Liquid (wholesalers); Afrinet, Microcom, Orioncom (pure-play internet services providers); Eastcastle, Helios, AMN (tower companies); Gilat satellite providers. Others include Bandwidth and Cloud Services Group (BCS), Congo telecoms, Fast Congo, Raga Net, Elim Solutions, Vivendi Africa Group (GVA), Standard Telecom, United, Benya Telecom DRC and LMS Holding etc.
[30] Decree No 23/13 of 3 March 2023

Télécommunications et des TIC (FDSU)[31]; and a new licensing framework[32]. Yet, many of the foundational regulatory frameworks critical to achieving greater market efficiency are still missing, including in areas such as infrastructure sharing and spectrum management (including 5G). Meanwhile, a proliferation of para-fiscal taxes and fees has created an opaque taxation regime, which is also proving challenging for the private sector.[33] Ongoing support to unlock further reform and build capacity is being supported through the DRC Foundational Economic Governance Reforms Development Policy Financing series (P177460; P179141) as well as the DRC Transport and Connectivity Support Project (P161877), which lay the ground for the new investment policy financing (IPF) operation proposed.

Absence of Digital Public Infrastructure (DPI) able to catalyze expanded digital service delivery

11. **Rapidly scaling services coverage to more people across DRC will require much wider use of digital systems and tools that increase transparency and improve efficiency, which make the most of limited public funding and allow government to expand its reach to more remote areas on the back wider connectivity.** Increasing usage of digital platforms would be instrumental in reducing governance-related drivers of fragility[34] and expanding services provision in critical social sectors such as education, health, social protection but also financial services. Increasing access to related digital services that are attractive and relevant for local uses will also be key to stimulating wider productive usage of digital technology, with positive ripple effects on development outcomes. While the Government has developed an emerging online presence and a handful of core government systems, it remains ill-equipped to scale delivery of public services and improve internal processes, using digital platforms. Many processes are still paper-based, investment in digital systems limited and capacity for wider usage by Government Ministries, Departments and Agencies (MDAs) is weak. Meanwhile, the select number of sectoral IT solutions deployed are not interoperable and leverage vertical/functional solutions for identifying services users, in the absence of a foundational identification (ID) system, with data processed in various formats, hosted on disparate and unsecure servers. This creates fragmentation and inefficiency, but also severely limits the scope for wider data sharing and provisioning of more seamlessly integrated, user-friendly and easily accessible services to people across DRC.

12. **Investment in transversal and shared digital public infrastructure (DPI) and platforms could thus have a transformational impact on governance efficiency as well as analogue and digital services provision.** For public services, these cross-cutting elements include (a) a shared government connectivity network (GovNet), providing more public institutions with a secure broadband connection to enable use of digital systems; (b) shared frameworks and technical solutions for IT system interoperability, trusted data sharing, and data hosting (both physical and cloud-based); (c) a foundational digital ID system, enabling both offline and online identity verification and authentication; (d) shared e-signature applications using public key infrastructure (PKI) to authenticate users; (e) a shared external interface for services users (e.g., eGOV portal) etc. Together, these building blocks form the basis of an enabling 'digital stack' for transactional e-services and the foundations for DRC's e-government architecture, featuring infrastructure and applications that can be re-used by any MDA wishing to launch a new digital service. The introduction and re-use of these shared building blocks would thus reduce the time and costs required for launching new services at a sectoral level and support economies-of-scale, while avoiding duplication and fragmentation. Investment in shared data frameworks and infrastructure will also be critical for improving the capacity of

[31] Decree No 22/51 of 30 December 2022
[32] Ministerial ordinance NoCAB/MIN/PT&NTIC/AKIM/KL/Kbs/037/2022.
[33] Mobile revenues represent roughly 4 percent of the countries GDP, while the sector contributes up to 15 percent to total taxes revenues. The mining sector, by comparison, contributes 20 percent to GDP and 25 percent to taxes revenues. A more balanced taxation framework would allow opertors to accelerate investments in the sector to expand access, while increasing the sector's revenue generation overall. See: https://www.gsma.com/subsaharanafrica/wp-content/uploads/2018/11/GSMA_DRC-report_ENGLISH_72pp_WEB.pdf
[34] As identified in the 2021 DRC Risk and Resilience Assessment (RRA).

Government to better collect, process, share and analyze data for public good, including better policy and planning e.g., critical to stronger climate action.[35] DPI, such as robust digital ID, is also critical for commercial service provision.

