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Report No: PADHI00415

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED GRANT
IN THE AMOUNT OF SDR 7.6 MILLION
(US$10 MILLION EQUIVALENT)
TO THE COMMON MARKET FOR EASTERN AND SOUTHERN AFRICA (COMESA)

PROPOSED GRANT
IN THE AMOUNT OF SDR 53.2 MILLION
(US$70 MILLION EQUIVALENT)
TO THE REPUBLIC OF MALAWI

PROPOSED CREDIT
IN THE AMOUNT OF US$400 MILLION
TO THE DEMOCRATIC REPUBLIC OF CONGO

PROPOSED LOAN
IN THE AMOUNT OF US$300 MILLION
TO THE REPUBLIC OF ANGOLA

UNDER THE
INCLUSIVE DIGITALIZATION IN EASTERN AND SOUTHERN AFRICA (IDEA)
UNDER THE MULTI-PHASE PROGRAMMATIC APPROACH
WITH AN OVERALL FINANCING ENVELOPE OF US$2.48 BILLION

June 5, 2024

Digital Development Global Practice
Eastern and Southern Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2024)

Currency Unit =	Congolese Franc (CDF), Angolan Kwanza (AOA), Malawian Kwacha (MWK), IMF Special Drawing Rights
CDF 2,780 =	US$1
AOA 829 =	US$1
MWK 1,716 =	US$1
US$1.00 =	SDR 0.75

FISCAL YEAR
January 1 - December 31 (DRC, Angola, COMESA)
April 1 - March 31 (Malawi)

Regional Vice President:	Victoria Kwakwa
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Global Director:	Christine Zhenwei Qiang
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ABBREVIATIONS AND ACRONYMS

A-ESRS	Appraisal Environmental and Social Review Summary
AFD	French Development Agency (*Agence Française de Développement*)
AfDB	African Development Bank
AFE	Eastern and Southern Africa
AFW	Western and Central Africa
AI	Artificial Intelligence
AM	Accountability Mechanism
APD	Data Protection Agency (*Agência de Protecção de Dados) (A*ngola)
API	Application Programming Interface
ASCENT	Accelerating Sustainable and Clean Energy Access Transformation
AU	African Union
BI	Identification Card (*Bilhete de Identidade)* (Angola)
CBA	Cost-Benefit Analysis
CCDR	Country Climate and Development Report
CERC	Contingent Emergency Response Component
CDRS	Climate and Disaster Risk Screening
CIIP	Critical Information Infrastructure and Protection
CIRT	Cybersecurity Incident Response Team
COMESA	Common Market for Eastern and Southern Africa
CPF	Country Partnership Framework
CSI	Corporate Scorecard Indicator
DA	Designated Account
DE4A	Digital Economy for Africa initiative
DFIL	Disbursement Letter and Financial Information
DFS	Digital Financial Services
DMAP	Digital Malawi Acceleration Program
DPA	Data Protection Authority (Malawi)
DPI	Digital Public Infrastructure
DPO	Development Policy Operation
DRC	Democratic Republic of Congo
EAC	East African Community
EARDIP	Eastern Africa Regional Digital Integration
ECA	Europe and Central Asia
ECOWAS	Economic Community of West African States
EDGE	Excellence in Design for Greater Efficiencies
ENAPP	National School of Administration and Public Policy (*Escola Nacional de Administração e Políticas Públicas*) (Angola)
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMAP	Energy Sector Management Assistance Program
ESMF	Environmental and Social Management Framework
ESRC	Environmental and Social Risk Classification
ESRS	Environmental and Social Review Summary
ESS	Environmental and Social Standards
EU	European Union

FAS	Social Action Fund (*Fundo de Apoio Social*) (Angola)
FCV	Fragility, Conflict, and Violence
FDSU	Universal Services Fund (*Fonds de développement des services universels*) (DRC)
FM	Financial Management
GCP	Global Challenge Program
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
GNI	Gross National Income
GP	Global Practice
GRS	Grievance Redress Service
GSMCA	Global System for Mobile Communications Association
HEI	Higher Education Institution
HDI	Human Development Index
ICR	Implementation Completion and Results Report
ICT	Information and Communication Technology
ID	Identification
ID4D	Identification for Development
IDA	International Development Association
IDEA	Inclusive Digitalization in Eastern and Southern Africa
IDP	Internally Displaced Person
IEG	Independent Evaluation Group
IFC	International Finance Corporation
IFR	Interim Financial Report
IMA	Institute of Administrative Modernization (*Instituto de Modernização Administrativa)* (Angola)
INACOM	Angolan Institute of Communication *(Instituto Angolano das Comunicações)* (Angola)
INAPEM	National Institute for the Support of Micro, Small, and Medium Enterprises *(Instituto Nacional de Apoio as Micro, Pequenas e Médias Empresas*) (Angola)
IPF	Investment Project Financing
IRR	Internal Rate of Return
ISP	Internet Service Provider
ITU	International Telecommunication Union
KYC	Know-Your-Customer
LAC	Latin America and Caribbean
LAN	Local Area Network
LEO	Low-Earth Orbit
M&E	Monitoring and Evaluation
MACRA	Malawi Communications Regulatory Authority
MAREN	Malawi Research and Education Network
MDAs	Ministries, Departments, and Agencies
MCERT	Malawi Computer Emergency Response Team
MFD	Maximizing Finance for Development
MFI	Multilateral Financial Institution
MIGA	Multilateral Investment Guarantee Agency
MINTTICS	Ministry of Telecommunications and Information and Social Communication Technology (*Ministério das Telecomunicações, Tecnologias de Informação e Comunicação Social* (Angola)
MITA	Malawi Information Technology Authority

MPA	Multiphase Programmatic Approach
MPTNTIC	Ministry of Posts, Telecommunications and new information and communication technologies / *Ministère des Postes, Télécommunication et Nouvelles Technologies de l'Information et de la Communication* (DRC)
MSMEs	Micro, Small, and Medium Enterprises
MTR	Midterm Review
NDC	Nationally Determined Contribution
NPV	Net Present Value
NRB	National Registration Bureau (Malawi)
NREN	National Research and Education Network
PBA	Performance-Based Allocation
PCE	Private Capital Enabling
PCM	Private Capital Mobilization
PCU	Program Coordination Unit
PDO	Project Development Objective
PforR	Program for Results
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PKI	Public Key Infrastructure
PNN	*Plan National du Numérique* (DRC)
POM	Project Operations Manual
PPA	Project Preparation Advance
PPP	Public-Private Partnership
PPPC	Public Private Partnership Commission (Malawi)
PPSD	Project Procurement Strategy for Development
PrDO	Program Development Objective
PSC	Project Steering Committee
PWD	Person with Disability
QER	Quality Enhancement Review
QoS	Quality of Service
REC	Regional Economic Community
RIFF	Regional Infrastructure Investment Facility
RPSC	Regional Program Steering Committee
SADC	Southern Africa Development Community
SCPT	Congo Post and Telecommunications Company / *Société Congolaise des Postes et Télécommunications* (DRC)
SDR	Special Drawing Rights
SEA/SH	Sexual Exploitation and Abuse/Sexual Harassment
SEP	Stakeholder Engagement Plan
SLA	Service-Level Agreement
SOCOF	Congolese Fiber Optic Company / *Société Congolaise de Fibre Optique* (DRC)
SOE	State-Owned Enterprise
SOP	Series of Projects
SPD	Standard Procurement Document
SPJ	Social Protection and Jobs
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance

TOR	Terms of Reference
TVET	Technical and Vocational Education and Training
UCF	Unguaranteed Commercial Financing
USF	Universal Service Fund
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WBG	World Bank Group
WiFi	Wireless Fidelity

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DATASHEET

BASIC INFORMATION

Project Beneficiary(ies)	Operation Name		
EASTERN AND SOUTHERN AFRICA	Inclusive Digitalization in Eastern and Southern Africa (IDEA)		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P502532	Investment Project Financing (IPF)	Moderate	

Financing & Implementation Modalities

[✓] Multiphase Programmatic Approach (MPA)	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternative Procurement Arrangements (APA)	[ ] Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date	Expected Program Closing Date
27-Jun-2024	31-Oct-2032	31-Oct-2032
Bank/IFC Collaboration	Joint Level	
Yes	Complementary or Interdependent project requiring active coordination	

MPA Program Development Objective

MPA FINANCING DATA (US$, Millions)

MPA Program Financing Envelope	2,480.00

Components

Component Name	Cost (US$)
1. Regional Harmonization and Planning Platform	5,474,000.00
2. Regional Knowledge and Capacity Building	1,402,000.00
3. Regional Project Coordination and Management	3,124,000.00

Organizations

Borrower:	Common Market for Eastern and Southern Africa (COMESA)
Implementing Agency:	Common Market for Eastern and Southern Africa (COMESA) Secretariat

MPA FINANCING DETAILS (US$, Millions)

MPA Financing Envelope:	2,480.00
of which Bank Financing (IBRD):	440.00
of which Bank Financing (IDA):	2,040.00
of which Other Financing sources:	0.00

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)?	No
Is this project Private Capital Enabling (PCE)?	Yes

SUMMARY

Total Operation Cost	**10.00**
Total Financing	**10.00**
of which IBRD/IDA	**10.00**
Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Development Association (IDA)	10.00
IDA Grant	10.00

IDA Resources (US$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
Regional	0.00	10.00	0.00	0.00	10.00
Total	**0.00**	**10.00**	**0.00**	**0.00**	**10.00**

Expected Disbursements (US$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Annual	0.00	1.00	2.00	3.00	2.00	1.00	0.50	0.45	0.05	0.00
Cumulative	0.00	1.00	3.00	6.00	8.00	9.00	9.50	9.95	10.00	10.00

PRACTICE AREA(S)

Practice Area (Lead)

Digital Development

Contributing Practice Areas

Education; Finance, Competitiveness and Innovation; Social Protection & Jobs; Energy & Extractives

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary Financial Management Risk rating from Specialist: High as of 2024-05-31T09:50:15Z Procurement Risk rating from Specialist: Moderate as of 2024-05-13T00:00:00Z	Moderate
7. Environment and Social Environment Risk rating from Specialist: Moderate as of 2024-05-03T14:15:22Z Social Risk rating from Specialist: Moderate as of 2024-05-03T14:15:22Z	Moderate
8. Stakeholders	Moderate
9. Other	Moderate
10. Overall	Moderate
Overall MPA Program Risk	

POLICY COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

ENVIRONMENTAL AND SOCIAL

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Not Currently Relevant
ESS 4: Community Health and Safety	Not Currently Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Currently Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Not Currently Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

LEGAL

Legal Covenants

Sections and Description
The Recipient shall, not later than ninety (90) days after the Effective Date, establish and thereafter maintain throughout the period of implementation of the Project, a regional program steering committee with composition, functions, and terms of reference satisfactory to the Association ("Regional Program Steering Committee" or "RPSC").
The Recipient shall not later than October 31st of each year, furnish the draft annual work plan and budget for the following year to the Association for its review, and promptly thereafter finalize the draft annual work plan and budget, taking into account the Association's comments, and thereafter, adopt and carry out such annual work plan and budget as shall have been agreed with the Association ("Annual Work Plan and Budget"), as such plan may be revised with the prior written agreement of the Association, provided that the Annual Work Plan and Budget for the first year of Project implementation shall be furnished to the Association not later than ninety (90) days after the Effective Date.
The Recipient shall establish and maintain at all times during the implementation of the Project, a Project Coordination Unit (the "PCU") within its secretariat, with composition, powers, functions, facilities, and adequate staffing, including (i) a Project coordinator, a financial management specialist and a procurement specialist; and (ii) a digital specialist, an environmental expert with OHS expertise, a social expert, stakeholder engagement/communication expert, and a monitoring and evaluation expert, which shall be appointed not later than ninety (90) days after the Effective Date - all with experience, qualifications and under terms of reference satisfactory to the Association.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	5.01	The Recipient has prepared and adopted the Project Operations Manual, in form and substance satisfactory to the Association.	IBRD/IDA
Effectiveness	5.01	The Recipient has established the Project Coordination Unit (PCU) within its secretariat, and appointed/recruited to the PCU, a Project coordinator, a financial management specialist, and a procurement specialist - all with experience, qualifications and under terms of reference satisfactory to the Association.	IBRD/IDA

I. STRATEGIC CONTEXT

A. Regional Context

1. **The Eastern and Southern Africa (AFE) region is characterized by wide socioeconomic disparities: a majority of its population resides in rural areas and approximately one-third live in extreme poverty.** Widescale differences can be seen in gross domestic product (GDP) per capita (ranging from US$672.9 in Malawi to US$2549.9 in Angola) and Human Development Index (HDI) rankings, which range from 105/192 for South Africa to 192/19 for South Sudan. These disparities are also reflected in the region's overall growth trajectory. For instance, regional growth slowed from 3.5 percent in 2022 to 1.9 percent in 2023, primarily due to internal conflict in Sudan; low performance in two of the largest economies, South Africa and Angola; and a sharp deceleration in private and public investment, particularly affecting oil-exporting countries and underscoring the need for economic diversification. Moreover, in Sub-Saharan Africa, the median monthly labor income of men is more than twice that of women, which further contributes to the broader socioeconomic challenges faced by the region.[1]

2. **AFE faces numerous challenges due to conflict, climatic events, and natural disasters.** Successive shocks and insecurity have led to a record number of internally displaced persons (IDPs) and refugees, particularly in borderland areas. These concerns are further compounded by the threat of natural disasters. The region's topography contributes to high climate variability and vulnerability. Rising temperatures and unpredictable rain patterns have resulted in severe flooding and cyclones in the south and persistent droughts. Climate change is projected to increase the risk and intensity of floods, landslides, coastal erosion, and inundation, potentially affecting digital infrastructure.

B. Sectoral and Institutional Context

3. **Digitalization can be a powerful tool for development, transforming entire sectors and delivery of services as well as creating employment.** Higher levels of internet use are associated with significant developmental gains—increases in the number of jobs[2] and a reduction in poverty. But the current level of use in the AFE is inadequate and uneven. By putting in place a foundational basis for inclusive high-speed broadband networks, secure data hosting, digitally verifiable ID, digital financial services (DFS), and data sharing, countries are establishing the highways of tomorrow to build inclusive and dynamic digital economies, societies, and governments. The benefits of getting digital public infrastructure (DPI)[3] right can be enormous: empowered people, improved access to services and economic opportunities, more efficient delivery of social assistance, and innovation unlocked. Regulatory harmonization to extend trust across borders can widen the benefits of high-speed broadband, DPI, and digital payments to facilitate cross-border trade.

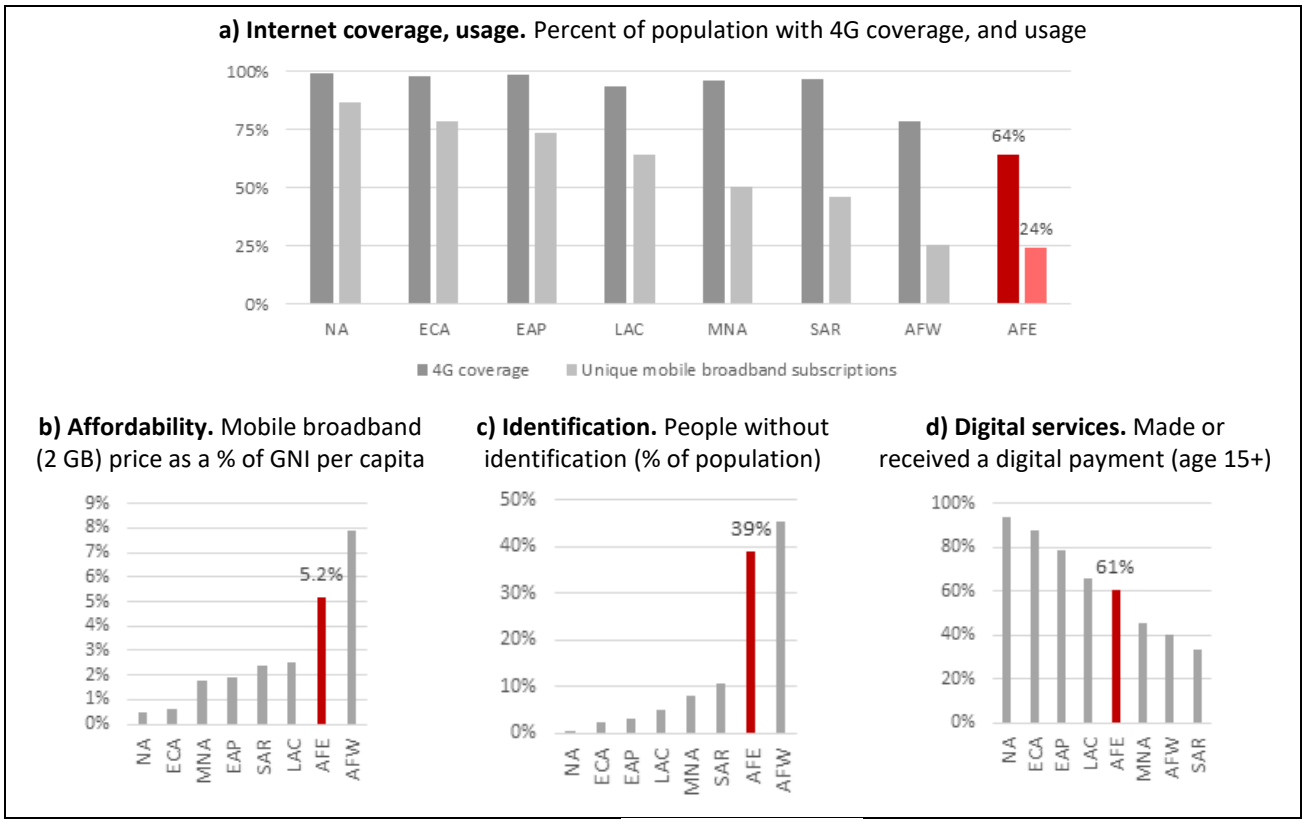
4. **Digitalization can also play a critical role in tackling challenges, such as climate vulnerability; gender inequality; health emergencies; and fragility, conflict, and violence (FCV).** Digital technologies can potentially reduce greenhouse gas (GHG) emissions in high-emitting sectors by up to 20 percent by 2050.[4] They also provide a platform for women to access knowledge, resources, and essential services. The use of accessible DFS, such as mobile money, has revolutionized financial services; for example, it has increased financial inclusion by three times in Kenya. Digital technologies (including mobile money, emergency communication facilities, internet at government offices, free wireless fidelity (WiFi) zones, and so on) can also expand access and improve efficiencies and effectiveness of emergency response and aid delivery in fragile contexts, as well as to vulnerable communities in remote, rural areas. For instance, research by the World Bank

[1] World Bank Group. 2019. *Profiting from Parity: Unlocking the Potential of Women's Business in Africa*.
[2] World Bank. 2023. Digital Africa: *Technological Transformation for Jobs*.
[3] DPI refers to a set of foundational systems and their organizational frameworks (for example, laws and institutions) that enable core functions in today's digital age, including as core elements the ability to verify identities, send and receive money, and exchange data.
[4] World Economic Forum. 2022. *Digital solutions can reduce global emissions by up to 20%. Here's how.*

G2Px[5] initiative shows that, during the COVID-19 pandemic, those countries with elements of DPI in place were able to deliver cash transfers to three times more beneficiaries.[6]

5. **Embracing digitalization is imperative, but AFE has the lowest rate of digitalization in the world[7] (Figure 1).** Digitalization relies heavily on economies of scale and network effects, with the tendency of expanding across markets and beyond country boundaries. Therefore, accelerating digitalization requires more integrated digital markets across the region. This need is particularly acute for smaller, landlocked, and low-income countries which, on their own, may not be able to achieve the same level of digital coverage and usage and rely on connectivity and internet capacity from coastal neighbors. At the same time, a regional approach to digitalization will also benefit larger, coastal, and more developed countries that need access to new markets. The inherent interconnectedness of the digital economy and common challenges make cross-country collaboration and sharing of digital public goods pivotal.

Figure 1. Status of Digitalization in AFE versus Rest of the World (2023)



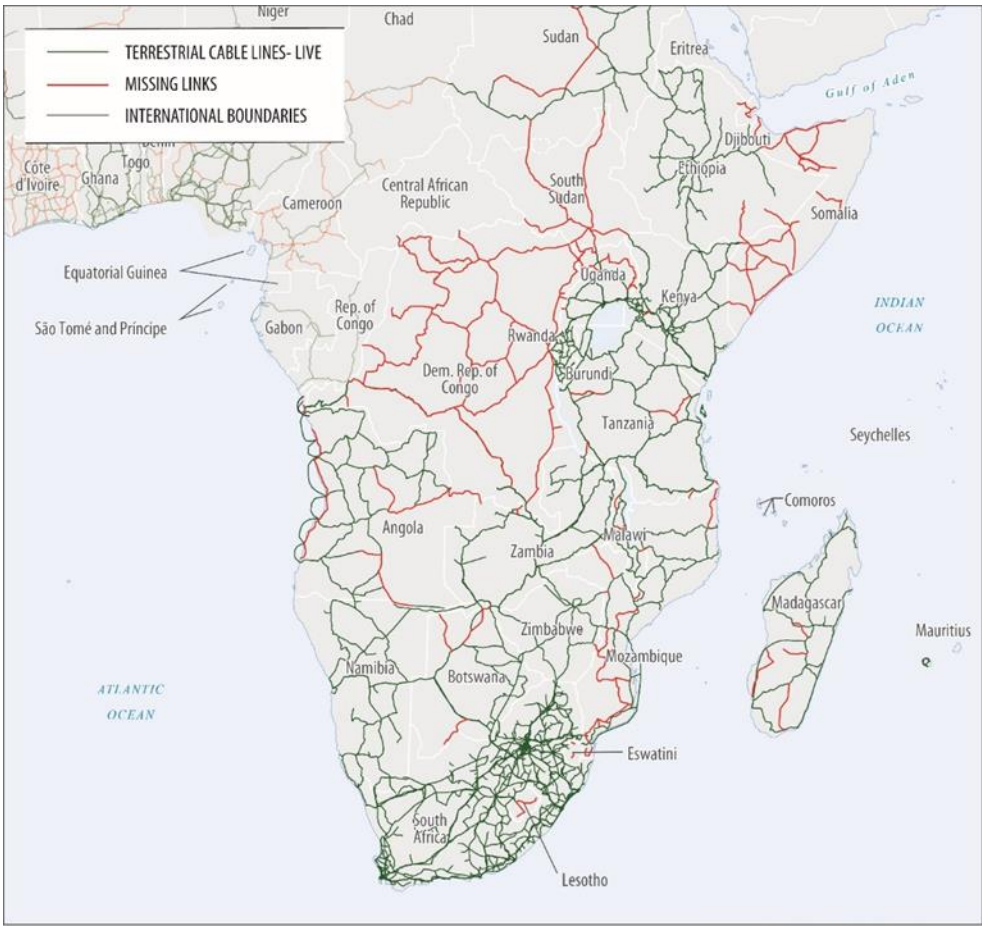
Note: 4G = Fourth generation mobile communications; GNI = Gross national income.
Source: a) GSMA Intelligence, b) ITU, c) World Bank ID4D, d) World Bank Findex.

6. **Among key challenges, internet coverage is limited, including in rural areas and due to missing cross-border infrastructure between countries and in rural areas, and 4G+ coverage is lagging.**[8] While internet coverage has increased across the continent over the last decade, the region still needs more than 100,000 km of additional broadband links to

[5] G2Px = Government to persons digital payments.
[6] World Bank. 2022. *The Role of Digital in the COVID-19 Social Assistance Response.*
[7] When measured for mobile broadband coverage, mobile broadband subscriptions, people with digitally verifiable identification, and the price of 2 GB per month data.
[8] TeleGeography. www.telegeography.com.

guarantee route diversity ('missing links'[9] on Figure 2). These missing links prevent the cost-effective distribution of international traffic and are holding back countries from reaping the benefits of increasing international capacity arriving to the continent through the growing number of submarine cables. Most of these missing links pass through rural areas (where 62 percent of the region's population resides), which could reduce the existing rural-urban divide. Furthermore, upgrading from third generation mobile communications (3G) coverage to 4G coverage and above (4G+), would allow for higher-quality connectivity and significant energy efficiency gains, yet 4G+ coverage still varies greatly (99 percent in South Africa to below 35 percent in Angola and Democratic Republic of Congo [DRC]).[10]

Figure 2: Missing links in Eastern and Southern Africa



7. **There is also an emerging digital divide in data infrastructure across the continent, exacerbated by low levels of government and private sector adoption of cloud computing.** Data can offer enormous developmental benefits but only when processed and shared. It is estimated that a 75 percent increase in data infrastructure capacity is needed across the continent in the next decade to be able to process the growing volumes of data.[11] However, investment is currently constrained in some countries by rigid regulatory requirements, including those preventing the cross-border flow of data, weaknesses in the business climate, fragmented demand, and inadequate provision of key enablers such as connectivity and green energy, which are limiting the emergence of data infrastructure and cloud computing markets at the regional and national level. For government data specifically, the region is characterized by country- and sector-level data silos, implemented on government-owned and -operated data infrastructure, which are not adequately secure, are not environmentally or financially sustainable, and do not offer the performance or scalability needed to meet digital transformation ambitions. This approach has poor cost-efficiency, security, and disaster resilience while also representing a missed opportunity to mobilize the private sector with a stark contrast to good practices from advanced economies, which aim increasingly to capitalize on safe and trusted, commercial cloud solutions. There is a risk of a widening digital divide if AFE governments cannot enable and facilitate the capital investments needed to bridge the continent's data infrastructure gap.

[9] Analysis by the World Bank and Salience Consulting. 2023.
[10] GSMA (Global System for Mobile Communications Association) Intelligence Database.
[11] Xalam. *African Data Center Gigawatt*. 2022.

8. **Even where available, internet use is constrained by low affordability of both the data and digital devices.** Smart devices are critical for internet access, but the cost of a smartphone for the poorest 20 percent in sub-Saharan Africa is equivalent to 105 percent of the average monthly GNI per capita,[12] and consequently, a large part of the population is unable to own a smartphone. Even for those with smart devices, data may be unaffordable, costing approximately 5.6 percent of GNI per capita per month (over twice the recommended target). Consequently, average data consumption in AFE is only 0.3 GB per capita per month, almost 80 percent below that estimated to meet daily basic needs.[13]

9. **To accelerate usage and impact, countries in AFE still need to establish and strengthen key building blocks for digital service delivery.** As more transactions move online, there is a need for robust DPI to equip people with the ability to securely prove their identity digitally and carry out transactions completely online where appropriate. Digital ID, DFS, and data sharing—the three main building blocks of DPI—can help reduce the risk of fraud, enhance regulatory compliance, and expand usage. For digital ID to be inclusive and trusted, it must be supported by a robust legal ID system, such as a population registry or civil registration system.[14] However, nearly 40 percent of the population in AFE does not have any type of ID, which severely limits their ability to access basic services. Despite progress in addressing the gender gap in certain countries, women residing in low-income countries remain 8 percentage points less likely to possess an ID compared to men.[15] While some countries, such as South Africa, have made strides in expanding ID coverage, others, such as DRC, are yet to begin the rollout of a foundational ID. The state of DFS is similarly varied, with progress in financial inclusion driven by mobile money, and notable sub-regional and nascent continental efforts aimed at improving the interoperability of financial market infrastructures. However, women and the poorest 40 percentage in each country in Sub-Saharan Africa were still 6 and 13 percentage points less likely, respectively, to have made digital payments in the last year than the Sub-Saharan Africa average of 50 percent of adults.[16]

10. **Digitalization brings increased risks pertaining to data and consumer protection and cybersecurity, but the region remains unprepared to mitigate these risks, holding back the production and use of digital services.** Reportedly, Kenya lost US$295 million[17] or 0.4 percent of its GDP over a year, to malicious cyber activities, and Uganda lost US$11 million over the same period.[18] Several countries in AFE still lack adequate legal frameworks for personal data protection, while others rank among the lowest on the Global Cybersecurity Index of the International Telecommunication Union (ITU), while lack of anti-money laundering laws and other aspects pose a risk for DFS. At the same time, several countries in AFE have stringent data localization regimes, restricting the flow of cross-border data, which in turn, limits trade in digital services. Therefore, there is a need for AFE countries to put in place adequate policy, regulatory, and enforcement measures to ensure a secure and trusted online environment while enabling and promoting the secure transfer and sharing of data and payments across borders. Regionally harmonized frameworks, knowledge sharing, and collaboration could help countries better manage associated risks and facilitate the flow of cross-border digital services; however, regional efforts to enhance the trust environment, such as the Malabo Convention, AfricaCERT,[19] and the Data Policy Framework of the African Union (AU), are still in early stages and/or are being updated.

11. **Digitalization is also hampered by limited productive usage as well as skills and competencies to develop digital services.** By 2030, new jobs in AFE are expected to largely stem from the services sector and, particularly, from rapidly

[12] GSMA Intelligence calculations based on pricing data from Tarifica. See GSMA, State of Mobile Internet Connectivity Report 2022.
[13] World Bank. 2023. *Digital Africa, Technological Transformation for Jobs*.
[14] Sometimes referred to a foundational ID, the definition of legal ID follows the Principles on Identification for Sustainable Development: "Legal identification systems provide recognition before the law and proof of legal identity. The name and nature of legal identification systems varies under national law, but typically includes civil registration systems, national identification systems, population registries, and other foundational identification systems." https://www.idprinciples.org/.
[15] Identity for Development (ID4D). *Annual Report 2022*.
[16] World Bank. 2021. *Global Findex.*
[17] Serianu. 2018. *Kenya Cyber Security Report*. Serianu, Nairobi, Kenya.
[18] Serianu. 2018. *Uganda Cyber Security Report*. Serianu, Nairobi, Kenya.
[19] The African forum of computer incident response teams. Africacert.org.

growing digitally enabled services, which require intermediate/advanced digital skills, as well as basic financial and digital literacy. The region, however, remains unprepared, with a large digital skills gap and persisting gender disparities in countries.[20] The region also sees relatively low technology adoption among firms, limiting their productivity and job creation.[21] Finally, such skill deficit affects the public sector as well, which struggles to keep up with the rapid technological advances.

12. **The Inclusive Digitalization in Eastern and Southern Africa (IDEA) Program sets out an ambitious agenda to address the above constraints and accelerate digitalization toward universal digital access and usage to deliver development impact across AFE.** IDEA presents a framework to accelerate solutions to address the digital divide in AFE, with a proposed financing envelope of up to US$2.48 billion (including IDA and IBRD financing), across more than 15 countries and Regional Economic Communities (RECs) to increase internet usage by an additional 180 million people.

C. Relevance to Higher Level Objectives

13. **The IDEA Program supports the World Bank's mission of ending extreme poverty and boosting shared prosperity on a livable planet and is aligned with the objectives and approaches under the World Bank's Evolution priorities.** IDEA is expected to support countries in achieving regional digital targets, aligned with the new corporate scorecard, using a programmatic approach and leveraging financing instruments from across the World Bank.

14. **At a continental level, IDEA responds to the AU Digital Transformation Strategy, which calls for achieving universal access by 2030.** In line with the United Nations (UN) Sustainable Development Goal 9, the 2022 Dakar Call to Action, and Agenda 2063, IDEA sets out a bold vision for achieving 'Universal Digital Access' in Africa by 2030. It will advance the 'Single Digital Market Framework' for East Africa, reducing barriers for regional telecom infrastructure and digital services across border and promoting regional digital market integration.

15. **IDEA aligns with the World Bank priorities for AFE, as well as those under applicable national Country Partnership Frameworks (CPFs).[22]** It complements ongoing national operations and responds to goals around FCV, livable planet, and reducing gender gaps. IDEA is a Multiphase Programmatic Approach (MPA) that supports regional integration and the development of key foundations for the digital economy. All national operations included in the program will respond to the most recent CPF and aim to leverage and enhance the existing portfolio in the respective country. IDEA will also contribute to the World Bank's FCV Strategy 2020–2025, which recognizes the role of digital transformation in promoting peace and reducing economic exclusion. It will also aid in narrowing gender gaps in alignment with the World Bank Gender Action Plan (FY24–28).

16. **IDEA follows the World Bank's 'cascade principle' for maximizing finance for development (MFD), private capital enabling (PCE), and private capital mobilization (PCM)**. IDEA aims to enable and catalyze private capital through IBRD/IDA loans and guarantees, financing from the International Finance Corporation (IFC), and de-risking solutions from the Multilateral Investment Guarantee Agency (MIGA) and World Bank's capital-enabling upstream reforms while leveraging the World Bank's knowledge and convening power (see Box 1) to bring about the reforms.

17. **IDEA will support countries in achieving their Nationally Determined Contributions (NDCs).** It will contribute to participating countries' overall low-carbon and climate-resilient development goals. Operations in Angola, DRC, and Malawi, in the first phase of the MPA, have prioritized energy efficiency, renewable energy, and climate-resilient infrastructure in their NDCs to which IDEA contributes by integrating relevant climate mitigation and adaptation measures. Detailed information for each of the operations can be found in Annexes 2-5 while climate is covered in Annex 6.

[20] ITU. 2022. *Measuring Digital Development Facts and Figures*.
[21] The World Bank. 2023. Digital Africa: *Technological Transformation for Jobs*.
[22] For Angola, a new CPF is under development covering FY23–28; for DRC, the CPF covers FY22–26 (168084-ZR); for Malawi, the CPF covers FY21–25 (154505-MW); and for Zambia the CPF covers FY19–23 (128467-ZA).

Box 1. IDEA MPA Adopting a 'One World Bank Approach' to Accelerate Digitalization

A joint working approach between World Bank, IFC and MIGA has been formulated encompassing the following:

- **Joint analytics, research.** Joint analytical products are currently being carried out, for example, the Digital Economy for Africa (DE4A) which has been conducted in more than 20 countries in Africa. Other analytical work, primarily those led by the World Bank are being peer reviewed by IFC teams, furthering common understanding, thinking, and recommendations. A joint financing instrument workshop between the World Bank, IFC, and MIGA was conducted in February 2024 to build familiarity with investment instruments across institutions. Follow-on workshops are planned for additional optimization and synergies. This approach is expected to be expanded through forward-looking analytics supported through IDEA.
- **Joint engagement with the private sector.** The World Bank, IFC, and MIGA have been and will continue to have joint engagement with the private sector, or consultation and discussion of priorities and opportunities where relevant, be it through regional flagship events (for example, the GSMA Mobile World Conference), bilateral meetings with operators and partners, country-focused discussions or roundtables.
- **Joint teams and working cadence.** Joint project preparation missions have and will continue to be conducted for preparation and supervision of operations under the IDEA Program as relevant. The teams will set up one joint project team across the World Bank, IFC, and MIGA as needed early on to work on selected areas of engagement.

Selected areas of engagement. At both national and regional levels, areas of engagement have been identified to implement the abovementioned joint approach. This has been based on assessing the development needs of the region with related prioritization, and also evaluating areas where the one World Bank approach could provide additional value. Many of the areas of engagement are starting to see joint work being carried out beyond the IDEA MPA, with the intention to make these more systematically through the program:

- **At the national level,** areas of engagement include the following: (a) state-owned enterprise (SOE) restructuring, private sector participation strategies, and reform through joint support from the World Bank, IFC advisory, IFC corporate finance, MIGA guarantees, and World Bank technical assistance (TA); this is currently ongoing in Angola, Ethiopia, and Namibia; (b) connectivity in rural areas through World Bank offtake agreements or bulk purchase (viability-gap funding) for connecting key institutions (schools/hospitals and rural areas) and IFC/MIGA commitments through term sheets for potential private sector bidders to deploy fiber backbone links and last-mile access networks; this model is being designed in DRC under IDEA; and (c) creating a Policy Compact by advancing joint World Bank and IFC public-private policy dialogue, which can leverage trust funds and or complementary Development Policy Operations (DPOs) in the future, related to new technologies, infrastructure sharing, taxation, cyber/data protection, foundational ID requirements, and other related areas.
- **At the regional level,** areas of engagement include: (a) building regional digital infrastructure through joint market sounding exercises; sequenced investments with World Bank financing to governments or MIGA guarantees up front and follow-on financing to private contractors from IFC, as needed, through alignment of pre-qualification requirements and early preparation of term sheets; (b) potential parallel co-investments using financial instruments such as guarantee schemes, blended financing, performance-based grants, and/or regional financing facilities, and other mechanisms; (c) addressing device affordability through de-risking via guarantees (MIGA), subsidies for consumers at the bottom of the pyramid (World Bank), or consumer credit enhancement mechanisms via financial intermediaries (World Bank and IFC) through on-lending; and (d) investing in green data centers by supporting demand aggregation through bulk purchase offtake agreements (World Bank) and enabling investments of private sector players in data storage facilities (IFC and MIGA) with targets for green energy use.

D. Multiphase Programmatic Approach (MPA)

(i) Rationale for Using MPA

18. **Using the MPA allows IDEA to 'Go Big', pooling financing of US$2.48 billion across multiple recipients and achieving impact at scale toward regional digital development and universal digital access in AFE by 2030.** The MPA will bring together more than 15 countries, RECs, development partners, multilateral financial institutions (MFIs), IFC, and MIGA under one program, which is expected to accelerate the achievement of universal digital access and usage, including increasing the number of people with new or enhanced Internet access by 180 million and the number of people using digitally enabled services by a 100 million. A long-term engagement, estimated at eight years, sends a powerful signal of commitment and becomes a platform for crowding-in resources from partners, including co-financing from other MFIs

(Asian Infrastructure Investment Bank, European Union [EU], African Development Bank [AfDB], and so on), leveraging the 'One World Bank' approach (Box 1) with IFC and MIGA to crowd in private sector capital (PCM/PCE).

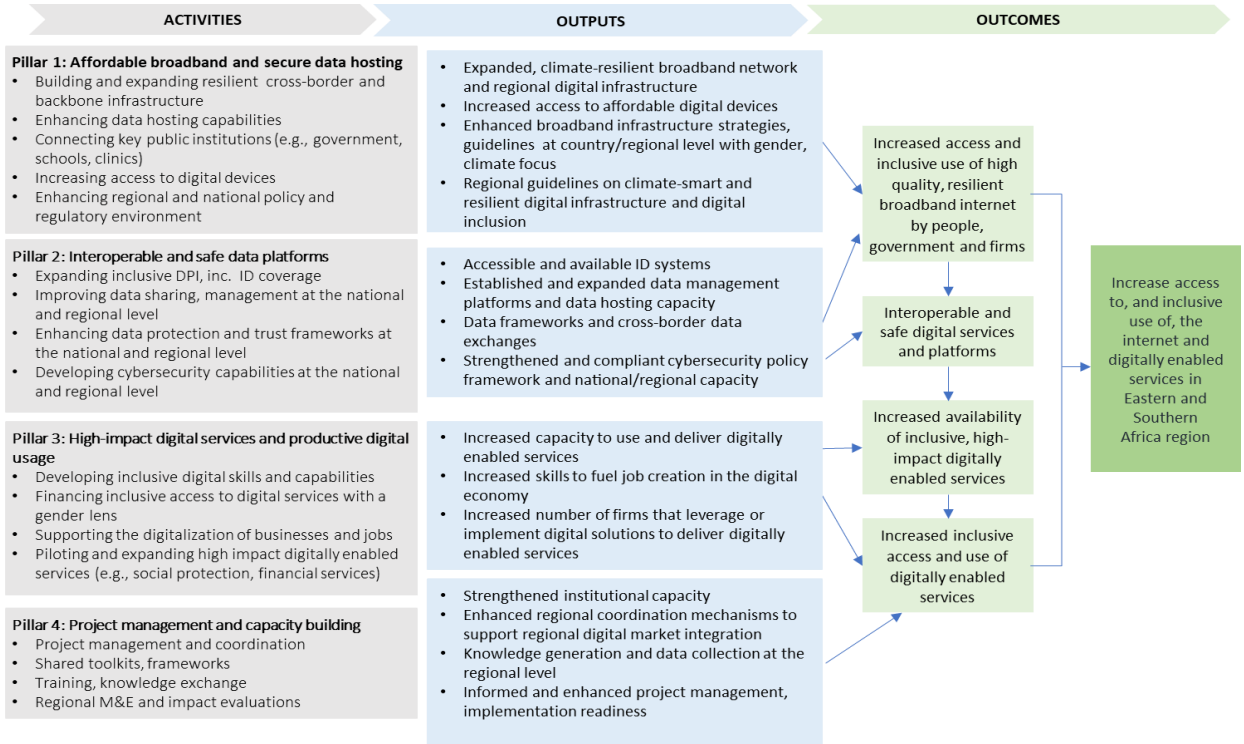
19. **Using the MPA enables IDEA to help participating countries to 'Go Fast' through a customizable menu of options strengthening incremental local capacity.** The MPA will offer a 'menu of options' of investments; technical assistance results indicators for countries to select from, based on their needs and priorities. It will offer opportunities to simplify and standardize interventions that support key regional priorities, such as private sector engagement, climate change mitigation and adaptation measures, and other interventions that support gender parity and inclusion, and to access regional financing facilities to accelerate scaling interventions.