13. **DRC's digital transformation requires secure ways for people to prove their identity that are trusted by government and private sector providers to enable service innovation and wider access to critical services for the population; however, DRC lacks a robust foundational ID system with universal coverage**. The inability to accurately and uniquely identify persons has ripple effects on service delivery capacity across sectors, including financial, social protection sectors and core public management functions to name a few, translating into weak financial inclusion, tax evasion/fraud and challenges in targeting social programming etc. An independent ID agency (*Office National d'Identification de la Population*, ONIP) was created in 2011 to ensure the systematic identification of the population (both nationals and non-nationals) as well as the diaspora to improve planning and public service efficiency. ONIP is responsible for developing and maintaining a national population registry (NPR), as a basis for creating a unique identity for all, issuance of a unique identification number and ID credentials, i.e., national identity and residence cards. However, due to a lack of financing and champions at the highest political level, development of the NPR and roll-out of a new ID system have been slow to begin. Momentum is now growing for more concerted action on ID, with Government hoping to leverage sectoral databases (including the recently updated electoral registry, which covers roughly 40 million people[36]) as a basis for creating a more comprehensive NPR, accompanied by further enrollment efforts to incrementally move toward universal NPR / ID registration. Ensuring that the NPR is accurately maintained will also require auxiliary support for improving Civil Registration (CR) (e.g., birth, death, and marriages). The current CR system is completely paper-based and decentralized, managed by local governments under the supervision of the Directorate of Population, which sits under the Ministry of Interior, Security and Customary Affairs (*Ministère de l'Intérieur, Sécurité et Affaires Coutumières*, MdI). The birth registration rate in DRC remains low: only 40 percent of new births are registered[37], for a mix of reasons including limited access to CR offices (CROs)[38]. As such, the CR system is still weak and dysfunctional. Given DRC's geography and size, improving the CR and NPR will be a complex and costly exercise. Moreover, further support will be required to review the feasibility of planned systems mutualization, development of an integrated systems architecture, including a roadmap for CR, inclusive enrollment strategy, and support for an enabling governance and legal framework for ID, in addition to support for downstream systems deployment and targeted enrollment.

14. **Safely scaling digital infrastructure, systems and services and encouraging uptake will also require instilling trust in digital transactions, on the back of more robust frameworks for data protection and cybersecurity.** DRC introduced a Digital Code in April 2023, which includes legal provisions for data protection and privacy, as well as cybersecurity and cybercrime, and introduces a new National Cybersecurity Agency and Data Protection Authority. However, these agencies still need to be operationalized. DRC thus lacks capabilities for enforcement and capacity to manage cybersecurity risks and respond to incidents. Subsequently, DRC has among the least mature cybersecurity ecosystems in the region. According to the 2020 Global Cybersecurity Index, DRC ranked 40 out of 43 countries in Africa (and 170 out of 182 countries, globally), scoring 5.3/100, which is considerably lower than the regional average.

[35] WB, 2023. DRC CCDR. *Forthcoming*
[36] This process is being managed by the National Independent Electoral Commission (*Commission Electorale Nationale Independante*, CENI), which plans to not just transfer data to ONIP, but also pass on registration equipment and staff.
[37] *ID4D 2021 Dataset*
[38] The low registration rate and inadequate quality of service can be attributed, but not limited, to the following constraints: (a) lack of accessibility to CROs, (b) limited incentive to register until credentials are needed to access a service e.g. primary school education, (c) cumbersome late birth registration process, (d) centers destroyed due to conflicts or natural disaster, (e) limited coordination and collaboration between key actors, and (f) inadequate monitoring and accountability mechanisms.