20. **The MPA allows the use of various instruments, such as Investment Project Financing (IPF) and Program for Results (PforR).** This gives the flexibility to use either instrument according to the borrower's needs and existing capacities geared toward achieving a unified program objective. The combination of instruments under the MPA allows for more customized responses at the country level.

21. **The emphasis on the learning agenda under the MPA allows IDEA to 'Go Smart' by capturing learnings continuously, given the rapidly evolving nature of the digital sector.** IDEA will leverage the speed and innovation of private sector partners and the expertise of other World Bank sectors to jointly develop policy compacts, smart tools, and solutions. Using phases will allow countries to join when they are ready, and help learning between peers and build in incremental capacity in participating countries. Monitoring and Evaluation (M&E) will be conducted using real-time, short-term and longer-term methodologies.

(ii) Program Results Chain

Figure 2. Results Chain



Assumptions: (a) national-level operations can receive sufficient IDA/IBRD allocation; (b) country and regional stakeholders are mobilized and able to contribute to the PrDO; (c) countries join in future phases to allow the program to reach scale and have the expected regional impact

22. The IDEA Program is structured around three technical pillars, which encompass the foundations, key enablers and accelerators for digital development, as well as a fourth pillar focused on project management and capacity building to support implementation, knowledge generation and regional coordination. Through the flexible menu of options offered under each pillar and a regionally coordinated approach to knowledge sharing, policy and regulatory harmonization, and pooling of financing with economies of scale, the IDEA Program is expected to increase access to and inclusive use of the Internet and digitally enabled services, accelerating the pace at which the AFE region is expected to reach universal digital access and increasing the rate of digital adoption. Long-term impact of the IDEA Program is expected to include increased economic diversification and digital trade, stronger resilience to shocks, and new income generation opportunities in the AFE region.

(iii) Program Development Objective with Key Program Indicators with Baselines and End Targets

23. **The Program Development Objective (PrDO) is to** "Increase access to, and inclusive use of, the internet and digitally enabled services in Eastern and Southern Africa." The PrDO and its relevant indicators will be measured in all participating countries. **PrDO indicators** include the new World Bank-wide Corporate Scorecard Indicators (CSIs) (Table 1).

Table 1. PrDO-level indicators

PrDO Indicators	Baseline (2021)	Target (2032)
People using broadband internet (number of people)	0	180,000,000
- Of which, female	—	*90,000,000*
People with digitally verifiable ID (number of people)	0	100,000,000
- Of which, female	—	*50,000,000*
People using digitally enabled services (number of people)	0	100,000,000
- Of which, female	—	50,000,000
Volume of international data traffic (used international bandwidth in kbit/s per capita)	34.5	90

(iv) Program Framework

24. **Countries and regional bodies will join IDEA based on their eligibility and readiness.** The MPA will follow a strategic sequencing, beginning by targeting countries that have less than 50 percent 4G coverage, followed by those that are needed for regional expansion and countries where existing operations can be scaled toward accelerating universal digital access. Table 2 reflects the countries that have requested to join the IDEA and the expected timeline for them to join. The duration of the entire IDEA MPA is expected to take place over an estimated period of eight years, as countries will be expected to join in three batches (FY24–26). Each operation is expected to last up to six years based on the duration of the new generation of digital projects, which cover more than one pillar proposed under the MPA. There will be an opportunity to scale up existing operations under the IDEA MPA, depending on implementation performance and availability of financing. The operation under the Common Market for Eastern and Southern Africa (COMESA) is expected to last over the entire Program duration to ensure Program-level monitoring up to completion.

25. **The first phase of the MPA will include four operations** (see Annexes 2 to 5 for COMESA, DRC, Angola, and Malawi, respectively):

- **The first phase of the IDEA MPA includes a regional IDA grant to COMESA.** The rationale for starting the IDEA MPA with COMESA[23] is to ensure that an appropriate REC can lead regional coordination of IDEA and create key foundations and a mechanism for learning for regional implementation. COMESA is mandated to support the creation of a common market and enhance digital infrastructure, supporting transition toward a digital free trade area across most of the countries that the IDEA MPA covers. COMESA is also implementing directly relevant projects by the World Bank and development partners (Box 2), notably the Accelerating Sustainable and Clean Energy Access Transformation (ASCENT, P180547) Program, which has strong links to IDEA. Starting with COMESA

[23] COMESA formally requested participation in the IDEA MPA by a letter sent on February 20, 2024.

under the first phase of the MPA will ensure regional coordination and M&E across participating countries and existing initiatives from the outset as well as supporting the development of key foundational tools and frameworks to accelerate project preparation and increase implementation readiness for countries to be added later under the MPA.

26. **The first phase of the IDEA MPA will include three IPF for Angola, DRC, and Malawi.** Relevant details are provided in the Annexes. The rationale for their inclusion in the first phase is based on complementarity with existing portfolio and that they each have internet coverage below 50 percent, hampering the development of national and regional digital markets. Angola and DRC are two of the largest markets in AFE, with common borders, and are both engaged in a dialogue to strengthen the building blocks of their digital economy, nationally and across borders. Malawi is smaller and is one of the world's poorest economies. Fiber optic submarine cables landing on Angola's coast could allow it to play a greater role in increasing international internet access for countries in the region further inland, to DRC and Malawi, and to Zambia (proposed to be covered in the next phase), on the back of regional connectivity network expansion. DRC's geographic location makes it key for regional digital market integration, among others, as a crossroad for digital connectivity in Central, Eastern Africa, and Southern Africa. However, this potential is currently hampered by low levels of digital coverage and usage in both countries. The first phase of the MPA will support the three Governments in their strong commitment to accelerate digitalization and expand regional digital trade to support economic diversification and transformation.

Box 2. IDEA MPA Leveraging Existing Regional World Bank Initiatives

Cross-sectoral synergies under the Program are envisioned in the following:

Analytics. Ongoing efforts include the DE4A initiative. Forward-looking analytics are expected between digital development and energy sectors, focusing on bundling power utilities with telecom access and expanding on analytics of the Energy Sector Management Assistance Program (ESMAP) through overlaying maps with digital connectivity and data infrastructure, particularly to connect schools and clinics to the internet and electricity at the same time and overlaying climate risks.

Investments. Several initiatives are expected for combining investments between sectors, such as aligning digital and energy access investments, particularly for schools and health clinics; bundling device affordability device schemes; and focusing on high-impact use cases on social protection, financial services, and disaster risk management among others to accelerate uptake of digitally enabled services and increase their impact. IDEA will leverage existing implementation structures and arrangements under ongoing regional MPAs in the region, such as the ASCENT Program (P180547), and the Regional Infrastructure Investment Facility (RIFF, P171967) Project. It will work with the same implementation agency, COMESA, and explore synergies with the Trade and Development Bank. Activities under IDEA will also complement ongoing interventions, for instance, leveraging the ASCENT Program's energy mapping, device financing and statistical monitoring efforts in the AFE region. IDEA will also leverage the regional regulatory and policy harmonization activities under Eastern Africa Regional Digital Integration Project (P176181), in collaboration with other regional economic communities such as the East African Community.

Complementarities. IDEA will not be able to cover each sector in depth but will be complementary to other, deeper sector-specific activities (such as for social protection activities or TA for financial sector regulations to enable DFS). It will build on these complementarities and synergies across and sectors, including financial and private sector development, trade and logistics, education, social protection, health, and infrastructure.

(v) Learning Agenda

27. I**DEA will establish a regional knowledge exchange platform to facilitate an exchange of experiences and lessons across participating countries, including the effectiveness of the program in the short term, and its impact in the medium to long term.** In the short term, the learning agenda under the IDEA Program will support the development of strategies to improve effectiveness in implementation and uptake of the digital interventions, focusing on technical aspects. These findings will be used to create a feedback loop and inform program implementation and seek mid-course adjustments. Initial countries will be selected to exemplify varied stages and conditions of digital access across AFE and provide lessons for the design and implementation of country operations in subsequent phases. Particular attention will

be paid to documenting learning from FCV contexts, with a view to developing replicable and scalable approaches. Lessons will be shared with all countries participating in the Program as well as those which are looking to join later.

28. **In the medium to long term, the learning agenda under IDEA will assess the economic and social impact of specific interventions under digital access and usage.** IDEA will assess the impacts of digital interventions for people along gender and other considerations for inclusion through assessments, studies and impact evaluations. Research questions can cover, among other areas, the impact of improved connectivity on beneficiary welfare; the impact of connectivity on firm productivity and employment creation; the impact of access to affordable, broadband-enabled devices and beneficiary income, employment, and well-being; the effect of digitizing selected public services on the uptake of these services; the impact of connectivity and access to broadband-enabled devices on learning outcomes; the impact of the completion of digital skills programs on beneficiary income and employment; and the links between the introduction of regulations and policies to enhance the trust environment for electronic transactions and consumer uptake of digitally enabled services. These efforts will be supported by the World Bank Development Research Group, the Office of the Chief Economist, and Development Impact Evaluation.

Table 2. Planned Use of Funds under the MPA

Phase #	Operation ID	Sequential or Simultaneous	Phase's Proposed DO	IPF or PforR	Estimated IBRD Amount (US$, millions)	Estimated IDA Amount (US$, millions)	Estimated Other Amount (US$, millions)	Estimated Approval Date	Estimated Environmental and Social Risk Rating
1	P502532 COMESA	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Eastern and Southern Africa	IPF	0	10		June 27, 2024	Moderate
2	P180495 Democratic Republic of Congo	Simultaneous	Increase inclusive access and use of the internet, and strengthen the foundations for digitally enabled services in DRC	IPF	0	400	275 (of which 110 co-financing (100 EUR) and 165 UCF)	June 27, 2024	Substantial
3	P180693 Angola	Simultaneous	Accelerate digital inclusion, increase access to digitally enabled services, and unleash digital opportunities for the advancement of Angola's digital economy	IPF	300	0	80 (UCF)	June 27, 2024	Moderate
4	P505095 Malawi	Simultaneous	Increase access to and inclusive use of the internet and improve the government's capacity to deliver digitally enabled services	IPF	0	70	20 (UCF)	June 27, 2024	Substantial
5	P505094 Zambia	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Zambia	IPF	0	100		FY26	Moderate
6	Tanzania	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Tanzania	IPF	0	300		FY26	Substantial
7	Botswana	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Botswana	IPF	100	0		FY26	Moderate
8	Malawi (Second Phase)[24]	Simultaneous	Increase access to and inclusive use of the internet and improve the government's capacity to deliver digitally enabled services	IPF	0	80	30 (UCF)	FY26	Substantial
9	Eswatini	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Eswatini	IPF	40	0		FY26	Moderate
10	Lesotho	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Lesotho	IPF	0	40		FY26	Moderate

[24] The country is committed to expanding the Program's scope in the near future. Thus, the overall investment in Malawi is split into two operations commensurate to the existing implementation capacity (US$70 million in the first operation and US$80 million in the second, thus totaling the US$150 million appraised amount). This approach is deemed necessary to ensure the successful implementation of the Program in the country.

Phase #	Operation ID	Sequential or Simultaneous	Phase's Proposed DO	IPF or PforR	Estimated IBRD Amount (US$, millions)	Estimated IDA Amount (US$, millions)	Estimated Other Amount (US$, millions)	Estimated Approval Date	Estimated Environmental and Social Risk Rating
11	South Sudan	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in South Sudan	IPF	0	150		FY27	Substantial
12	Madagascar	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Madagascar	IPF	0	200		FY27	Substantial
13	Burundi	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Burundi	IPF	0	150		FY27	Substantial
14	Kenya	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Kenya	IPF	0	200		FY27	Substantial
15	Sao Tome e Principe	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Sao Tome e Principe	IPF	0	40		FY27	Moderate
16	Ethiopia	Simultaneous	Increase access to, and inclusive use of, the internet and digitally enabled services in Ethiopia	IPF	0	300		FY27	Substantial
Total					**440**	**2,040**			
Estimated Total MPA Financing Envelope					**US$2,480**				

II. PROGRAM DESCRIPTION

A. Program Pillars

29. **IDEA will have four pillars in line with the focus areas, within the priorities outlined in the World Bank Evolution, and adapted to AFE needs to offer a flexible menu of options.** The pillars provide a holistic approach to supporting digitalization, building on lessons learned from previous projects and findings by the Independent Evaluation Group (IEG) that showed the importance of combining demand-side investments with those on the supply-side, focused internet connectivity, to produce tangible results and impact. Each pillar covers a menu of options from which participating countries will have the flexibility to select, based on their priorities, readiness, underlying enabling environment, and available resources. The proposed menu of options can be simultaneous or sequenced depending on the country context, and will incorporate the One World Bank approach, facilitate PCM, and incorporate climate mitigation and adaptation principles. The list of optional interventions under each pillar is commensurate with the division of financing across the pillars, with the estimation that Pillar 1 is expected to have the relatively highest allocation across the operations under the Program. Annexes 2-5 detail the approach and specific menu of options applied for each recipient under the first phase of the IDEA Program.

Menu of Options

30. **Pillar 1: Affordable broadband and secure data hosting**. This pillar focuses on expanding essential, high-quality, resilient, and affordable broadband infrastructure and services while supporting investment in secure data infrastructure and the development of cloud and data hosting markets. Activities under this pillar aim to strengthen institutions and help drive private investment in telecom networks and data hosting facilities, which are key foundations for using digital technologies and data productively. Activities under this pillar are outlined in the following paragraphs:

Sub-pillar 1.1: Building and expanding resilient national and regional infrastructure

(a) Financing investments and associated TA, toward a regional or national financing facility to support digital access; Financing, and associated TA, to catalyze regional or national expansion of digital infrastructure, including the design of a financing facility to support digital access;[1] extension of cross-border broadband links; TA, and provision of additional connectivity, for underserved groups, such as rural and climate-vulnerable populations, women, the elderly, and persons with disabilities (PWDs); and TA to develop and participate in integrated infrastructure mapping and a study of least-cost options to cover pending connectivity and data infrastructure needs at the regional level, to be coordinated with energy access planning, leveraging similar activities under the ASCENT MPA (P180547).

(b) Financing investments and associated TA, to incentivize the private sector to upgrade regional networks for first-, middle- and last-mile broadband infrastructure, including upgrading from copper to more, climate-smart infrastructure, using appropriate methodologies for competitive selection. For instance, existing second generation mobile communications (2G) cellular networks might be upgraded to 4G and above, or low-earth orbit (LEO) satellite technologies may be leveraged, yielding higher energy efficiency and closing the remaining coverage gaps for mobile broadband. Catalytic financing for upgrading and extensions provided through the Program will ensure and promote climate co-benefits.

Sub-pillar 1.2: Connecting key public institutions

(a) Demand aggregation for internet capacity through bulk prepurchase, where applicable, to ensure sustainability, at the country and regional levels, for key public institutions (for example, schools, national research and education networks (NRENs), health clinics, and government institutions) in coordination with parallel efforts by other programs such as the ASCENT MPA (P180547).. A particular focus will be on connecting schools, with a digital mapping exercise coordinated with the energy sector, to offer joint provision of connectivity and renewable energy to targeted institutions. The World Bank will also partner with related programs—notably Giga's school connectivity, HealthConnekt's programs, or the initiatives on capacity demand aggregation of EU AfricaConnect and Smart Africa

that offer increased scale with the aim of providing universal connectivity to higher education institutions (HEIs), schools and clinics.

(b) Co-investment, with the private sector, for in-campus and in-building connectivity and for last-mile connectivity for educational institutions and clinics, using the most cost-effective technology, through competitive selection processes, such as reverse auctions.

Sub-pillar 1.3: Enhancing data hosting capabilities

(a) Financing investments and associated TA, for the design and deployment of secure, financially viable, and environmentally sustainable government data hosting, leveraging a combination of country-specific and regional data infrastructure in an integrated network, using the One World Bank approach to leverage private capital and private sector capabilities; and bulk purchase of data hosting capacity for public institutions to realize economies of scale and mobilize private investment data infrastructure at the national and regional levels.

Sub-pillar 1.4: Enhancing regional and national policy environment to increase digital access

(a) TA and capacity building to enhance policy and regulatory frameworks and standards for connectivity at the national and regional levels, covering various technologies, including satellites, and support the reduction of climate impact, increase resilience, and support digital inclusion (including for women, marginalized groups, and PWDs); and purchase of energy efficient equipment for the monitoring and management of scarce resources and quality of service (QoS) monitoring, for use by regulatory authorities.

(b) TA and capacity building to strengthen institutions and enhance private sector dialogue to enable and promote private sector financing in the sector, including competition, market entry and licensing, universal access funds, infrastructure sharing and spectrum management, and regulatory sandboxes to support innovation; reform SOEs and develop public-private partnerships (PPPs); and support climate change adaptation and mitigation.

Sub-pillar 1.5: Increasing access to affordable digital devices

(a) Design and capitalization of affordable smart device financing and guarantee schemes[25] for targeted groups (exploring affordable pricing models for devices and services for women and working mothers, PWDs, the elderly, students, and teachers) and relevant e-waste measures to reduce environmental impact and support livelihoods.

(b) TA to enhance the enabling environment and support reforms for making smart devices more affordable to support digital inclusion.

31. **Pillar 2: Interoperable and secure data platforms**. This pillar will focus on deploying interoperable DPI to enhance efficiencies in both public and private sectors, strengthening institutions, and developing the cross-cutting enablers and digital safeguards needed to promote trusted and safe use of digital technologies and digitally enabled services at the national level and across borders. Activities under this pillar are outlined in the following paragraphs:

Sub-pillar 2.1: Expanding coverage and use of legal ID, digital ID, DFS, electronic signatures, and trust services

(a) Financing investments and associated TA and capacity building, to improve coverage of legal and digital identification, including civil registration, which will be developed according to international good practices for inclusion, user-centric design, and good governance.[26] Specific areas of attention will include ensuring data protection by design and enrollment approaches that seek to maximize coverage of women, the elderly, climate-affected populations, and other vulnerable groups. To boost the enrollment of women, the Program will design specific campaigns and provide support to them throughout the process.

[25] These will be designed in future phases of the IDEA MPA and will be subject to Financial Intermediary Framework assessments.

[26] In particular, the project investments in identification systems will be aligned with the Principles on Identification for Sustainable Development: Toward the Digital Age, which encompass inclusion, design, and governance principles that have been agreed and endorsed by over 30 international stakeholders. https://www.idprinciples.org/.

(b) Financing investments and associated TA and capacity building to support the adoption of digital ID verification services by service providers in the public and private sectors to facilitate service delivery, with the focus on key sectors such as social protection and DFS, particularly to enable financial inclusion schemes that respond to climate and other shocks.

(c) TA and capacity building to support regulatory harmonization to support cross-border use of digital ID, DFS, electronic signatures, and trust services to enable regional electronic transactions; the emergence of regional digital markets, including for trust services; and investments in public key infrastructure (PKI) to support transactions that need a higher level of assurance.

Sub-pillar 2.2: Improving data governance, sharing, and management at the sectoral, national, and regional levels

(a) TA, capacity building, and convening stakeholders to support legal and regulatory reforms that strengthen country-level and regional-level data governance frameworks, including data protection, and consumer protection and promote regional harmonization of legal, regulatory, and data governance frameworks to enable (i) cross-border data flows needed to support regional cloud and data hosting market development; (ii) regionally harmonized security standards and trust frameworks for cloud and data hosting services; and (iii) cross-border trade in digital services, including DFS; and (iv) capacity building for key institutions involved in data governance and data sharing, such as national data protection authorities and others, including auditing and enforcement actions, leveraging peer-to-peer learning opportunities.

(b) Capacity building for key institutions involved in data governance and data sharing, such as national data protection authorities and others, including auditing and enforcement actions, leveraging peer-to-peer learning opportunities.

(c) TA and capacity building to establish enabling environments and define and adopt the common standards needed to promote interoperability and data sharing, including for DFS, using co-regulation approaches to facilitate interoperability both at and between sectoral, national, and regional levels.

(d) Financing investments and associated TA to deploy systems enabling trusted data sharing across sectors of government and between government and private sector entities and promote adoption of these systems by users.

Sub-pillar 2.3: Developing cybersecurity capabilities at the national and regional levels

(a) TA and capacity building to develop cybersecurity policies, guidelines, and related regulations at the regional and national levels, including the assessment of the current national cybersecurity maturity and development of national Cybersecurity Strategies and Implementation Plans.

(b) Establishment of a Critical Information Infrastructure Protection (CIIP) framework at the national level, which will also extend to e-government services.

(c) Financing investments for the establishment and strengthening of national Cybersecurity Incident Response Teams (CIRTs) and cross-border incident data sharing and response capabilities, among others.

32. **Pillar 3: High-impact digital services and productive digital usage.** This pillar focuses on (a) advancing digitally enabled applications and services, which can potentially have a high impact on economic and social activities (prioritizing social protection, education, DFS, and climate-related applications in the initial phases); (b) increasing digital and financial literacy to support general uptake of digital services; (c) strengthening digital skills and competencies among citizens, businesses, and the public sector; and (d) developing a digitally enabled entrepreneurial ecosystem to increase productive usage and the development of these services. Activities under the component are outlined in the following paragraphs:

Sub-pillar 3.1: Expanding high-impact, digitally enabled services

(a) Financing investments, associated TA and awareness raising for the digitalization of high-demand public services and selected high-impact use cases, which are in line with country priorities, as outlined in relevant CPFs, and aim to reach a large percentage of digital users. Activities under this sub-pillar will focus on the development of user-centric government front-end shared solutions for multi-channel delivery of key public services, built upon simplified digitally enabled back-end processes and whole-of-government digital coordination. Priority sectors include social protection, education, DFS, and climate-related applications in the initial phases, followed by other critical digitally

enabled services such as health, tax administration, trade, business and investment facilitation services, and the digitization of key documents such as birth certificates and business registrations. In each country, the precise selection of use cases will be made based on local demand and readiness for accelerating uptake and scaling up.

(b) Financing investments and associated TA, to support classification of sectoral data and systems, migration of legacy government data and platforms to modern data hosting and cloud environments, and business process and systems reengineering to integrate DPI into business processes and service delivery workflows.

(c) Financing investments and associated TA, for digital and financial literacy programs to support the uptake of digitally enabled services.

Sub-pillar 3.2: Developing digital skills and capabilities

(a) Financing investments and associated TA, for developing digital skills and capabilities, including certification programs linked to job placement; leveraging HEIs, technical and vocational education and training institutions (TVETs), and tech hubs to offer certified training courses tailored to private sector needs, along with comprehensive online safety courses, specifically designed with a lens for gender and child online protection;

(b) Innovative piloting and assessments of advanced digital skills trainings and their impact on job creation, income generation and the production of digitally enabled services;

(c) TA and capacity building to upskill the public workforce, including training and knowledge sharing for policymakers, regulators, and public administrators, to support the development and rollout of digitally enabled services, promote the safe application of emerging technologies, such as artificial intelligence, and ensure adequate digital safeguards.

Sub-pillar 3.3: Supporting the digitalization of businesses and entrepreneurship

(a) Development of digital entrepreneurship ecosystems through TA, performance-based grant financing, and internationalization programs, supporting businesses, entrepreneurs, academic start-up and innovation ecosystems, tech hubs, incubators, accelerations, and early-stage investors, among others.

(b) TA and financing for digitalization of businesses, including access to finance through performance-based grants to support technology adoption and utilization of DPI and DFS.

33. **Pillar 4: Project Management.** This pillar will support the critical building blocks for strong implementation, learnings, and coordination of the Program at regional and national levels. Activities to be financed are as follows:

(a) Supporting national project implementation units (PIUs) and a regional policy coordination unit (at COMESA), including key thematic experts, project managers, specialists for financial management (FM), procurement, environmental and social specialists, and others as needed.

(b) Institutional capacity-building activities at the national and regional levels, covering key topics to enhance implementation readiness (budgeting, procurement, and so on) and institutional adaptations required to adapt to the rapid changes in the technology landscape, change management, procurement, and quality assurance considerations for implementation, among others.

(c) M&E efforts and capacity building at the Program level and at the level of each recipient, strengthening efforts to collect timely, comprehensive, sex-disaggregated information and communication technology (ICT) data and conducting real-time, short-term and long-term impact evaluations and assessments.

(d) Peer-to-peer learning workshops, study tours, and the establishment of regional coordination platforms and tools for knowledge creation and sharing.

(e) Financing for stakeholder consultations and citizen engagement, paying special attention to ensuring that project interventions are designed to maximize the participation of women and PWDs in all activities and leveraging civictech tools where applicable.

(f) Financing of e-waste and activities related to Environmental and Social Standards (ESS).

Box 3. Regional Interventions for Future Phases under the IDEA MPA

The AFE region is characterized by challenges that transcend borders and would require common solutions in the form of coordination among countries on common approaches, reforms, and regional-level financing (including from other multilateral development banks, partners, and private sector) to address the challenges at hand at scale. The IDEA MPA will address this regional gap through working with RECs such as COMESA and others, which will aid in cross-country collaboration, as well as explore supporting regional-level financial intermediaries or setting up regional-level financing facilities to channel financing at scale. Selected regional-level interventions have been identified based on regional development needs and viability and need for regional support. These will be developed under Phase 1, through scoping assessments, and are expected to be capitalized in subsequent phases of the MPA. Interventions may include the following:

- **Building regional digital infrastructure such as cross-border links for landlocked countries.** The region has over 100,000 kms of "missing" links requiring heavy investment, with several routes having low commercial viability limiting private sector investment. The MPA expects to address this gap by (a) facilitating cross-country collaboration through RECs with memoranda of understanding for internet transmission, infrastructure sharing, and rights-of-way for facilitating cross-border internet sharing arrangements, which will create an enabling environment; and (b) deploying regional financing facilities, such as using a financial intermediary to increase debt, equity or blended financing for building regional infrastructure, or setting up a consortium of telecom operators to jointly build infrastructure or other related models, or creating off-take agreements through bulk purchase or first loss arrangements on select routes to incentivize private sector investment, among others. World Bank, IFC, and MIGA financing is expected to be jointly used to provide blended finance, guarantees, and direct support to private providers. This facility is also expected to channel additional financing from development partners.
- **Addressing challenge of device affordability in AFE through regional de-risking instruments.** In several low- and middle-income countries within AFE, entry-level mobile devices cost 16–55 percent of monthly incomes, rendering these unaffordable for a large section of the population. The MPA expects to address the affordability challenge through different models such as de-risking instruments (guarantees and blended finance) to manufacturers/suppliers of devices through financial intermediaries, or direct financial support to end consumers or telecom providers to expand access of devices.
- **Supporting regional energy efficient data hosting and storage facilities.** With less than 20 percent of low- and middle-income countries having modern data infrastructure, the demand to build this infrastructure in client countries, including across AFE, is rapidly growing. With the emergence of "hyperscalers", data centers that typically house 5,000 or more servers and allow for rapid scaling, there is an opportunity for aggregating demand across countries and a need for a regional dialogue to create a conducive enabling environment for cross-border data exchange. Data centers consume significant amounts of energy and require a consistent (24/7) energy supply, which is even more acute for hyperscalers. Data centers are not Paris Aligned, which means steps need to be taken to reduce the potential long-term carbon lock-in of these investments. Further, due to high requirements for renewable energy supply by data center investors, developing countries risk missing out on future investments if regulations and grids are not in place. One way to reduce the carbon lock-in risk is to build the data center in tandem with investments in renewable energy production, which can be the primary source of energy for the data center, while at the same time mobilizing critical private capital for renewable energy generation. Future phases of the MPA could provide financing toward regional mechanisms to leverage private financing for renewable energy-powered data center projects, thereby ensuring that both these increase digital connectivity, increase renewable energy generation, and ensure Paris alignment. The IDEA MPA will also support governments in formulating regulations on data sharing across borders and green energy use for data storage and de-risking financing toward regional data storage facilities through off-take agreements to purchase data storage capacity in bulk at the regional level or direct investments (IFC and MIGA) in data storage facilities in the region.

B. Program Beneficiaries

34. **IDEA will benefit people of the region, targeting specifically women; refugees and host communities; firms; and public sector ministries, departments and agencies (MDAs).** These are detailed in annexes 2–5 for each operation.

(a) **Citizens.** Approximately 180 million citizens will have new, and improved, access to internet connectivity. Approximately 100 million citizens, including refugees, members of host communities, and PWDs, will

benefit directly from digital identification (using accessible techniques and tools). At least 100 million citizens are expected to also benefit from digitally enabled services and increased access to online income generation opportunities. In each case, the target is to ensure at least half are women.

(b) **Firms.** ICT service providers, including mobile network operators, wholesale fiber network operators, internet service providers (ISPs), data center operators, and cloud service providers, will directly benefit from the program through contracts for infrastructure deployment and internet prepurchase as well as local procurement of ICT services, awarded on a competitive basis. Start-ups and entrepreneurship support organizations can benefit from TA and grant mechanisms. Micro, small and medium-sized enterprises will be able to benefit through increased access to the internet, smart devices, DFS, and skills training. Digitally enabled businesses in general will be able to benefit from increased access to markets through digital integration supported under the Program.

(c) **Public sector.** MDAs, particularly line ministries for ICT and trade, telecom and DFS regulatory bodies, digital government agencies, and data protection authorities in the countries will directly benefit from targeted financial and technical assistance. Public institutions (including unconnected government offices, HEIs) will also benefit from improved access to connectivity.

C. Rationale for Bank Involvement and Role of Partners

35. **While private sector financing has significantly increased for the digital sector, achieving universal digitalization in AFE requires public sector financing to address persistent gaps, and further enable and accelerate private sector investment.** AFE's investment gap to reach universal digital access is estimated to be around US$50 billion.[27] Private sector financing has significantly increased over the last decade, particularly from investment in mobile broadband. However, gaps remain, primarily related to a 'fixed digital infrastructure' gap (that is, deployment of broadband links, and last-mile connectivity). Although most of the investment is still expected to accrue from the private sector, public sector financing is still necessary to unlock greater private sector capital. For instance, some infrastructure deployment may be in areas of low commercial viability (for example, rural, remote areas and FCV contexts with high security premiums) requiring de-risking and financial incentives. Second, there is a financing gap pertaining to 'skills and content', where private investment would be needed to design and offer new digital skills programs, and public sector financing can help ensure wide access to digital skills training, especially for vulnerable groups (women, refugees and host communities, PWDs and others), and efforts aimed at upskilling civil servants in digital skills such as cybersecurity, data protection, and online safety for children, among others. Finally, there exists a pure public sector investment gap in 'policy and regulation' pertaining to the need to enhance the regulatory environment with respect to emerging technologies or other areas of competition, taxation, others, and strengthening regulators.

36. **IDEA's current overall financing envelope of US$2.48 billion is intended to address market failures and create markets to bridge some of the public sector financing gap toward universal digital access**. Research on broadband infrastructure deployment has shown[28] how certain environments may exhibit market failures due to scarcity of capital, excessive uncertainty, insecurity, crowding out by SOEs, or undervaluation of public good benefits. In such cases, public sector investment would be required. This investment can take the form of catalytic gap financing to promote digital infrastructure rollout in rural, remote areas; investing in expanding access to new digital skills and DFS; and improving the policy and regulatory environment with respect to emerging technologies, among others.

37. **IDEA will aid in bridging some of the private sector investment gap.** The MPA's activities have also been designed to crowd-in private capital.

[27] Broadband Commission Working Group on Broadband for All. 2019. *Connecting Africa Through Broadband: A Strategy for Doubling Connectivity by 2021 and Reaching Universal Access by 2030.*.
[28] World Bank. 2018. *Innovative Business Models for Expanding Fiber-Optic Networks and Closing the Access Gaps*.

- **PCE.** The IDEA Program is expected to enable private capital investments in the form of guarantees from MIGA; financing from IFC and other private investment institutions; and investments made by telecom, ICT, and DFS companies toward the project's long-term outcomes. Under the first phase of the IDEA MPA, US$780 million in World Bank financing is expected to enable about US$470 million in private capital, through processes of market liberalization and creation of new investment opportunities.
- **PCM.** The IDEA Program is expected to catalyze direct private sector investment in AFE. This will be achieved by using select instruments such as catalytic gap financing, performance-based grants, and others. Under the first phase of the IDEA MPA, US$780 million in World Bank financing is expected to mobilize US$265 million in unguaranteed commercial financing (UCF). A conservative approach was applied to the PCM calculations. While public-private sector financing ratios in comparative schemes in countries such as Tanzania (1:2), the Comoros (1:1.5), and elsewhere are known to be higher, conservative estimates have been taken due to (a) the low average revenue per user; (b) the impact of unstable foreign exchange rates and national shortages of foreign currency on investment costs in select markets; (c) lack of fully competitive markets and risk of licensing restrictions; (d) the FCV context with volatile political and security environments in some countries, affecting the investment climate and inflating deployment costs in several countries; and (e) low private sector appetite to invest capital up front within the time frame of project duration (eight years).

38. **Development partners have been consulted throughout project preparation to ensure coordination.** Consultations included technical discussions with development finance institutions, notably the Horn of Africa Initiative Secretariat, AfDB, EU, German Agency for Cooperation (*Deutsche Gesellschaft für Internationale Zusammenarbeit*, GIZ), and ITU on its support for affordable access to broadband. Consultations were held with Smart Africa, the GIGA initiative (led by ITU and United Nations Children's Emergency Fund [UNICEF]), the EU AfricaConnect program, and private sector.

D. Lessons Learned

39. **The program design draws on key insights highlighted by comprehensive analytical work related to digital economy and digital market integration.** The program design draws on key insights highlighted by comprehensive analytical work related to digital economy and digital market integration carried out in 26 countries in AFE. It is also informed by the two recent World Development Reports, *Digital Dividends*[29] *and Data for Better Lives*;[30] the *Single Digital Market for East Africa* report; the *Digital Infrastructure Moonshot for Africa* report with the United Nations Broadband Commission, *The Future of Work in Africa: Harnessing the Potential of Digital Technologies for All*;[31] and *Digital Africa: Technological Transformation for Jobs* reports. Three prefeasibility studies were conducted to inform the design of this project, with support from World Bank Trust Funds: Horn of Africa Broadband Missing Links Study (2022), digital market integration regulatory study (2022), and an assessment of missing broadband links and internet exchange points in Southern Africa (2023).

40. **The project also draws on the lessons learned from past World Bank digital operations and analytical work.** The operation builds on previous and ongoing World Bank investments at the regional and national level, including the Regional Communication Infrastructure Programs for West and East Africa (RCIP Projects); Central African Backbone Project (CAB-5,P132821); Eastern Africa Regional Digital Integration Series of Projects (EARDIP, P176181, P180931); the Western Africa Regional Digital Integration Series of Project (P176932); the West Africa Unique Identification for Regional Integration and Inclusion Program (P161329); the Kosovo Digital Economy (P164188, IPF); the Global Data and Cloud Infrastructure Study (P173032, ASA); Advice to develop the Government Cloud Platform and to migrate selected public digital services to the Cloud (P180766, Reimbursable Advisory Services); and projects in other sectors such as the ASCENT Program, the Regional RIFF Project, the DRC Transport and Connectivity Support Project (P178357), and AFCC2/RI-

[29] World Bank. 2016. *World Development Report 2016: Digital Dividends*.
[30] World Bank. 2021. *World Development Report 2021: Data for Better Lives.*
[31] World Bank. 2020. *The Future of Work in Africa: Harnessing the Potential of Digital Technologies for All.*

Regional and Domestic Power Markets Development Project (P097201). The Program design also incorporates the recommendations of IEG's 2011 report, *Capturing Technology for Development*, which highlights the need for a stronger focus on demand-side investments in digital skills and applications development, building on gains in internet connectivity to produce tangible results. Other lessons learned include modalities for private sector engagement and capital mobilization; ensuring an ecosystem-based approach, focusing on building the key pillars and distinct layers of the digital market; introducing both supply-side and demand-side interventions; supporting analogue and regulatory reform as a key complement to physical infrastructure investments among others. Lessons from past and current operations will also be applied toward enhancing implementation arrangements and institutional coordination both at the regional and national levels, and to enhance implementation readiness reflected for each operation under the IDEA Program.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

41. **COMESA meets all the eligibility criteria for receiving regional IDA funding, as it is a regional organization that has the legal status and fiduciary capacity to receive grant funding and the legal authority to carry out the activities.** The COMESA Secretariat is an experienced World Bank implementing agency, and the IDEA Program will leverage existing implementation structures and arrangements under the ASCENT Program and RIFF Project as much as possible to ensure a coordinated approach across the projects.

42. **Regional program implementation arrangements.** COMESA will host the Program Coordination Unit (PCU) and convene the Regional Program Steering Committee (RPSC). The PCU will directly coordinate with the PIUs at country level to ensure a region-wide approach. The RPSC will bring together all the participating countries and regional entities. To ensure a region-wide approach, it will also invite the AU Commission as a member to ensure coordination with RECs that are undertaking relevant initiatives. Regional coordination will also leverage the convening mandate of Smart Africa through the Western African Regional Digital Integration Project (P176392), with RECs such as the East African Community (EAC), the Southern African Development Community (SADC), the Intergovernmental Authority on Development, and the African Association of Central Bankers, among others. COMESA will also provide practical tools and capacity building for countries participating in the IDEA MPA to help them increase their implementation readiness, which is detailed in annex 2. The PCU will convene country PIUs on an annual basis, which will be detailed in the Project Operations Manual (POM). If countries participating in the IDEA MPA are not members of COMESA, a mutual agreement can be reached between the particular country and COMESA to ensure that they can still benefit from activities financed under the COMESA operation, leveraging precedents under ASCENT Program among other projects, including for IBRD countries, which will need to finance their participation in activities funded by the regional IDA grant to COMESA.

43. **National-level implementing arrangements.** Individual operations within the MPA will primarily be implemented through existing or new PIUs typically based in the ministries, with national responsibilities for digital development or, in the case of Malawi, building on existing project arrangements. A detailed capacity assessment of both FM and procurement for each implementing agency has been carried out by the World Bank during project preparation, which identified capacity constraints and mitigation measures. Specific details for implementation arrangements for DRC, Angola, and Malawi are included the relevant annexes.

B. Results Monitoring and Evaluation Arrangements

44. **IDEA's progress and implementation will be monitored at the level of the Program and national projects.** The IDEA Program has established PrDO-level indicators that will be applied and monitored across the Program, complemented by a Results Framework specific to each operation. Each operation will be responsible for monitoring its project implementation and results, with COMESA monitoring results for the entire Program. Monitoring will be facilitated through the adoption of digital platforms, which will allow aggregation of results and individualized dashboards designed for stakeholders (World Bank, COMESA, government agencies, utilities, and the private sector) to improve continuous

monitoring. As noted in the Learning Agenda section, the Program will support a multilayer effort to strengthen (a) data collection and analysis related to digital access and usage and the statistical capacity of key stakeholders, including COMESA and national agencies; and (b) structured and systematic impact evaluation through partnerships with research institutions and donor partners.

45. **IDEA will ensure that program performance and lessons are documented at regular intervals during program implementation.** This will include QERs for specific operations under the MPA and for the overall MPA, alongside MTRs, and regular documentation of lessons learned to inform both phases under implementation as well as future phases.