Gaps in digital skills for technology adoption, jobs, and support for innovation

15. **DRC's large youth population will need to be equipped to access the new jobs and income opportunities associated with the country's digital transformation.** In 2021, youth unemployment stood at 9.4 percent.[39] Digital skills will be key to allowing young people across DRC to both adopt technology and access better job opportunities, with increased productivity and earning potential**.** However, access to digital skills is currently extremely low in DRC, particularly advanced digital skills, as evidenced by slow development of data-driven innovation in sectors such as e-commerce, fintech or the Information Technology (IT) industry. Nevertheless, nascent tech communities, with a handful of digital entrepreneurs, are emerging in Kinshasa, Lubumbashi and Goma, which need to be supported further.[40] Gaps in basic digital literacy is also a common bottleneck for broadening the user base for new and existing digital services and solutions provided, typically more pervasive among women and vulnerable groups.[41] However, services available are often not intuitive nor tailored and attractive to local users, which compels this challenge.[42] Expanding access to digital skills will not only increase the capacity of firms to create economic value but the capacity of individuals to access markets and new livelihoods, while supporting more homegrown digital solutions that could help catalyze wider usage and service innovation. The deployment of digital infrastructure and digital solutions will require more people trained in advanced and specialized digital skills, inlcuding IT engineers. In view of existing basic education statistics, women are expected to face starker barriers in acquiring digital skills than men, particularly at more advanced level (e.g., as girls are less likely than boys to complete upper secondary education).[43] In practice, a large part of the market demand for digital skills therefore remains unmet both in the public and private sector, and this trend is only set to continue.

16. **Strengthening the digital skills and innovation ecosystem in DRC is a multifaceted challenge that will need to be addressed at scale to increase access to available programs and key enablers, supported by engagement across the higher education sector and with the private sector.** Readiness to expand digital training in both the basic and higher education sector is limited, in view of current training content available, weak digital skills among teachers, and large gaps in access to digital connectivity.[44] While data on internet access and use of computers in schools, TVET and universities is not available, in 2019 only 16 percent of primary schools had access to electricity, which points to extremely low digital access. In higher education, very few universities are offering IT programs. More broadly, DRC lacks the capacity to track key digital skills indicators and outcomes to improve training. Addressing these issues will require engagement across the education sector: sector governance is split between the Ministry of Primary, Secondary and Technical Education (*Ministère de l'Enseignement Primaire, Secondaire et Technique*, MEPST) and the Ministry of Higher Education (*Ministère de l'Enseignement Supérieur et Universitaire*, MESU), while vocational training and training of civil servants sit under the Ministry of Vocational Training and Occupations (*Ministère de la Formation Professionnelle et Métiers*, MFPM). There are currently only a handful of private training providers, such as SchoolAp or Voda Educ,[45] and tech hubs that seek to support digital training and innovation.[46] Moreover, these tech hubs operate without linkages to the higher education sector, which prevents the development of market-

[39] World Development Indicators.
[40] World Bank (2020). DRC Digital Economy Assessment.
[41] GSMA 2022, Mobile Gender Gap Report.
[42] Begazo, Tania, Moussa P. Blimpo, and Mark A. Dutz. 2023. *Digital Africa: Technological Transformation for Jobs.* Washington, DC: World Bank.
[43] The completion rate for girls is 29 percent versus 46 percent for boys.
[44] The DRC Girls Learning and Empowerment Project (P178684) is supporting access to digital skills and teacher training in secondary schools, and building new school that will need to equipment with connectivity.
[45] World Bank (2020). DRC Digital Economy Assessment.
[46] Examples include Silikin village, Orange digital center, Kobohub, etc.

relevant skills and wider innovation. Expanding the relevance of training and facilitating the school-to-work transition will require closer collaboration with the private sector in relation to both upstream planning and training delivery.

Institutions driving the digital agenda

17. **The institutional framework for driving the digital transformation agenda forward needs to be streamlined and capacity will need to be strengthened to move the DRC's digital vision forward in an effective and integrated way.** The *Agence de Développement du Numérique* (ADN), anchored in the President's Office, has been established to oversee implementation of the PNN, but remains a nascent agency focused on coordination and M&E. Implementation of the various initiatives articulated by the NPP thus rests with various sectoral line ministries, including the more well-established Ministry for Post, Telecoms and ICT (*Ministère des Postes, Télécommunications et Nouvelles Technologies de l'Information*, MPTNTIC), primarily focused on the digital connectivity agenda, and the newer Ministry of Digital (*Ministère du Numérique*, MdN), more focused on the e-services agenda, featuring ad hoc collaboration with other line MDAs, e.g. MdI and ONIP on ID and CR, education ministries on digital skills training, e-learning and school connectivity etc. While consultations reveal that these various MDAs are fairly aligned in terms of the most pressing needs and the vision, clear roles and responsibilities for how to take them forward are less so. As noted above, several new agencies are also envisaged under the recently ratified Digital Code. Meanwhile, there is also reason to believe that the institutional landscape could change following the December 2023 general election.