C. Sustainability

46. **The design of the Program builds in mechanisms to ensure sustainability.** This will primarily be ensured through (a) the use of private sector-led and market-based mechanisms for resource allocation and investments in digital infrastructure to expand broadband access; (b) investment in shared DPI, platforms, data, and skills that can be reused to reduce the long run costs of public service delivery; (c) development of regional regulatory frameworks and instruments that will reduce transaction costs for cross-border digital services; and (d) creation of economies of scale, outliving the project life cycle. Under the regional activities implemented by COMESA, the Program will also facilitate holistic knowledge transfer and complement national-level capacity building through shared tools and public goods.

Table 3. Sustainability Mechanisms

Component	Sustainability Mechanism
Pillar 1: Affordable broadband and secure data hosting	• The financing model adopted for connectivity expansion will mobilize private financing and have a robust governance model to ensure related contract management in the long term, based on the principle of ownership and operation of network by private operators. • The last-mile connectivity access initiative, including connectivity for public institutions and the host communities of refugee/IDP camps in borderland areas, will be facilitated through a competitive bidding process that awards long-term supply contracts for internet capacity, awarding indefeasible rights of use to the winning bidders that continue beyond the project's closing date. These techniques will be passed on to local USFs. • The strategic, legal, and regulatory frameworks introduced for broadband/telecoms/data hosting will have a lasting impact on the enabling environment for related market development, and capacity building will support their continued application. • Deployment of shared infrastructure and cross-border mechanisms for demand aggregation will allow for significant savings through economies of scale and reuse. • Investing in fit-for-purpose data infrastructure, avoiding overinvestment or gold plating, and phased transfers of operating costs to relevant MDAs from project financing (for example, for cloud hosting subscription). • Deploying hybrid models and modern data hosting solutions for governments will increase their disaster recovery and resilience, in contrast to current hosting silos, which often represent single points of failure. • The development of financing schemes will be subject to financial intermediary risk assessments and ensure sustainable and catalytic impact. • Rigorous use of e-waste management activities, both through environmental and social risk mitigation instruments and funded project activities, allied with digital entrepreneurship activities that would provide training in recycling and refurbishing of digital devices, will help ensure longer-term environmental sustainability.
Pillar 2: Interoperable and safe data platforms	• Capacity built in training government officials (on data governance, cybersecurity, and others) within MDAs will be retained after project closing. • Legal and regulatory tools introduced at the regional level will remain in effect after the project. • The adopted regional legal and regulatory frameworks will allow for reducing inefficiencies and achieving economies of scale and knowledge transfer that will outlive the project.

Component	Sustainability Mechanism
	• Implementing 'build once, use by many' for DPI will ensure that platforms can be leveraged across sectors.
Pillar 3: High-impact digital services and productive digital usage	• Digital skills programs will create a wider digital consumer base, boosting demand and incentivizing expanded and continued digital services provision by the private sector; • Supporting firm-level digital adoption can also boost sustainable productive use of digital technologies. • High-impact use cases of digitally enabled services can build awareness and capacity for sustainable use and expansion of digitally enabled services.
Pillar 4: Project Management and Capacity Building	• The Task Team for each operation will identify clients' capacity gaps and institutional weaknesses, and support clients to remove these and achieve institutionally sustainable management. • Using existing PIUs where feasible (for instance in Malawi), at the national level, and building up regional capacity for project coordination and provision of specialist inputs, for instance for instruments, procurement TORs, best practice lessons.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic, and Financial Analysis

47. **IDEA is expected to contribute to sustainable economic growth, through long-term cost savings, efficiency, and productivity gains, fueled by greater digital adoption by citizens, businesses, and governments across the region.**[32] Increased broadband adoption, supported under Pillar 1 activities, is estimated to stimulate GDP and job growth in the region. Previous research suggests that a 10 percent increase in mobile broadband penetration in developing countries[33] is associated with a 2.46 percent increase in GDP growth.[34] In addition, under Pillars 2 and 3, the public sector in countries participating in the MPA is expected to benefit from cost savings, on the back of the productivity gains associated with an improved digital ID framework, data infrastructure, cybersecurity, and the integration of digital ID with several strategic sectoral services. To conclude, activities with a regional scope under the project are expected to yield cost savings and efficiency gains due to an increase in digital cross-border trade and the reduction of digital connectivity prices in a more secure digital regional environment. The digitalization of the regional economy and cross-border DFS and service enablers are expected to bring tangible opportunities for services development and exports in the region, including of digital solutions, digitally enabled services, and high-end expertise.

48. **The overall IDEA MPA economic and financial analysis undertaken follows a standard cost-benefit analysis (CBA) approach and reveals a positive net present value (NPV) and internal rate of return (IRR) at the regional level.** The model relies on available secondary data and reasonable assumptions, based on experience, and additional evidence sourced from consultations, interviews conducted, and other single digital markets interventions. The latter included assessing economic impact models to estimate economies of scale and spillover effects arising from the digital market regional integration, leveraging the results seen in other Single Digital Market initiatives around the world, including the Economic Community of West African States (ECOWAS) report on roaming and cross border investments.[35] The CBA model was used to run a cash flow and financial analysis at the regional level, which features three different scenarios: optimistic, pessimistic, and neutral. Where possible, the model also ran sensitivity analysis to quantify the benefits and costs attributable to the project against current baseline indicators. Discounted at 20 percent, over an eight-year period, with the neutral scenario, the NPV reaches US$77.46 million and an IRR of 24 percent, while with the optimistic scenario NPV

[32] World Bank. 2016. *World Development Report: Digital Dividends*.
[33] According to the ITU 2020 study cited below, in low-income countries, for every 10 percent increase in fixed broadband penetration there is no significant increase in GDP growth.
[34] ITU. 2020. *How broadband, Digitization and ICT Regulation Impact the Global Economy. Global Econometric Modelling*.
[35] Cohen, Laurent, Katia Duhamel, Olivier Jacquinot, and Russell Southwood. 2017. *Developing Roaming in the ECOWAS Region - Study on Policies to Reduce Roaming Rates in the ECOWAS Region, Encourage Competition, and Facilitate Cross Border Investments*. World Bank.

reaches US$430 million and an IRR of 40 percent, and with the pessimistic scenario the NPV becomes negative and IRR drops to 8 percent.

49. **The IDEA Program is aligned with the Paris Agreement on both mitigation and adaptation.**

- **Assessment and reduction of mitigation risks.** The Program will contribute to the low-carbon development goals across the region by prioritizing renewable energy (for example by requiring telecom operators to power equipment at targeted MDAs and any cell towers and base stations with renewable energy) and integrating energy efficiency requirements in tenders for digital infrastructure and ICT equipment. The data center proposed under the DRC project, P180495, could be a source of substantial GHG emissions; however, the risks are reduced to low levels, as the project will be designed to meet the criteria for Excellence in Design for Greater Efficiencies (EDGE) green data center certification. For the Angola project, P180693, the best possible lower GHG/energy efficiency measures will be incorporated in the refurbishment of computer labs. Overall, the program activities and the integrated low-carbon measures do not pose any mitigation risk to the regions low-carbon development pathway and goals. A summary of each operation's climate financing, informing climate-related mitigation support, can be found in Annexes 2–5 and the technical annex on climate change in Annex 6.
- **Assessment and reduction of adaptation risks.** The main climate risks likely to have adverse impact on program investments across the region are intense rainfall and floods and heat stress. They can damage telecommunication cables, causing network failure in affected areas, and can also damage and inundate equipment and servers in data centers. The Program directly finances measures to ensure the resilience of digital infrastructure (for example, telecom networks or data centers) and project beneficiaries to climate change impacts. Overall, the adaptation measures reduce the risks from climate hazards in this Program to an 'acceptable' level. A summary of the project's Climate and Disaster Risk Screening (CDRS) and climate financing, informing climate-related adaptation support, can be found in summary for each operation (Annexes 2–5) and the technical annex on climate change (Annex 6).

50. **The IDEA Program is committed to integrating gender responsiveness and ensuring citizen engagement**. The details on gender responsiveness and citizen engagement are captured in Annexes 2–5 and annex 7.

B. Fiduciary

51. **Financial management.** The FM assessments for the project implementing agencies were conducted using World Bank Guidance: FM Manual for World Bank Investment Project Financing Operations, reissued on September 7, 2021. Assessments were conducted for the countries and regional institutions covered in first phase of the IDEA Program and included in the respective technical documents (summarized in Annexes 2-5).

52. **Procurement.** The procurement assessments for the project implementing agencies were completed and procurement arrangements, capacity assessment, risks, and risk mitigations for the borrowers/recipients under Phase 1 are detailed in the respective Annexes. Procurements will be carried out in accordance with the World Bank Procurement Regulations for IPF Borrowers, dated September 2023; Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, dated October 15, 2006, and revised in January 2011 and Anti-Corruption Guidelines as of July 1, 2016; and other provisions stipulated in the Financing Agreements. Procurement procedures will be reflected in the respective Project Operations/Implementation Manuals.

C. Legal Operational Policies

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

D. Environmental and Social

53. The Environmental and Social Risk Classification (ESRC) for each Phase 1 operation varies based on the nature of their activities and country or regional entity context. This is reflected in annexes 2–5 and in their respective Appraisal Environmental and Social Review Summaries (A-ESRSs). The COMESA operation has an overall ESRC of *Moderate* (including Moderate environmental and social risk). The DRC operation has an overall ESRC of *Substantial* (including Substantial environmental and social risk). The Angola operation has an ESRC of *Moderate* (including Moderate environmental and social risk). The Malawi operation has an overall ESRC of *Substantial* (including Moderate environmental risk and Substantial social risk).

V. GRIEVANCE REDRESS SERVICES

54. **Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's Accountability Mechanism, visit https://accountability.worldbank.org.

VI. KEY RISKS

55. **The overall risk for the IDEA MPA is considered Substantial.** The MPA will consist of multiple parallel and sequential operations, including FCV and least developed countries, at different stages of development, and regional entities, which raise the risks for Governance, Stakeholders and Sector strategies to Substantial. Macroeconomic risks, and currency fluctuation, are also Substantial and can also impact private capital mobilization. Other risks, such as climate change, are also Substantial. The risk ratings and mitigation measures for each operation under the IDEA MPA's Phase 1 are reflected in annexes 2–5.

ANNEX 1: Results Framework and Monitoring for the COMESA IDEA Project

PDO Indicators by PDO Outcomes

Baseline	Closing Period
Enhancing the enabling environment for increasing access to the Internet	
Adoption of regional policy and regulatory framework to promote private sector mobilization for digital infrastructure development (Yes/No)	
Jun/2024	Oct/2032
No	Yes
Enhancing the enabling environment for increasing inclusive use	
Adoption of Regional Digital Inclusion Action Plan (Yes/No)	
Jun/2024	Oct/2032
No	Yes

Intermediate Indicators by Components

Baseline	Closing Period
1. Regional Harmonization and Planning Platform	
Regional guidelines, standards for the use of emerging digital technologies supporting climate change adaptation and mitigation adopted (Yes/No)	
Jun/2024	Oct/2032
No	Yes
Establishment of a mechanism for integrated infrastructure planning (Yes/No)	
Jun/2024	Oct/2032
No	Yes
Regional roaming and interconnection framework adopted (Yes/No)	
Jun/2024	Oct/2032
No	Yes
2. Regional Knowledge and Capacity Building	
Guidelines, toolkits to support project preparation and implementation for public institutions and project implementation units developed (Number)	
Jun/2024	Oct/2032
0	4

Countries supported through capacity building, repository of tools and knowledge exchange (Number)	
Jun/2024	Oct/2032
0	21
Public sector officials supported through Program activities (Number)	
Jun/2024	Oct/2032
0	500
➢Of which, female (number) (Number)	
Jun/2024	Oct/2032
0	150
Establishment of regional M&E system (Yes/No)	
Jun/2024	Oct/2032
No	Yes
3. Regional Project Coordination and Management	
Citizen engagement indicator: Grievances registered that receive an adequate response within 30 days (Percentage)	
Jun/2024	Oct/2032
0	80

Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Enhancing the enabling environment for increasing access to the Internet	
Adoption of regional policy and regulatory framework to promote private sector mobilization for digital infrastructure development (Yes/No)	
Description	Adoption of a regional framework to promote private sector mobilization for digital infrastructure development by COMESA Council of Ministers
Frequency	Annual
Data source	COMESA Secretariat
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretariat Project Coordination Unit (PCU)
Enhancing the enabling environment for increasing inclusive use	
Adoption of Regional Digital Inclusion Action Plan (Yes/No)	
Description	Adoption of a regional action plan to promote digital inclusion by COMESA Council of Ministers
Frequency	Annual
Data source	COMESA Secretariat
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretriat PCU

Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

1. Regional Harmonization and Planning Platform	
Regional guidelines, standards for the use of emerging digital technologies supporting climate change adaptation and mitigation adopted (Yes/No)	
Description	Adoption of a regional guidelines and standards for the use emerging technologies supporting climate change adaptation and mitigation adopted by COMESA Council of Ministers
Frequency	Annual
Data source	COMESA Secretariat
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretariat PCU
Establishment of a mechanism for integrated infrastructure planning (Yes/No)	
Description	The design and set up of a geospatial mapping platform at the COMESA Secretariat to support integrated infrastructure planning for digital and other infrastructure, available to COMESA member states and countries participating in the IDEA Program
Frequency	Annual
Data source	COMESA Secretariat
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretariat PCU
Regional roaming and interconnection framework adopted (Yes/No)	
Description	Adoption of a regional framework on data and voice roaming and interconnection by the COMESA Council of Ministers
Frequency	Annual
Data source	COMESA Secretariat
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretariat PCU

2. Regional Knowledge and Capacity Building	
Guidelines, toolkits to support project preparation and implementation for public institutions and project implementation units developed (Number)	
Description	The preparation and sharing of practical tools to support COMESA member states and other countries participating in the IDEA MPA in project preparation and implementation readiness, including templates, draft terms of reference (TOR), and project management tools for procurement, budgeting, environmental and social risk and impact management, and grievance redressal mechanism.
Frequency	Annual
Data source	COMESA Secretariat
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretariat PCU
Countries supported through capacity building, repository of tools and knowledge exchange (Number)	
Description	The number of countries that directly benefit from capacity building, knowledge sharing, and trainings through the COMESA IDEA Program. This includes countries participating in the IDEA Program and COMESA member states, covering technical areas as well as institutional coordination and arrangements for the implementation of cross-cutting digital projects, procurement, financial management, environmental and social frameworks, data collection and analysis, and M&E.
Frequency	Annual
Data source	COMESA Secretariat PCU, and member state institutions
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretariat PCU
Public sector officials supported through Program activities (Number)	
Description	The number of public sector officials from countries participating in the IDEA Program and from other, COMESA member states which directly receive capacity building and training through the COMESA IDEA Program. This indicator will also track targets disaggregated based on gender.
Frequency	Bi-Annual
Data source	COMESA Secretariat
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretariat PCU
Of which, female (number) (Number)	
Description	The number of female public sector officials from countries participating in the IDEA Program and from other, COMESA member states which directly receive capacity building and training through the COMESA IDEA Program. This indicator will also track targets disaggregated based on gender.
Frequency	Bi-Annual
Data source	COMESA Secretariat
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretariat PCU
Establishment of regional M&E system (Yes/No)	
Description	The development of a monitoring and evaluation (M&E) system for COMESA to monitor the results of the IDEA Program across the Eastern and Southern Africa region, in particular aggregating data from countries participating in the IDEA Program.
Frequency	Annual
Data source	COMESA Secretariat and Project Implementation Units from countries participating in the IDEA Program
Methodology for Data Collection	Direct

Responsibility for Data Collection	COMESA Secretariat PCU
3. Regional Project Coordination and Management	
Citizen engagement indicator: Grievances registered that receive an adequate response within 30 days (Percentage)	
Description	The percentage of grievances received during the lifetime of the project and addressed within a time period of 30 days including response to citizen feedback.
Frequency	Annual
Data source	COMESA Secretariat
Methodology for Data Collection	Direct
Responsibility for Data Collection	COMESA Secretariat PCU

ANNEX 2: Common Market for Eastern and Southern Africa (COMESA)

Task Team Leaders: Cecilia Paradi-Guilford, Tim Kelly, Lavanya Choudhary (IDD04)
Core Team: Clement Gevaudan (IDD04); Wedex Ilunga (EAERU); Baison Banda (EAEG1); Paulo Sithoe (SAEE3); Richard Everett (SAES3); Edith Mwenda and Ntayi Bandawa (LEGAM); Kiyotaka Tanaka (EAWF2); George da Silva and Sandra Kuwaza (WFACS)

A. Context

1. COMESA was established in 1994 as "as an organization of free independent sovereign states that have agreed to cooperate in developing their natural and human resources for the good of all their people." COMESA sums up its current strategy as "economic prosperity through regional integration." COMESA is well-positioned to lead the regional coordination of the IDEA Program, as it is mandated to support the creation of a common market and enhance digital infrastructure, supporting a transition toward a digital free trade area across most of the countries that the MPA proposes to cover.

B. Relevance to Higher Level Objectives

2. **The project aligns with COMESA's strategic vision for market integration and physical integration / connectivity under COMESA's Strategic Plan (2021-2025).** The proposed IDEA Program will build further on the World Bank's existing engagement with COMESA under the RIFF Project (P171967) and ASCENT Program (P180547), through which COMESA is strengthening the enabling environment for private sector participation in infrastructure and coordinating with countries to enable infrastructure planning and knowledge sharing. It will also leverage and support the downstream implementation of the EU-funded program on the 'Enhancement of Governance and Enabling Environment in the ICT sector in the Eastern Africa, Southern Africa and the Indian Ocean region'. COMESA is able to support all IDEA participant countries—both COMESA members and non-COMESA members (through a collaboration agreement).

3. **The COMESA project will support countries in achieving their mitigation and adaptation goals outlines in NDCs.** The COMESA project will contribute to participating countries' low-carbon and climate-resilient national development goals. The operations in DRC, Angola, and Malawi in the first phase of the MPA have prioritized energy efficiency, renewable energy, and climate-resilient infrastructure in their NDCs (see annexes 3–6) to which COMESA will contribute by TA, capacity building, and development of geospatial mapping tools and best practice guidelines for resilient digital infrastructure deployment and climate-smart solutions.

C. Project Description

4. The Project Development Objective (PDO) for the operation is to enhance the enabling environment for increasing access to, and inclusive usage of, the Internet and digitally enabled services in Eastern and Southern Africa. This operation will monitor progress toward the overall PrDO indicators.