Relationship to CPF

18. **The project is aligned with the World Bank DRC Country Partnership Framework (CPF) FY22-26, discussed by the Board on February 22, 2022 (Report No. 168084ZR).** The proposed operation addresses CPF Focus area 1, particularly Objective 1 on improving interconnectedness between and within communities and Objective 2.2 on improving access to basic infrastructure services, by expanding digital connectivity to underserved areas and linking unconnected parts of DRC to national broadband networks. The project is also aligned with Objective 3 of the CPF aimed at improving social service delivery and increasing human development indicators, including Objective 3.2 to strengthen public financial management (PFM) systems, through investments in connectivity and shared DPI, including ID, that can enable more effective social service delivery and use of digital systems that enhance transparency and efficiency. The proposed project builds on the notion that digital connectivity, DPI and digital skills are cross-cutting and catalytic enablers for sectoral investments and transformation in DRC.

C. Proposed Development Objective(s)

Increase access to affordable, high-quality broadband connectivity, high-impact, in-demand digital services and solutions, as well as industry-relevant digital skills.

Key Results (From PCN)

The following indicators will be considered for measuring achievements of the PDO:

- Increase access to affordable and high-quality broadband connectivity
  - Number of people provided with new or enhanced access to broadband internet (mobile and fixed)
  - Entry-level broadband service cost, as a percentage of monthly GNI per capita
- Increase access to high-impact and in-demand digital services and solutions
  - Number of people accessing financial/social services using new or improved identity credentials (of whom are women).
  - Number of new innovative digital solutions created by entrepreneurs supported by the project.

- Increase access to industry-relevant digital skills
  - Number of people trained in advanced digital skills through the project absorbed by the labor market (of whom are women; of whom are persons with disabilities).

D. Concept Description

19. **The proposed project is designed to support digital transformation.** It will do so by investing in (i) the foundational digital connectivity infrastructure needed to support movement towards universal digital access, (ii) the foundational cross-cutting DPI required to scale transactional and remote (commercial and public) digital service provision cost-effectively and securely at sectoral level; (iii) building DRC's digital skills base and capacity for innovation and productive usage of technology, focusing on advanced digital skills and entrepreneurship, while creating linkages to digitally enabled jobs and service innovation, and (iv) building the institutional capacity and governance needed to drive related initiatives in a concerted and integrated manner. The proposed project is thus designed around four mutually reinforcing components – broadband connectivity, DPI with a big focus on digital ID, digital skills for innovation and entrepeurship, as well as support for institutional coordination and project management.

Component 1: Expanding digital access and inclusion (indicative amount US$200 million in IDA financing; complemented by private capital mobilized for network infrastructure)

20. **This component would support the development of enabling frameworks and provide gap financing to complement and catalyse private sector investment in broadband network infrastructure roll-out, with a view to accelerating DRC's progress towards universal broaband access and wider digital inclusion**. Investment in the enabling environment, as well as on both the supply- and demand-side of the broadband market would help create and sustain continued market development, conducive to offering high-speed quality broadband services at lower costs to more users across DRC, particularly in areas that are currently underserved. Expanding coverage to more parts of DRC, particularly rural areas, central and northern provinces, and connecting government and key institutions in the education, health and agriculture sectors will be key to enabling their use of digital solutions, with transformational impact. This component would be designed around the principle of addressing market failures and unlocking private capital for network investments, using public sector funding strategically to unlock reform and crowd in the private sector, based on the maximizing financing for development approach**.** Further upstream work will be undertaken to refine priority links and areas targeted, and assess the scope for private financing. Proposed sub-components include:

- **Sub-component 1.1 Introducing frameworks and enablers for digital access and inclusion.** This sub-component would cover upstream support needed to enhance government's capacity to encourage broadband market development through enabling frameworks that promote digital access and inclusion, clarify institutional mandates and build their capacity.
- **Sub-component 1.2 Extending core networks to enable inclusive coverage.** This sub-component would support the deployment of core networks, including missing backbone and cross-border fiber links, to lower the cost and enhance the quality of internet transmission across DRC, with a view to at a minimum connect all provinces covered by the CPF to a national backbone network to enable more inclusive coverage. Investments would likely focus on northern and central parts of DRC, building on current and planned links deployed.
- **Sub-component 1.3 Connecting citizens, universities and selected public institutions.** This sub-component would expand access networks in underserved rural areas deemed commercially unviable and connect

government as well as institutions in the education, health and agriculture sectors, using a reverse auction and pre-purchase of capacity.