Table 2.1. Results Framework

Indicator	Unit	End Target
IDEA - COMESA: PDO Indicators		
Adoption of regional policy and regulatory framework to promote private sector mobilization for digital infrastructure development	Yes/No	Yes
Adoption of a Digital Inclusion Action Plan at the regional level to promote inclusive access to and use of the Internet and digital services	Yes/No	Yes
IDEA - COMESA Intermediate Indicators		
Component 1: Regional Harmonization and Planning Platform		
Regional guidelines, standards for the use of emerging digital technologies adopted	Yes/No	Yes

Indicator	Unit	End Target
A mechanism for integrated infrastructure planning established	Yes/No	Yes
Regional roaming and interconnection framework adopted	Yes/No	Yes
Component 2: Regional Knowledge and Capacity Building		
Countries supported through capacity building, repository of tools and knowledge exchange	Number	21
Public sector officials supported through Program activities • Of which female	Number	500 150
Guidelines, toolkits to support project preparation and implementation for public institutions and project implementation units developed	Number	4
Component 3: Regional Project Coordination and Management		
Establishment of regional M&E system for the IDEA Program	Yes/No	Yes
Grievances registered that receive an adequate response within 30 days	Percentage	80

5. **Component 1: Regional Harmonization and Planning Platform (US$5.474 million).** This component is aligned with Pillars 1, 2 and 3 under the IDEA MPA, and aims to enhance the enabling environment for regional digital market development and integration and create a platform to inform and mobilize investments for regional digital infrastructure. Activities under this component include the following:

- **Sub-component 1.1. Regional TA and trainings.** Developing regionally harmonized regulatory and policy frameworks, guidelines, and standards to promote digital access and usage and private sector mobilization for digital infrastructure development and digitally enabled services, applying inclusive and climate-smart approaches. It will finance technical and legal consultancies, training, and capacity building, including (a) the preparation of a regional Digital Inclusion Action Plan and associated draft regulations and policies covering areas such as digital safeguards, digital literacy, DFS, and so on; (b) TA to enhance the implementation of a regional roaming framework and the development of a regional model to enhance spectrum management; (c) the development of policy and regulatory guidelines and standards to enable and promote the safe use of artificial intelligence (AI) and other emerging technologies, including for climate adaptation and mitigation; (d) legal and technical assistance and capacity building to support the implementation of the regional e-commerce framework, including strengthening digital safeguards and piloting mechanisms for cross-border flow of data; (e) the development of policy, regulatory frameworks, and guidelines at the regional level to enable and promote PCM for digital infrastructure with recommendations for possible financing facilities and instruments to expand digital infrastructure at the regional level, which can be capitalized in future phases of this MPA.
- **Sub-component 1.2 Planning platform and models**: (a) supporting integrated infrastructure planning to cover digital infrastructure and demand for internet connectivity through TA and the development of geospatial mapping tools and (b) supporting the development of least-cost options and innovative financing models to extend internet access to cross-border areas and priority public entities, such as schools and health clinics, with energy access and climate implications in mind, which can be implemented in subsequent phases and leverage applicable financing schemes under the ASCENT Program.[36]

6. **Component 2: Regional Knowledge and Capacity Building (US$1.402 million).** This component is aligned with Pillar 4 under the IDEA MPA and aims to support holistic knowledge transfer throughout the program cycle, to build capacity and support institutional strengthening for participating countries and countries joining in future phases in a sustainable manner and increase the efficiency and impact of the program activities by leveraging regional synergies between countries. Activities under this component include the following:

- **Sub-component 2.1. Toolkits:** (a) the development of practical tools to support member states and other countries participating in the IDEA MPA in project preparation and implementation readiness, including the development of

[36] The ASCENT Program includes regional- and national-level financing schemes to expand energy access for households, enterprises, and other institutions through financial intermediary financing.

templates, draft terms of reference (TOR), and project management tools for procurement, FM, budgeting, environmental and social risk and impact management, and grievance redressal mechanism and (b) the establishment of a regional M&E platform, leveraging innovative data collection and evidence generation at the regional level.

- **Sub-component 2.2. Capacity building, knowledge sharing, and trainings for participating countries and COMESA member states** covering (a) policy recommendations to enhance institutional coordination and arrangements for the implementation of cross-cutting digital projects, and (b) procurement, FM, environmental and social frameworks, and (c) data collection and analysis, and M&E. It will also support wide knowledge sharing and awareness raising about the Program with communication and results stories, leveraging the 50 Million Women African Speak platform under COMESA, particularly to ensure gender inclusion, and the COMESA Business Council, to support private sector engagement.

7. **Component 3: Regional Project Coordination and Management (US$3.124 million).** This component is aligned with Pillar 4 under the IDEA MPA and will set up IDEA's regional PCU to (a) coordinate with participating countries, including those that are not members of COMESA; (b) validate and report on the Program's Results Framework; and (c) oversee the implementation of the regional grant to COMESA, including fiduciary, environmental and social, and other functions.

D. Project Beneficiaries

8. The direct beneficiaries will be the government agencies and regulatory bodies in COMESA member states and/or in countries participating in the IDEA MPA. Indirect beneficiaries include private sector companies operating in AFE and citizens of the participating countries.

E. Institutional and Implementation Arrangements

9. COMESA will establish a dedicated PCU, leveraging the Procurement and FM specialists under the RIFF Project and ASCENT Program. Its capacity will be strengthened to account for its increased scope and extended expertise required for the digital sector. The COMESA Secretariat will be responsible for overall coordination of the Program through a well-staffed PCU. From its senior staff, COMESA will appoint or recruit a project coordinator, who will be supported by a team of experts to be recruited at the PCU, including additional digital experts and environmental, social, and stakeholder engagement/communications, M&E experts.

F. Appraisal Summary

10. **The project is aligned with the Paris Agreement on both mitigation and adaptation goals** and is anticipated to strengthen climate adaptation and resilience. Activities under this project pose minimal/no risk of lock-in on carbon-intensive energy sources and facilitate reducing associated risks from climate hazards to acceptable levels. A summary of the project's CDRS and climate financing, informing climate-related adaptation and mitigation support, can be found in the Technical Annex on Climate Change (Annex 6).

11. **Financial management.** The World Bank recently carried out an FM assessment of COMESA with the objective of determining whether COMESA maintains FM arrangements capable of ensuring that (a) funds allocated to the project will be used for the purpose intended in an efficient, economic, and effective manner; (b) the project's financial reports will be prepared in an accurate, reliable, and timely manner; and (c) the project's assets and resources will be safeguarded. A review of the assessment indicated that overall residual risk of FM arrangements for COMESA for handling the IDEA project is Moderate. The FM arrangements covers budgeting, flow of funds, accounting, internal control, financial reporting, and auditing arrangements. For the IDEA Project, COMESA will open a segregated Designated Account (DA) denominated in US dollars at a commercial bank acceptable to the World Bank; the DA will be used exclusively for the project. COMESA will use the funds disbursed under the project to pay for eligible expenditures direct from the US dollar DA account. In

addition, to manage and monitor the use of the disbursed funds, COMESA will prepare and submit on a quarterly basis, unaudited interim financial reports (IFRs) to the World Bank. The external audit of the project's financial statements will be carried out by a qualified audit firm, based on audit TOR acceptable to the World Bank.

12. **Procurement.** The World Bank has carried out a review of COMESA's capacity to implement procurement under the proposed project and notes that the risk is Moderate. COMESA has implemented several World Bank-funded projects in the past, including the ongoing RIFF Project, the Great Lakes Trade Facilitation and Integration Project, and the ASCENT Program. As a result, COMESA has acquired reasonably good capacity and experience in implementing World Bank-financed projects from a procurement perspective, and it is expected that procurement arrangements under the IDEA Project will not be complex. In the past year, COMESA has enhanced its institutional capacity further by recruiting four new procurement staff. These staff members have received training in basic procurement under World Bank-funded projects. Contract evaluations will be based largely on conformance criteria. Contract terms and conditions will mainly be based on provisions from the Standard Procurement Documents (SPDs) that COMESA uses for its Procurement Rules and Regulations (February 2014), which need to be updated and modernized. Newly assigned staff who have not implemented procurement under World Bank financing will require training in basic procurement and use of the Systematic Tracking of Exchanges in Procurement (STEP) tool. To implement procurement activities under the IDEA Program, COMESA will update its Procurement Rules and Regulations to include new issues such as (a) beneficiary ownership provisions; (b) social and sexual exploitation and abuse/sexual harassment (SEA/SH) risks; (c) enhanced fraud and corruption provisions; (d) handling of bidder complaints; and (e) allocation of responsibilities, risks, and liabilities. In addition, when carrying out national/regional procurement, COMESA will modify the SPD in accordance with paragraph 5.3 of the World Bank's Procurement Regulations September 2023 version. The Procurement Plan and the Project Procurement Strategy for Development (PPSD) was prepared by COMESA and reviewed and cleared by the World Bank before project negotiations.

13. **Environmental and social.** The ESRC for the Phase 1 operation to be implemented by COMESA is Moderate, including Moderate ratings for both environmental and social risks and impacts. Proposed activities to be financed by the regional IDA grant to COMESA, including planning for regional harmonization of policies and planning activities, regional knowledge and capacity building, and overall MPA coordination and management at the regional level, are not expected to generate significant environmental risk or impacts in and of themselves. However, COMESA is expected to carry out a number of TA activities, which may create policies or contribute to integrated regional infrastructure plans. These actions could create downstream environmental risks when those policies or infrastructure plans are implemented. Potential downstream adverse environmental risks and impacts could include those associated with occupational health and safety concerns, including physical hazards, injuries, and accidents; community health and safety issues; noise and vibration; electronic waste management issues; pollution; and so on. Possible downstream social risks associated with TA include creation of policies or plans that may lead to (a) small-scale land acquisition, loss of assets, and economic or physical displacements; (b) lack of inclusion in a project's social benefits for vulnerable and marginalized groups, particularly those in remote areas, along with the risk of elite capture of project benefits; (c) SEA/SH risks, particularly related to construction or power dynamics that may occur from providing access to digital technologies and services, including cyber harassment; and (d) risks associated with the potential misuse of digital personal data if proper privacy safeguards are not in in place. These risks will be minimized and mitigated through the use of ESS screening criteria contained in the POM for TA activities to be carried out by COMESA to ensure alignment with the Environmental and Social Framework (ESF). A Stakeholder Engagement Plan (SEP) has been prepared covering COMESA's stakeholders for its Phase 1 operations. The COMESA PCU will hire environmental, social, and stakeholder engagement/communications specialists to manage IDEA's environmental and social risks and provide a coordinated approach to environmental and social capacity building across regional- and country-level MPA operations.

G. Key Risks

14. **The overall risk for the IDEA regional coordination with COMESA is *Moderate*.** The COMESA operations will only finance TA. All risks are rated *Moderate*.

ANNEX 3: Democratic Republic of Congo

Task Team Leaders: Isabella Hayward
Core Team: Tata Dinyuy Bolivian (DD), Thomas Chalumeau (DD), Laurent Andiazabal (DD), Clément Gévaudan (DD), Giacomo Assenza (DD), Reina Ntonifor (ID4D), Jerome Buchler (ID4D), Nay Constantine (ID4D), Rim Wazni (EDU), Alex Twinomugisha (EDU), Zouhour Karray (FCI), Magueye Dia (FCI), Alphonsus Nji T Achomuma (FCI), Laura Bermeo (SPJ), Jean-Claude Azonfack (Procurement), Bertille Wepanjue (FM), Shamard Ya Jua Mungu Shamalirwa (Social), Christophe Ngongo Muzyumba (Environment), Elena Segura (LEGAM), George da Silva and Issiaka Traore (WFA),Tasneem Rais, and Claudine Kayembe Ndaya.

DATASHEET

BASIC INFORMATION

Project Beneficiary(ies)	Operation Name		
Congo, Democratic Republic of	DRC Digital Transformation Project		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P180495	Investment Project Financing (IPF)	Substantial	

Financing & Implementation Modalities

[✓] Multiphase Programmatic Approach (MPA)	[✓] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[✓] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternative Procurement Arrangements (APA)	[ ] Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date	Expected Program Closing Date
27-Jun-2024	31-Dec-2029	31-Oct-2032
Bank/IFC Collaboration	Joint Level	

Yes	Complementary or Interdependent project requiring active coordination

MPA Program Development Objective

MPA FINANCING DATA (US$, Millions)

MPA Program Financing Envelope	2,480.00
with an additional request to IBRD	5.28
with an additional request to IDA	86.00

Proposed Development Objective(s)

To increase inclusive access and use of the internet, and strengthen the foundations for digitally enabled services in DRC

Components

Component Name	Cost (US$)
1. Expanding digital access and inclusion	385,000,000.00
2. Introducing digital foundations for service delivery	55,000,000.00
3. Increasing access to industry-relevant advanced digital skills & stimulating digital innovation	45,000,000.00
4. Institutional Coordination and Project Management	25,000,000.00
5. CERC	0.00

Organizations

Borrower:	The Democratic Republic of Congo
Implementing Agency:	Ministère des Postes, Télécommunications et Nouvelles Technologies de l'Information

MPA FINANCING DETAILS (US$, Millions)

Board Approved MPA Financing Envelope	**0.00**
MPA Financing Envelope:	2,480.00
of which Bank Financing (IBRD):	440.00

of which Bank Financing (IDA):	2,040.00
of which Other Financing sources:	0.00

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)? Yes

Is this project Private Capital Enabling (PCE)? Yes

SUMMARY

Total Operation Cost	**675.00**
Total Financing	**675.00**
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

Non-World Bank Group Financing

Commercial Financing	165.00
Unguaranteed Commercial Financing	165.00
Other Sources	110.00
FRANCE: French Agency for Development	110.00

IDA Resources (US$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
Regional	30.00	0.00	0.00	0.00	30.00
National Performance-Based Allocations (PBA)	370.00	0.00	0.00	0.00	370.00
Total	**400.00**	**0.00**	**0.00**	**0.00**	**400.00**

Expected Disbursements (US$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030
Annual	0.00	70.00	100.00	100.00	80.00	50.00	0.00
Cumulative	0.00	70.00	170.00	270.00	350.00	400.00	400.00

PRACTICE AREA(S)

Practice Area (Lead)

Digital Development

Contributing Practice Areas

Social Protection & Jobs; Education; Finance, Competitiveness and Innovation; Governance

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	High

2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary No Fiduciary risk rating under Preparation Phase has been completed in Financial Management System to date. Procurement Risk rating from Specialist: Substantial as of 2024-04-27T00:00:00Z	Substantial
7. Environment and Social Environment Risk rating from Specialist: Substantial as of 2024-05-08T15:26:34Z Social Risk rating from Specialist: Substantial as of 2024-05-08T15:26:34Z	Substantial
8. Stakeholders	Substantial
9. Other	Substantial
10. Overall	High
Overall MPA Program Risk	

POLICY COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

ENVIRONMENTAL AND SOCIAL

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant

ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

LEGAL

Legal Covenants

Sections and Description
Schedule 2, Section 1: - no later than thirty (30) days after the Effective Date, or such later date as agreed by the Association, establish, and thereafter maintain, throughout Project implementation, a steering committee ("Project Steering Committee") chaired by the MPTNTIC and co-chaired by the MdN, with terms of reference, composition, roles and responsibilities acceptable to the Association and defined in the POM, to provide overall strategic guidance and Project oversight and approve the Annual Work Plans and Budgets; and - no later than thirty (30) days after the Effective Date, or such later date as agreed by the Association, establish, and thereafter maintain throughout Project implementation a technical committee to assist the MPTNTIC and its PIU in the technical implementation of the Project activities ("Technical Committee"), each with terms of reference, composition, powers, and responsibilities acceptable to the Association and defined in the POM.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	Article 5.01	The Recipient has formally established the PIU with a mandate, terms of reference and resources, satisfactory to the Association, and has recruited to said PIU a Project coordinator, a	IBRD/IDA

		financial management specialist, and a procurement specialist, all in accordance with the Procurement Regulations.	
Effectiveness	Article 5.01	The Recipient has prepared and adopted the Project Operations Manual, in form and substance satisfactory to the Association.	IBRD/IDA
Disbursement	Schedule 2, Section III, B.1(b)	No withdrawal shall be made under Category (2) unless the Recipient has prepared, adopted and submitted to the Association the Performance-Based Grants Manual, including: (i) the template forms of the Performance-Based Grant Agreement, in form and substance satisfactory to the Association.	IBRD/IDA
Disbursement	Schedule 2, Section III, B.1(c)	No withdrawal shall be made under Category (3) unless the Recipient has prepared, adopted and submitted to the Association the Technical Solutions Grants Manual, including: (i) the template forms of the Technical Solutions Grant Agreement, in form and substance satisfactory to the Association.	IBRD/IDA

A. Context

1. **Inclusive access and use of the internet and strengthening the foundations for digitally enabled services would play a critical role in changing DRC's development trajectory – by contributing to both economic and human development, climate adaptation and mitigation goals, as well as aid in addressing key drivers of fragility**. DRC is home to the third-largest population living below the poverty line and one of the fastest growing populations globally. DRC is

thus expected to be home to Africa's second largest population by 2050, with the total population reaching 215 million. Currently, 46 percent of the population is 14 years old or below, creating a huge youth bulge, which will need to be equipped to access and use digital tools and services. DRC's population remains predominantly rural but is increasingly concentrated in urban areas, where 46 percent of the population now resides. Meanwhile, DRC's sheer size and rural population density, which is one of the lowest on the continent, makes service delivery and critical infrastructure provisioning a major challenge, leading to uneven access including is areas such as connectivity. Deep-rooted fragility, conflict and insecurity have also prevented DRC from achieving sustainable economic growth and shared prosperity, and hampered investment. DRC therefore ranks 180 out of 193 countries in the 2021 Human Development Index and 151 out of 170 countries in the 2021 Gender Inequality Index. Climate change also poses a serious risk to DRC's sustainable development, where DRC's lowest income populations tend to reside in more hazard prone areas, and digital infrastructure is also exposed. Nevertheless, digital connectivity and digitally enabled services could play a critical role in supporting wider climate change adaptation and mitigation (see paragraph 21), contribute to improvements in service delivery across DRC's vast territory, as well as enhance governance and expand economic opportunities.

2. **The Government of DRC has articulated a strong vision for leveraging digital technologies to leapfrog.** In 2019, the Government adopted a *Plan National du Numérique* (PNN), focused around four pillars (infrastructure, applications, content, and governance). Increased digital connectivity within and between communities across DRC is also a cornerstone of the country's National Development Plan (*Plan national stratégique de développement*) and is thus viewed as a priority. However, DRC still lacks many of the digital and analogue foundations needed to drive cross-cutting digital transformation, including universal digital access, basic DPI that can begin to facilitate more digitally enabled service delivery, and digital skills to expand productive use of digital systems and services.

3. **Currently, roughly half of DRC's population lacks access to high-speed broadband internet,[37] and the country has some of the highest retail prices in Africa, resulting in one of the lowest adoption rates on the continent.** A mere 17.8 percent of the population use broadband, based on unique mobile subscriptions,[38] with marked gender gaps.[39] DRC's broadband market remains underdeveloped, with huge infrastructure gaps along the broadband value chain. Notably, DRC lacks a resilient fiber optic backbone network with national coverage able to cost-effectively distribute high-speed broadband internet capacity across the country, along with diverse access points for receiving international capacity via regional terrestrial networks. The existing fiber backbone transmission links are concentrated along the west-south[40] and west-east[41] corridors, which need to be reinforced and extended to provide more inclusive access. Deploying new network links would be instrumental in lowering the cost of service, boosting network resilience, and encouraging further deployment of last-mile access networks. Currently, existing last-mile access networks (predominately mobile) are concentrated in urban hubs, with marked regional disparities in terms of network coverage overall. In view of the current network and service gap, expanding universal access to high-speed broadband internet across DRC is estimated to cost up to US$8–9 billion.[42] Most of this investment is expected to come from the private sector; however, a more enabling environment for network investment, building on the 2021 Telecoms Law that created a platform for increased private

[37] 3G and 4G coverage rates currently at 54 and 42 percent, respectively.
[38] GSMA. 2023 *Market Intelligence*.
[39] According to digitalgendergaps.org, only 75 women are connected for every 100 men. https://www.digitalgendergaps.org/.
[40] Muanda-Matadi/Inga-Kinshasa-Kamina-Kolwesi-Lubumbashi.
[41] Kananga-Mbuji-Mayi-Bukavi-Goma.
[42] 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*.

sector participation[43], and catalytic public financing will be required to help re-risk, accelerate and expand network deployment, particularly in parts of DRC that are viewed as less commercially attractive.

4. **Scaling service delivery to more people across DRC will require much wider use of digital systems and tools, which in turn requires upfront investments in the basic underlying connectivity and shared DPI that can enable efficient and inclusive service access and usage.** Increasing end-user access to connectivity, including providing more public institutions with new or improved access to broadband will be instrumental in scaling digitally enabled services across DRC in critical sectors such as education, health, social protection, and financial services, particularly in rural and remote areas. Currently, most Government office, including schools and hospitals, lack access to basic connectivity, which in turn hampers movement towards further digitalization. Many government processes are still paper based and there is weak usage of even the most basic digital applications and services by Government, which would be instrumental in enhancing efficiency and transparency. Moreover, existing Government IT systems deployed are often unable to seamlessly and safely exchange and store data processed, in the absence of shared data frameworks and robust and shared solutions for data storage, preventing effective information-sharing and integrated service delivery. There is currently a siloed and fragmented approach to Government's digitalization efforts, and no holistic plan and integrated digital platforms for offering digital services, particularly for scaling more front-facing services via a single online portal. Safely scaling digital infrastructure, systems, and services and encouraging uptake will also require the means to digitally authenticate services users, instill trust in digital transactions and protect critical information infrastructure deployed, on the back of foundational frameworks and implementation of data protection, cybersecurity, and e-signatures which are currently missing.[44]

5. **Beginning to expand the advanced digital skills base and supporting innovation will also be key to fueling greater digital usage and boosting productivity, as well as building the foundations for scaling up digital services.** However, access to advanced and specialized digital skills is currently extremely low in DRC, resulting in slow development of data-driven innovation, e-commerce, fintech, and ultimately contributing to a nascent IT industry. There are currently only a handful of programs and providers that can offer industry-relevant training in this area. More broadly, there is also limited readiness for scale-up, particularly outside Kinshasa, with a need for improved access to connectivity, computer labs, curriculum development, and enhanced links to potential employers and the broader innovation ecosystem that is also underdeveloped. Tailored support services for digital entrepreneurs are still lacking and upstream support is needed to cultivate a growing number of digital start-ups. In the basic education system, teachers are also ill-equipped to teach basic digital skills in the classroom, leading to weak digital skills attainment overall.

B. Relevance to Higher-Level Objective

6. **The project is aligned with the World Bank DRC 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. The proposed project builds on the notion that digital connectivity, DPI, and digital skills are cross-cutting and catalytic enablers for sectoral investments and digital transformation in DRC. The project will thus maximize synergies with the existing World Bank portfolio, connecting and integrating sectoral MDAs with digital infrastructure and systems deployed to support the scaling of digital services. Moreover, the project maximizes synergies and is aligned with other

[43] Government still requires support to implement key provisions of the new telecoms law, including developing supporting regulation. Government recently established a new regulatory authority and a Universal Services Fund (Fonds de développement des services universels, [FDSU]), which require further assistance.

[44] In April 2023, DRC introduced a Digital Code, which inter alia 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 and e-signatures, but these provisions are yet to be operationalized.

linear infrastructure investments planned, including expansion of transport and energy transmission networks,[45] with a clear focus on connecting key trade corridors such as Lobito and strategic economic zones. The project is aligned with the Bank's FCV strategy, addressing drivers of FCV identified in the 2021 Risk and Resilience Assessment, including Driver 1 related to improving governance systems via digitalization, where digital systems and services introduced that can help boost transparency/efficiency, strengthening the social contract, and Driver 3 related to promoting inclusion and economic opportunities through wider access to broadband, inclusive training, and innovation programs.

7. **Paris alignment.** The project will support DRC in achieving its NDCs and is consistent with the country's long-term development strategy and climate change mitigation and adaptation plans. DRC has committed to an emissions reduction target of 21 percent in 2030 and has outlined three adaptation goals related to digital, to which the project will directly contribute: (a) 'implementation of early warning systems', (b) 'improved access to ICT', and (c) 'climate modeling to better predict future impacts'.[46] The project's activities will contribute to these goals by (a) integrating climate mitigation and adaptation measures for low-carbon and climate-resilient digital infrastructure and systems/equipment deployed; (b) connecting high-risk areas, thus improving climate vulnerable populations' access to information and services and citizens' ability to adapt to climate change; and (c) connecting governments and improving data sharing, data hosting, and skills in data analytics to enable wider use of digitally enabled early warning systems and data-driven planning. The project thus also operationalizes key recommendations made in the 2023 Country Climate and Development Report.

C. Project Description

8. **The PDO is to increase inclusive access and use of the internet and strengthen the foundations for digitally enabled services in DRC,** measured through the indicators shown in table 3.1.

Table 3.1. Results Framework

Indicators	Baseline (June/2024)	End Target (Dec/2029)
PDO level indicators		
People using broadband internet (number of people) • Of which female	0 0	30,000,000 15,000,000
Volume of international data traffic: Used international bandwidth in kbit/s per capita (number)	6.56	20
People using digitally enabled services (number of people) • Of which female (number of people)	0 0	1,000,000 500,000
Graduates of advanced digital skills training programs (number) • Of which female (number)	0	3,000 1,000
Intermediate results indicators for DRC		
FDSU operationalized (yes/no)	No	Yes
Retail price of a standard package of mobile data services per month, as a share of GNI per capita (percentage)	10.3	5.1
Kilometers of climate-resilient and energy efficient fiber optic network added (number)	0	10,000
New communities covered by mobile broadband internet, based on new or upgraded network sites (number)	0	650
Public institutions provided with new or improved access to broadband (number)	0	1,000
Private capital mobilized for digital infrastructure (US$, millions) (number)	0	165
Government interoperability framework developed and disseminated (yes/no)	No	Yes

[45] Inga Initiative and DRC Transport and Connectivity Support Project series.
[46] These are listed as priorities in the DRC's NDC and reiterated in their National Adaptation Plan (NAP). https://unfccc.int/sites/default/files/NDC/2022-06/CDN%20Revis%C3%A9e%20de%20la%20RDC.pdf; https://unfccc.int/sites/default/files/resource/DRC-NAP_EN.pdf

Indicators	Baseline (June/2024)	End Target (Dec/2029)
Shared government data hosting solution established and operational (yes/no)	No	Yes
National Computer Security Incident Response Team (CSIRT) established and operational (number)	0	1
Unified digital platform for accessing government e-services established and operational (*Guichet Numérique*) (yes/no)	No	Yes
People enrolled in a digital skills training programs supported by the project (number) • Of which female (number) • Of which teachers (number)	0	6,000 2,000 1,000
Innovation centers established by the project (number)	0	10
Digital startups that receive project support (number) • Of which female-led (number)	0	100 30
Citizen engagement indicator: Grievances registered that receive an adequate response within 30 days (Percentage)	0	100

Note: FDSU = Universal Services Fund (*Fonds de développement des services universels*)

9. **Following is a brief description of the project's components**, the details of which are found in the POM. The project will include co-financing in the amount of €100 million (US$110 million equivalent) from the French Development Agency (*Agence Française de Développement*, AFD), intended to be split *proportionally* with the World Bank's financing across all project components, as described in table 3.2.

Table 3.2.Proposed Project Components and Funds Allocation

Component	MPA Pillar/ Sub-pillar	Total	IDA (US$, millions)	AFD (US$, millions)	UCF (US$, millions)
1. Expanding digital access and inclusion	1	**385.0**	**302.0**	**83.0**	**160.0**
1.1: Introducing frameworks and enablers for digital access and inclusion	1.4	15.0			
1.2: Extending transmission networks to enable inclusive coverage	1.2	190.0			95.0
1.3: Connecting citizens, universities and selected public institutions	1.2, 1.3	180.0			65.0
2. Introducing digital foundations for service delivery	1, 2, 3	**55.0**	**43.1**	**11.9**	**5.0**
2.1: Improving data sharing and management for integrated service delivery	2.2, 3.1	23.0			5.0
2.2: Enabling trust in digital services	2.1, 2.2, 2.3	17.0			
2.3: Enhancing service delivery in key sectors using shared platforms	3.1	15.0			
3. Increasing access to industry-relevant advanced digital skills and stimulating digital innovation	3	**45.0**	**35.3**	**9.7**	**0.0**
3.1: Developing advanced digital skills capabilities in HEIs and tech hubs	3.2	32.0			
3.2: Supporting the development of local content and the national innovation system	3.3	13.0			
4. Institutional Coordination and Project Management	4	**25.0**	**19.6**	**5.4**	**0.0**
5. Contingency Emergency Response Component (CERC)	n.a.	**0.0**	**0.0**	**0.0**	**0.0**
Total		**510.0**	**400.0**	**110.0**	**165.0**

Note: a. 30 million in regional IDA for cross-border links, under Subcomponent 1.2.

10. **Component 1: Expanding digital access and inclusion.** This component will finance the development of enabling frameworks and provide financing to mobilize private sector investment in broadband network infrastructure rollout, , and digital inclusion in areas that are currently un- or under-served, as well as expand government and higher education

connectivity. This component will be implemented using the Cascade and a One World Bank approach. All infrastructure financed would be operated on an open access and non-discriminatory basis and be deployed with a view to support both climate adaptation and mitigation (see annex 6 for more detail). Transaction advisory services will be hired to prepare and manage large-scale network infrastructure investments envisioned under component 1. A firm would also be hired to supervise and inspect infrastructure deployment, ensuring compliance with technical standards. More specifically, this component will finance the following:

- **Sub-component 1.1: Introducing frameworks and enablers for digital access and inclusion**, via upstream support to strengthen the capacity of key government institutions (*Ministère des Postes, Télécommunication et Nouvelles Technologies de l'Information et de la Communication* [MPTNTIC], *Autorité de Régulation des Postes, des Télécommunications et des Technologies de l'Information et de la Communication* [ARPTIC], FDSU, and *Société Congolaise de Fibre Optique* [SOCOF]), featuring a mix of TA, training, acquisition of equipment and IT systems, as well as covering some operational costs needed to enhance policy, regulatory, management, and supervision functions to stimulate sustainable broadband market development, increase readiness to support large-scale connectivity activities planned, and create a climate conducive to scaling private sector investments in universal access. Government will also be supported to explore and evaluate options for improving the institutional framework for digital transformation, more broadly, with a view to enhancing leadership and cross-sectoral coordination.
- **Sub-component 1.2: Extending transmission networks to enable inclusive coverage** through a competitive tender to award catalytic gap financing to eligible private sector providers for the deployment of key fiber optic backbone and cross-border links – both licensed and unlicensed operators would be eligible to bid. The project will provide matching investments ('catalytic gap financing') for the CAPEX required for fiber deployment, incentivizing, and accelerating private sector investment to deploy priority links. The tender process will help structure and coordinate planned investments, ensuring deployment of a resilient network typology that maximizes the number of provincial capitals connected, while ensuring that technical, climate change and regulatory best practices are followed, including infrastructure sharing. The project expects to launch several rounds of tenders, starting with several priority links identified by the Government (see Technical appraisal section).
- **Sub-component 1.3: Connecting citizens, universities, and selected public institutions** by (a) extending rural and peri-urban mobile connectivity through a competitive tender to award catalytic gap financing to eligible private sector providers for the deployment/upgrade of new access networks to expand last-mile coverage. The project will provide matching investments ('catalytic gap financing') to incentivize private sector investment in the areas where the private sector would not go otherwise. This investment will be used to support the private sector in rolling out mobile broadband coverage and upgrading 2G cell sites to more energy efficient 3G/4G/5G cellular technologies, with renewable powered base stations. The FDSU will be assisted to identity priority zone to be targeted, inter alia targeting climate risk affected areas, while ensuring that site-selection is informed by climate risk; (b) bulk pre-purchasing internet capacity and deploying local access networks and communications equipment, including off-grid solar solutions, as needed, targeting a select number of public institutions (including educational institutions, hospitals, and so on) to expand and improve their access and usage of broadband and enable digital services, particularly in climate risk affected areas; and (c) providing targeted support to the nascent NREN (Ebale), supporting its membership in EU's Africa Connect 4 program, enabling access to affordable internet capacity and other shared digital services for higher education, and reviewing its existing network and operating model.

11. **Component 2: Introducing digital foundations for service delivery.** This component will support investments in the cross-cutting digital building blocks (DPI) and trust services needed to cost-effectively and securely expand digital

service provision across DRC, while supporting their re-use in a select number of sectors/services, particularly on the public sector side. More specifically, this component will finance the following:

- **Sub-component 2.1: Improving data sharing and management for integrated service delivery** via (a) financing for an e-government roadmap, featuring the development of an integrated enterprise architecture, systems standards and interoperability framework, an inventory of e-services/IT systems and identification of priority services, and feasibility study for the deployment of unified e-government services portal (*Guichet Numerique*), featuring the integration of a select number of pilot services as well as options for enabling physical access service points via the portal; (b) establishment of a secure internal virtual government network/intranet (building on connectivity investment under Component 1), featuring upstream support for planning, downstream investments in a resilient Network Operating Center, public IP licensing, service-level contracts for a closed virtual network and related IT equipment to enable access among civil servants, and a centralized system for managing/tracking Government's IT resources; (c) development of a consolidated data strategy, with support for data classification and shared data governance standards, analysis of sustainable models for government data hosting, and financing for the establishment of a centralized green solutions for government data hosting (new data center, back-up facility and government cloud); and (d) support for a select number of strategic sectors to adopt shared standard and solutions established to improve their service delivery. Training and workshops to build capacity on a whole-of-government approach to e-government and digital public infrastructure will be provided.
- **Sub-component 2.2: Enabling trust in digital services**, with support for (a) the provision of legal advisory services to ensure the development of secondary legislation and regulation required to implement and clarify key provisions within the new Digital Code and Telecoms Law, including setting out requirements to implement trust services, eliminating any legal and institutional overlaps; (b) operationalization of foundational cybersecurity capabilities, where the new cybersecurity agency would be assisted to establish a robust organizational strategy, identify risks, and establish standards/procedures and response plans through TA, awareness raising, as well as with equipment and IT systems purchase, featuring the establishment of a new CSIRT; (b) operationalization of foundational data protection capabilities, where the new Data Protection Agency would be assisted to develop training modules for internal staff, establish a robust organizational strategy, develop internal and outward-facing guidelines and standards/procedures, conduct awareness raising, and digitally manage queries and complaints though TA and the acquisition of enabling IT systems and equipment; and (d) development and implementation of a roadmap for the adoption of e-signatures across the public and private sectors, including certification processes for qualified e-signatures, based on prioritized use case transactions. These new agencies would also be provided with basic office, IT equipment and training.
- **Sub-component 2.3: Enhancing service delivery in key sectors using shared platforms** via support for (a) the deployment of a unified online platform for public service (*Guichet Numerique*), with financing for the digitalization and integration of a select number of services, based on readiness, demand and impact (to be identified under activity 2.1 a); (b) pilot implementation of physical access points for related service access via the *Guichet Numerique* in a select number of locations; (c) select analytics to expand business-enabling and people-centric digital services, including services related to the development of a foundational ID ecosystem (ID and civil registration), as feasible[47];

[47] The initial project design foresaw significant support for a new foundational ID system, as a key enabler for expanded services access and usage. However, the government recently entered into a high-value commercial PPP agreement for provisioning of ID related services. The World Bank was not able to complete full due diligence during appraisal as this contract was not shared; however, based on the Bank's preliminary assessment key elements of this contract are not fully aligned with the Principles on Identification for Sustainable Development advocated by the World Bank and other development partners. As such, support for foundational ID and civil registration is currently not foreseen in the project but could be considered in later phases should additional information be made available and there is a clear government request in line with the Principles for identification.

and (d) the rollout of basic shared internal government application and services such as email, document tracking and e-archives. Deployment of new digitally enabled application and services is expected to cover a mix of TA to support process reengineering, change management and training for the civil service, linked software, and equipment, as needed. Physical access pilots may also involve targeted and limited rehabilitation of existing government facilities.

12. **Component 3: Increasing access to industry-relevant advanced digital skills and stimulating digital innovation.** This component will provide foundational support for the development of the advance digital skills base and the nascent local innovation system to enable the productive use of technology in both the public and private sectors, with the aim to stimulate technology adoption, development of new services, and access to jobs. More specifically, this component will finance the following:

- **Sub-component 3.1: Developing advanced digital skills capabilities in HEIs and tech hubs** to support the upskilling and capacity building of public officials, students, and entrepreneurs, with a focus on training women and youth and stimulating links between the higher education sector and the IT industry through (a) TA to support a needs assessment study, identify priority training courses to be supported by the project and design a performance-based grants mechanism to scale related training, in line with private sector needs and existing programs in HEIs (to be detailed in a dedicated manual); (b) performance-based grants for the deployment of new advanced digital training courses for students, young entrepreneurs, and public officials at HEIs and tech hubs in areas such as data science, IT engineering, and so on, with targets for women and vulnerable groups to maximize inclusion; (c) TA to provide upstream capacity building to prospective grant applicants and select grant beneficiaries, to design certified advanced digital training courses, administer and monitor implementation of performance-based grants to selected institutions; (d) training for teachers in the *Instituts supérieurs pédagogiques* and *Instituts Supérieurs Professionnels Techniques* allowing them to enhance their digital training skills and use of digital tools in the classroom, with support for technical assistance, training facility refurbishment and training equipment, as needed; and (e) capacity building through assisted mentoring programs, experience sharing, and training delivered by the private sector.
- **Sub-component 3.2: Supporting the development of local content and the national innovation system** to develop locally relevant digital solutions and a select number of new digital services, working in close collaboration with the academic and industrial sectors via financing of (a) a Digital Library System to benefit students and researchers across a select number of HEIs, including both upstream TA and downstream deployment; (b) financing of performance-based grants to support the establishment of new innovation centers on university campuses and in communities, managed in collaboration with tech hubs and/or private sector, with performance-based targets for supporting students to develop successful and innovative IT solutions in response to real-world problems (to be detailed in a dedicated manual - see paragraph 16); (c) grant financing for tech entrepreneurs to provide seed financing and scale up support ('Technical Solution Grants'), with targeted support for female-led and youth-led digital start-ups; (d) TA to provide upstream capacity building to prospective grant applicants, select grant beneficiaries, to administer and monitor implementation of grants to selected institutions/beneficiaries under activity (b) and (c); and (e) other ecosystem support such as TA for start-up digital transformation, organization of conferences, network events, and hackathons.

13. **Component 4: Institutional Coordination and Project Management.** This component will finance the recipient's project management and coordination capacity, including procurement, FM, M&E, and ESS management. Specifically, this component would include the following: (a) operating, meeting, basic equipment, and staff costs of the PIU and technical committee, as well as the recruitment of expert consultants in key areas, such as project management, technical advice, and support for implementation; (b) support for stakeholder consultations, development of ESS instruments, and site-specific assessment and plans (including e-waste), and grievance redress mechanisms; (c) M&E and citizen feedback,

paying special attention to ensuring that project interventions are designed to maximize the participation of women and PWDs in all activities and collecting gender-disaggregated data, where possible; (d) communications costs to, among others, support change management; (e) auditing, procurement planning, and quality assurance to ensure adherence to best practices on procurement related to technology; (f) training and field visit; and (g) third-party monitoring, as needed.

14. **Component 5: Contingency Emergency Response Component (CERC).** This component would have a zero allocation of financing to allow for rapid reallocation of proceeds of uncommitted financing in the event of an eligible crisis or emergency.

D. Project Beneficiaries

15. **The project will benefit people, businesses, and government MDAs across DRC.** Roughly 30 percent of the population will benefit from new and improved access to broadband internet on the back of network rollout and regulatory reform, including quality and affordability gains. Approximately, 650 new communities will be covered by new access networks, and 1,000 public institutions will be provided with new or improved access to broadband. Support provided for strengthening foundations for digitally enabled services on both the private and public sector sides is expected to enhance access to new or enhanced digital services, resulting in expanded usage by at least 1 million people. Meanwhile, at least 3,000 people will be trained in advanced digital skills, facilitating access to jobs, and 1,000 teachers will be equipped to support systemic change in secondary education through digital skills training. Approximately, 100 digital start-ups will be supported to help fuel local digital service innovation. The design of these programs will place a heavy focus on inclusion to mitigate socio-economic marginalization that drives fragility in DRC. Businesses will benefit from a growing connected consumer base, improved legal frameworks, innovation support services and stronger supply of digital talent attuned to market and business needs

E. Institutional and Implementation Arrangements

16. **MPTNTIC will be the lead implementing agency that manages day-to-day project administration.** A dedicated PIU will be established within MPTNTIC, with a coordinator; a deputy coordinator; FM, procurement, and ESS staff; and various other technical specialists. Full PIU staffing will be detailed in the POM. Technical specialists covering key focus areas of the project will act as sectoral leads/liaisons, ensuring close coordination with other MDAs that play a key role in project implementation and strengthening cross-sectoral coordination. Provincial liaison officers will also be recruited, as needed. A dedicated Project Steering Committee (PSC) will provide strategic oversight, chaired by MPTNTIC and co-chaired by the Ministry of Digital (*Ministère du Numérique*, MdN). A technical committee will convene relevant government MDAs on a more regular basis to support key technical-level decisions that require broader agreement, escalating issues to the PSC, where needed. Both the PSC and technical committees will provide a continuous platform for cross-sectoral coordination, building on the government working group established during the project preparation phase. Related arrangements will be further detailed in a dedicated POM. This POM will be supplemented by dedicated manuals for the administration of grants/performance-based grant mechanisms envisaged under Component 3.