Component 2: Introducing digital foundations for service delivery (indicative amount US$150 million in IDA financing; complemented by private capital mobilized for data infrastructure)

21. **This component will support investment in the cross-cutting digital building blocks needed to cost-effectively and securely expand service provision across DRC, particularly on the public sector side, while supporting their integration in key services to enhance access.** It will focus on the shared and transversal digital infrastructure and platforms that would allow Government to scale its use to digital tools, while subsequently embedding use of these building blocks in a number of strategic sectors to enable direct improvements to government efficiency and service delivery. It would adopt a whole-of-government approach by investing in DPI, commonly also referred to as the 'digital stack', which provide shared solutions for e.g. identifying service users, safely and seamlessly exchanging data. These solutions could subsequently easily be re-used by the private sector as well as government when launching new services, allowing for service innovation and sectoral applications to easily be built 'on top'. On the government side, this would be instrumental to reducing fragmentation and leveraging economies-of-scale, and building the basic capabilities needed to more rapidly scale both digital and analogue public service delivery in key sectors such as education, health, social protection and financial services. The project would support a select number of sectors to integrate use of DPIs, such as ID, to yield more inclusive service delivery and efficiency gains, building on existing investments. This component will also invest in digital safguards to help mitigate the risks associated with wider use of digital infrastructure and services, creating a trust environment that is conducive to encouraging growing usage, as well as the shared platforms and access points for digitial services which can be leverages by other sectors. Proposed sub-components include:

- **Sub-component 2.1 Improving data sharing and management for integrated service delivery.** This sub-component would introduce the data frameworks and infrastructure needed to facilitate seamless and secure data management and data sharing between Governments's various IT system, eliminating duplication and silos. This would also allow different systems to speak to each other and provision of more integrated services. Investments are likley to feature technical solutions for interoperability and improved data hosting.
- **Sub-component 2.2 Enabling trust in digital services.** This sub-component would support the introduction of foundational frameworks, technical and operational capabilities for managing cybersecurity and data protection and using e-signatures to authenticate digital transactions to build trust in digital services and enable safe data sharing.
- **Sub-component 2.3 Introducing reliable identification for inclusive service access.** This sub-component would support the roll-out of a robust foundational ID system, providing more people with reliable and unique identity credentials, allowing for more inclusive service access, transparency and efficiency gains in government policy, planning and services provision by both the public and privat sector. This will be done by supporting improvements to CR and development of the NPR, which form the basis of the ID ecosystem in DRC. Upstream due dilience will be undertaken to determine the feasibility of migrating data from sectoral databases to the NPR and review the CR system to assess the financing needed to improve the core systems versus supporting enrollment. Support will also be provided to ensure that adequate governance and legal frameworks are in place, in line with best practive principles.
- **Sub-component 2.4 Enhancing service delivery in key sectors using shared platforms.** This sub-component would support the deployment of shared digital and physical access points for digital public services, as well as support direct improvement to service delivery and government efficiency through the integration of DPIs such as digital ID with a number of high impact and in-demand sectoral services. Support would be provided to a select

number of sectors to directly ingrate DPIs in service delivered to demonstrate the digital transformation possible when leveraging and re-using shared solutions deployed. Linking attractive and high-impact service to ID registration will also be critical to encouraging wider enrollment.

Component 3: Developing a digitally savvy workforce and spurring digital service innovation (indicative amount US$30 million; complemented by private capital mobilized for digital skills and innovation programming)

22. **This component will support the development of digital skills and the local digital innovation ecosystem, up-skilling and building the capacity of public officials, students and entrepreneurs engaged in IT programs, stimulating linkages between the higher education sector and IT industry, and fueling the development of homegrown digital solutions that encourage productive use of technology.** Key target groups (e.g., public officials, students, young entrepreneurs) will be trained in advanced digital skills to support digital infrastructure deployment and service innovation, allowing them to access the vast new job opportunities linked to digital transformation, but also manage and sustain planned investments made under the project, as well as contribute to the piloting and scaling new innovative digital ideas, solutions, and applications. An inclusive approach will be taken in implementing skills and innovation programming to ensure the participation of women and girls and persons with disabilities. Activities will include institutional capacity strengthening, market analysis, financing of performance-based grants (PBG) and public private partnership (PPPs) with existing higher education institution (HEIs), commercial training providers and tech hubs to roll out industry-relevant advanced digital skills programs, as well as targeted digital innovation and entrepreneurship schemes.[47] Proposed sub-components include:

- **Sub-component 3.1 Developing advanced digital skills for service innovation.** This sub-component would focus on the frameworks and programs needed to drive the digital skills agenda forward, particularly advanced digital skills training programs, working closely with HEIs and the private sector to analyze skilling needs, support curriculum development and program design. It will support the roll-out of advanced digital skills training programs through PBGs in computer science and emerging technologies, anchored in local HEIs and tech hubs, and support the establishment of partnerships. Activities covered would also complement WB projects in the education sector and investment to connect the education sector to broadband, by supporting teacher training in digital skills to ensure productive use of technology in education delivery within the basic education system.
- **Sub-component 3.2. Supporting local service content creation and services innovation.** This sub-component would support the development of innovative and locally relevant digital solutions and services, working closely with the local innovation and international tech community. It will finance innovation centers implemented by HEIs or commercial providers, targeting students and entrepreneurs wishing to develop innovative IT solutions. Activities will include creative skills and management training, with support for local tech hubs and ICT ecosystem support organisation to grow sustainably, and financing for pilot projects, startup competitions and hackathons.

Component 4: Institutional Coordination and Project Management (indicative amount US$20 million)

23. **This component would finance the Recipient's project management and coordination capacity, including procurement, financial management (FM), monitoring and evaluation (M&E), as well as environmental and social (E&S) safeguards management.**

Component 5: CERC (US$0 million)

[47] The project will seek to leverage possible collaboration with the IFC to explore financing models for PPPs on digital skills.

24. **This component would have zero allocation of financing to allow for rapid reallocation of proceeds of uncommitted financing in the event of an eligible crisis or emergency.**

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

25. **The anticipated environmental and social risks and impacts of the project are linked to the activities under components 1, 2 and 3.** Although specific locations are not yet known at this stage, key environmental and social risks and impacts are expected to include (i) the exclusion of certain groups, (ii) occupational and community health and safety, (iii) working conditions and grievance management for laborers, especially those for the indirectly employed or primary supply workers, (iv) risk of unemployment due to the digital transition, (v) issues related to Sexual Abuse/Exploitation and Harassment (SEA/SH), (vi) disruption of traffic during excavation work to install subterranean fiber, (vii) emission of dust, noise, debris and generation of waste during infrastructure deployment and maintenance, (viii) disturbance of aquatic habitats due to underwater installation of fiber, and (ix) security risks if project activities extend to provinces currently experiencing armed conflicts. In addition, Technical Assistance activities are likely to have downstream effects that are not expected to lead significant adverse risks and impacts. All these adverse potential risks and impacts can be effectively avoided, mitigated, or minimized on site in a predictable manner. Considering the above-mentioned risks, once the Project locations and activities are well defined, an environmental and social risks assessment is required for mitigation measures to be designed to address the specific risks and impacts identified, including those related to SEA/SH risks, according to ESS1.

26. **Environmental risk is rated as Substantial at the concept stage.** Potential environmental risks and impacts are expected under Components 1 and 2. Under component 1, they are linked to the deployment of buried fiber cables underground and underwater installation for lake and river crossings, deployment of new cell sites, and local access networks. Under component 2, risks and impacts are mainly linked to physical data hosting infrastructure that could be built to enhance data management and public service delivery. Physical data hosting solutions (e.g., in new or collocated facilities) will likely require electricity not only to operate the IT equipment, but also to power the cooling system to maintain an acceptable temperature for these centers. Efforts will be made to make both broadband network infrastructure and data infrastructure climate smart, to make them resilient to climate risks and minimize their energy consumption.

27. **Social risk is rated as Moderate at the concept stage.** Risks associated with the project potentially include temporary economic displacement resulting from civil works. These activities are not anticipated to required skilled labor and will likely be carried out using local labor, especially for trenching and construction of broadband networks and data centers, and as such, risks associated with influx of labor will likely be minimal. Inclusion of certain provinces such as North Kivu and Ituri could pose security risk due to the ongoing conflicts in eastern DRC. The project inherently addresses risks of social exclusion, e.g., through activities under sub-components 3.2 on digital skilling. Specific actions may be needed in favor of indigenous persons (IPs), who are unlikely to be adversely impacted by the project and could be integrated into project activities. Investment in identification system roll-out will pay particular attention to ensuring inclusion e.g., through tailored enrollment strategies.

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