17. **Implementation readiness.** A project preparation advance (PPA) was approved and signed on December 15, 2023. This PPA is being used to hire the PIU staff and prepare the POM (and supplementary manuals noted above). Additionally, it will finance the preparation of a series of technical studies to produce tender documents for key procurement packages. Notably, the active DRC Transport and Connectivity Support Project (P161877) is also being used to prepare the tender documents for the large-scale connectivity investments proposed under Component 1, which will be launched in year 1 of implementation.

F. Appraisal Summary

18. **Technical Appraisal.** Large-scale broadband network infrastructure investments under component 1 will feature matching investments (‘catalytic gap financing’) for the CAPEX of constructing new backbone, cross border links and access

networks. The competitive nature of the tendering process will optimize the use of public financing. Fiber optic backbone and cross border links deployed will be based on fiber that will be owned and operated by the private sector on a build operate transfers basis, based on concessional licensing for core networks in place; whereas last mile access networks will be owned by the private sector on a build own operate basis. For the backbone, bidding will be open to licensed and non-licensed operators. Gap financing for backbone may be furnished in exchange for dedicated fiber capacity for government's own internal use (to be determined by transaction advisory services), allowing Government to connect public institutions more affordably, which government would be prohibited from commercializing. The project expects to launch several rounds of tenders, starting with priority links already identified by Government: reinforcing the core trunk between Kinshasa and Lubumbashi, extending networks in Eastern DRC from Goma to Bunia, and Bukavu to Kalemie, as well as Bunia to Kisangani; connecting the south-east between Kalemi and Kamina, and Kolwesi to the Angola border at Dilolo; and extending the network north from Kasongo, Kindu, Lubutu, Kisangani, and Gemena to the Central African border. Several missing cross-border links have been identified, where fiber will be deployed to the DRC border. Assistance will be provided, as needed, to facilitate interconnection agreements with operators in neighboring countries. Tenders will set minimum technical and regulatory requirements, ensuring open access, best practice technical standards and that bidders fulfill basic licensing requirements.

19. **PCM.** The project expects to mobilize private capital under subcomponents 1.2, 1.3 and 2.2. Gap financing for backbone and cross-border links and last mile access networks are expected to mobilize US$95 million and US$65 million in unguaranteed commercial financing, respectively. A conservative approach was applied to PCM, with an average public to private financing ratio of 2:1 for the backbone and 1:1 for last-mile connectivity, based on low ARPU, FCV/security context, challenging geographic terrain, absence of supporting infrastructure in rural areas, and high equipment duties likely to elevate deployment cost. A PPP data hosting model under sub-component 2.1 is also expected to yield PCM, assuming a 2:1 financing ratio, amounting to US$5 million.

20. **The project is aligned with the Paris Agreement on both mitigation and adaptation goals.**

- **Assessment and reduction of adaptation risks.** The main climate risks likely to have adverse impact on project investments, as identified in the CDRS tool, are intense rainfall and floods. They can damage telecommunication cables causing network failure in affected areas and inundating equipment and servers in data centers. The project has included the following activities to reduce adaptation risks: (a) account for projected increase in risk and intensity of flood events, temperatures, and other climate hazards identified in site-specific climate risk assessments in the design of digital connectivity infrastructure and in the greenfield data center and (b) integrate structural climate adaptation measures for climate-resilient digital connectivity and reduced risks of data loss (see annex 6 for details). The project is also designed with the intent to improve resilience of the underserved population by providing internet connectivity to climate hot spots. Overall, the abovementioned adaptation measures reduce the risks from climate hazards in this operation to an 'acceptable' level.
- **Assessment and reduction of mitigation risks.** The project will contribute to the country's low-carbon development goals by deploying energy-efficiency fiber, prioritizing renewable energy to power the digital connectivity infrastructure (for example, by requiring operators to power equipment at targeted MDAs and any cell towers and base stations with solar power) and integrating energy conservation technologies and energy efficiency measures (for example, energy efficient ICT equipment for local area networks). The data center proposed under the project could be a source of substantial GHG emissions; however, the risk is reduced to a low level, as the project will be designed to meet the criteria for EDGE green data center certification to ensure that it is energy efficient (see annex 6 for details). Together, these measures will ensure that activities under this operation are considered universally aligned on mitigation as they will not increase the danger of carbon lock-in in the long term and it has a low risk of preventing the country's transition to low-carbon development pathways.

21. **Financial management.** The project's FM arrangements were assessed in line with the guidelines in the World Bank Directive Financial Management Manual for World Bank Investment Project Financing (IPF) Operations issued September 7, 2021, and effective on March 1, 2010, to determine if the project has acceptable FM arrangements in place that satisfy the World Bank's minimum requirements. Based on the assessment conducted, arrangement are deemed acceptable and the FM risk of the project is rated substantial, bases on the implementation of the following mitigation measures: (a) hiring of qualified PIU FM staff including a financial specialist (to be hired by effectiveness) as well as an accountant, a cashier, and a logistician (to be hired no later than three month after effectiveness); (b) preparation of an annual work plan and budget, as a basis for monitoring budget execution, with unaudited IFRs prepared on a quarterly basis and submitted to the World Bank within 45 days, following the end of the calendar quarter; (c) accounting conducted on an accrual basis, supported with appropriate records and procedures to track commitments and safeguard assets, using the SYCEBNL system; (d) external auditing conducted by dedicated staff recruited through TORs acceptable to the World Bank (no later than six months after effectiveness), based on a shortlist reviewed by the World Bank, and internal auditing supported by the *Cellule d'Appui Technique* (under MPTNTIC), with the validation of the audit reports following the SYCEBNL accounting law, effective January 2024, and auditing conducted in compliance with the International Standards on Auditing. The audit reports will be submitted to the World Bank within six months of the end of the fiscal year and will be publicly disclosed in accordance with the World Bank Access to Information Policy. Four methods of disbursement will be used: advances, reimbursements, direct payments, and special commitments. A DA in US dollars will be opened at an acceptable commercial bank on terms and conditions acceptable to IDA to receive funds, with a fixed ceiling and expenditures documented through statements of expenditures. Payment for activities co-financed by AFD will be channeled through a separate DA.

22. **Procurement**. Procurement will be carried out in accordance with the World Bank Procurement Regulations for Borrowers under IPF, dated September 2023; Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, revised July 1, 2016; and the provisions stipulated in the Financing Agreement. The Procurement Plan, as agreed between the World Bank and the recipient, specifies procurement methods and their applicable thresholds, as well as activities that will be subject to the World Bank review. The implementing agency will submit the Procurement Plan through the online STEP tool, and it will be disclosed to the public. The Procurement Plan will be revised at least every 12 months and as needed, throughout the project's duration. Through the mandatory use of STEP by the implementing agency, the World Bank will be able to monitor all procurement transactions. A PPSD, which includes detailed market conditions, risks, and corresponding market approaches for identified procurable items, has been prepared by the Borrower in addition to the Procurement Plan for the first 18 months. The MPTNTIC has limited prior experience in managing World Bank financed project. Based on the assessment conducted, the procurement risk of the project is rated substantial, based on the implementation of the following mitigation measures: (a) PIU staffed with a Procurement Specialists (to be hired by effectiveness), as well as other qualified and experienced technical consultants that can support the preparation of quality bidding documents; (b) hiring of Transaction Advisory services to help fast-track and aid the implementation of high value and complex contracts, including network investments, involving the private sector; (c) establishment of a Technical Committee, composed of MDAs involved in the project, to improve ownership and provide inputs to procurement activities such as terms of reference/technical specifications.

23. **Environment and social.** The environmental and social risk of this project is rated Substantial. Risks identified include the potential exclusion of certain groups; health and safety risks for workers and communities; working conditions and grievance management for laborers, especially for those indirectly employed or primary supply workers; risk of unemployment due digitalization; issues related to SEA/SH; disruption of traffic during excavation work to install fiber and road damage; road safety; emission of dust; noise; debris and generation of waste during infrastructure deployment; soil erosion and risks of pollution; and security risks, where project activities extend to provinces currently experiencing armed conflicts. To mitigate these risks, by appraisal, the borrower has prepared appropriate ESS instruments, including (a) an SEP; (b) an Environmental and Social Commitment Plan (ESCP); (c) a draft Environmental and Social Management

Framework (ESMF), including a SEA/SH Action Plan; (d) a Resettlement Policy Framework; and (e) Labor Management Procedures (LMPs). The draft ESMF will be completed to include a generic e-waste Management Plan and capacity building assessment and action plan and will be finalized no later than three months after the effective date. When the sites/locations and activities become known with accuracy, site-specific instruments for subprojects, including the Environmental and Social Impact Assessments (ESIAs)/Environmental and Social Management Plans, Resettlement Action Plans, Security Risk Assessments, and eventual Security Management Plans, will be carried out before implementation of project activities and be updated depending of the change of security context, as will the development of Indigenous People Plan, if required. These instruments will guide project implementation, in accordance with the ESF. The SEP shall be updated, if required, during project implementation.

24. **Gender.** The project is supporting targeted action on gender disparities in relation to women's digital skills and entrepreneurship under Component 3. This includes (a) increasing women's enrollment and completion of advanced digital skills training to boost their access to employment and (b) scaling support for women-led start-ups to enhance and bridge gender gaps identified, with corresponding targets (see table 3.1). These efforts will be closely monitored and evaluated for effectiveness. Additional details on identified gender gaps, with associated activities and indicators can be found in annex 7.

25. **Economic and financial.** The project is expected to contribute to sustainable economic growth, through long-term cost-savings, efficiency, and productivity gains, fueled by greater digital adoption by citizens, businesses, and government. The economic and financial analysis undertaken follows a standard CBA approach and relies on available secondary data and reasonable assumptions, based on prior experience. Cashflows are calculated for three different scenarios, which stem from three main sources: (a) economic impact on GDP growth due to broadband penetration increase, (b) economic impact due to digital services and cybersecurity investments, and (c) economic impact from digital skills trainings and innovation. Discounted at 23 percent, the neutral scenario NPV reaches US$24.55 million and yields an IRR of 30 percent. For the optimistic and pessimistic scenarios, the NPVs and IRRs are US$49.52 million and 36 percent and US$2.68 million and 24 percent, respectively. However, it is worth noting that project impacts are likely to extend beyond these calculated results. For example, data protection and e-signatures are likely to produce economic and social gains that are not reflected, based on increasing online services and transactions stemming from improvement in digital trust.

G. Key Risk

26. **The overall risk for the Project in DRC is 'High'**, based on the risk ratings, as follows:

(a) **Political and governance risks are rated as High.** DRC continues to be characterized by a volatile political context and a political economy characterized by a lack of transparency, corruption, and weak governance, and vested interests that may thwart reform. With the 2023 Presidential election completed, the political landscape is likely to be stable for the next few years; however, the institutional landscape may still shift with the appointment of the new government and Parliament pending. The present project is moving forward under a caretaker government. Nevertheless, key investments proposed do benefit from broad support, as demonstrated by existing country strategies and discussion with MDAs involved in the project, which should allow the project to move forward under a new administration and ensure Parliament approval. DRC's decentralized provincial governance structure could also complicate localized implementation. While the latter can partly be mitigated via stakeholder engagement and the project's institutional arrangements, other governance risks may be difficult to mitigate within the scope of the project. Residual risks, therefore, remain High.

(b) **Macroeconomic risks are rated as Substantial.** A proliferation of sectoral fees and tariffs, and an opaque taxation framework for digital, has been identified as a key bottleneck to network investments supported under the project. Moreover, high import duties on devices and equipment push up the capital investment cost required to bridge DRC's infrastructure deficit and pose a challenge to expanded digital access. Efforts to increase domestic revenue

mobilization will therefore need to be balanced with digital access priorities. A review of fiscal policies that apply to the sector is due to be undertaken under the DRC Transport and Connectivity Support Project - PACT (P161877), which could help inform policy dialogue on this issue, with targeted support for device taxation review envisaged under this project. However, only some mitigation measures can realistically be integrated into the project itself. Residual risks therefore remain Substantial.

(c) **Sector strategies and policies risks are rated as Substantial.** The PNN provides a solid basis for project interventions, as most activities proposed are featured in this strategy document. However, reform of the telecoms sector, based on the 2021 Telecoms Law, is still a work in progress with lingering risk of rollback. Examples include ongoing efforts to establish a more mature and transparent telecoms regulatory authority and lingering gaps in telecoms regulations. Secondary legislation implementing the 2023 Digital Code is also largely still missing. Legal due diligence undertaken by the Bank has already identified a number of gaps to be addressed, with further analysis and TA envisioned under the PACT Project (P161877) to frontload adoption of essential regulation in areas such as infrastructure sharing. Legal advisory services financed by the PPA due to be commissioned will also help address any legal gaps identified up front. These efforts could be reinforced by linking the adoption of draft regulations to the forthcoming DPF under preparation, reducing the residual risk to substantial.

(d) **Institutional capacity and sustainability risks are rated as Substantial.** A proliferation of MDAs in the digital sector (introduced by new legal frameworks, such as the Digital Code) elevates institutional risks, for example, in view of the need to clarify mandates and ensure effective coordination. Moreover, many of the institutions in question are nascent and thus have limited funding and institutional capacity. Meanwhile, institutions that do have more capacity have limited experience implementing World Bank projects of this scale. Mitigation measures proposed include upstream TA to clarify institutional mandates and optimize the institutional arrangements for digital transformation and targeted capacity building envisioned for concerned agencies, reducing the residual risk to substantial.

(e) **Fiduciary risks are rated as Substantial** In DRC, fiduciary risks are high and ubiquitous. The capacity for FM and procurement is weak. As a result, and despite the implementation of tailored fiduciary oversight, the World Bank's portfolio represents significant FM and procurement risks, including fraud and corruption. Mitigation measures detailed above are expected to reduce the residual risk to substantial.

(f) **Environmental risks are rated as Substantial.** Digital infrastructure investments proposed, including the deployment of fiber, new cell-sites, and physical data hosting solutions are likely to have numerous environmental impacts, which will need to be proactively managed. Purchase of digital hardware and devices also poses environmental risks related to safe final disposal of hazardous e-waste. Provisions have been made in the project for implementation of the Government's e-waste policy. The residual environmental risk is substantial.

(g) **Social risks are rated as Substantial.** Digital infrastructure investments could yield risks related to occupational and community health and safety as well as labor working conditions, especially for those who are indirectly employed or primary supply workers. Given the local prevalence of gender-based violence, risks related to SEA/SH are also present. Deployment of infrastructure could also involve temporary displacement. Risks of social inclusion will need to be actively managed. The residual social risk is substantial.

(h) **Stakeholder risks are rated as Substantial.** While MPTNTIC will spearhead implementation, active implementation support by several MDAs will be required – especially in relation to government connectivity and the re-use of DPI – at both the central and provincial levels. While there is alignment on activities covered, ensuring effective coordination will be a challenge. Mitigation measures proposed include inclusive implementation arrangements, featuring a multi-agency steering and technical committees that includes the main MDAs concerned. The project will also rely on heavy private sector participation in implementing infrastructure investments. Currently, the Government has a mixed track record of success public-private dialogue; however, additional support will be

provided to enhance consultation and market sounding, notably with telecoms operators. These measures are expected to reduced residual risk to substantial.

(i) **Other risks associated with climate and disaster risk are rated Substantial.** The country is exposed to high risk of floods, which may adversely affect digital infrastructure by damaging fiber optic networks and base stations, which the project will be deploying. Soft components will be introduced through the project to mitigate the risk, as specified under paragraph 20 on adaptation (see also annex 6 for details).

(j) **Other risks associated with cybersecurity and data protection are Substantial.** Currently, DRC has very weak frameworks and capabilities in place to anticipate, mitigate, and respond to related risks. However, the project has been designed to actively build related capacity, with targeted support under Component 2. In view of this, the residual risk is reduced to substantial.

(k) **Other risks associated with Security are Substantial.** The project plans to deploy networks in areas of DRC affected by conflict, notably Eastern DRC. For example, Ituri and North Kivu provinces are currently characterized by armed conflicts. The project will take stock of the evolving security context. As noted above, Security Risk Assessments will be carried out before implementation of project activities, with Security Management Plans developed, as needed, before launching activities in these areas. Advertising and bidding documents will clearly identify areas concerned to allow bidders/proposants to include the appropriate risk mitigation measures in their bids /proposals. With these mitigation measures, residual risks remain substantial.

ANNEX 4: Republic of Angola

Task Team Leaders: IDD04: Naomi Halewood and Daniel Nogueira-Budny; EAEF2: Sunita Varada. Core Team: IDD04: Giacomo Assenza, Celso Famio Almeida Luis Da Cunha, Josemar Adriano, and Tasneem Rais; IDD03: Claudio Muniz Machado Cavalcanti; EAEF2: Emilia S Franklin Malavoloneque, Ruben Barreto, and Delfim Mampassi E Martins Mawete; LEGOP: Adele Moukheibir Barzelay; HAES2: Boban Paul and Emma Montiel; LEGAM: Edith Mwenda, Ntaya Bandawa, and Isabella Micali Drossos; WFACS: George Ferreira Da Silva and Issiaka Traore; EAEG2: Joao Tinga and Zelia De Fatima Arieiro Pinheiro; EAERU: Danilo Pereira de Carvalhoand Carla Sofia Samuel De Sousa; SAEE3: Paulo Jorge Temba Sithoe and Pinto Francisco Fiel; SAES3: Santiago Estanislao Olmos and Susana Maria Malheiro Mendes; AEMAO: Amada De Jesus Lourenco Rodrigues Deia

DATASHEET

BASIC INFORMATION

Project Beneficiary(ies)	Operation Name		
Angola	Angola Digital Acceleration Project		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P180693	Investment Project Financing (IPF)	Moderate	

Financing & Implementation Modalities

[✓] Multiphase Programmatic Approach (MPA)	[✓] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternative Procurement Arrangements (APA)	[ ] Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date	Expected Program Closing Date
27-Jun-2024	31-Mar-2030	31-Oct-2032
Bank/IFC Collaboration	Joint Level	

Yes	Complementary or Interdependent project requiring active coordination

MPA Program Development Objective

MPA FINANCING DATA (US$, Millions)

MPA Program Financing Envelope	2,480.00
with an additional request to IBRD	5.28
with an additional request to IDA	86.00

Proposed Development Objective(s)

To accelerate digital inclusion, increase access to digitally enabled services, and unleash digital opportunities for the advancement of Angola's digital economy.

Components

Component Name	Cost (US$)
Component 1: Affordable Broadband Connectivity and Inclusion	100,000,000.00
Component 2: Scaling-up inclusive and safe digital public infrastructure	122,250,000.00
Component 3: Productive digital usage for economic opportunities	54,000,000.00
Component 4: Project Management	23,000,000.00
Component 5: CERC	0.00

Organizations

Borrower:	Republic of Angola
Implementing Agency:	Institute for Administrative Modernization

MPA FINANCING DETAILS (US$, Millions)

Board Approved MPA Financing Envelope	**0.00**
MPA Financing Envelope:	2,480.00
of which Bank Financing (IBRD):	440.00
of which Bank Financing (IDA):	2,040.00

of which Other Financing sources:	0.00

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)? Yes

Is this project Private Capital Enabling (PCE)? No

SUMMARY

Total Operation Cost	**380.00**
Total Financing	**380.00**
of which IBRD/IDA	**300.00**
Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	300.00

Non-World Bank Group Financing

Commercial Financing	80.00
Unguaranteed Commercial Financing	80.00

Expected Disbursements (US$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030
Annual	0.00	25.00	80.00	60.00	50.00	45.00	40.00
Cumulative	0.00	25.00	105.00	165.00	215.00	260.00	300.00

PRACTICE AREA(S)

Practice Area (Lead)

Digital Development

Contributing Practice Areas

Finance, Competitiveness and Innovation

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary No Fiduciary risk rating under Preparation Phase has been completed in Financial Management System to date. No Procurement rating under Preparation Phase has been completed in PRAMS to date.	Substantial
7. Environment and Social Environment Risk rating from Specialist: Moderate as of 2024-05-03T18:48:15Z Social Risk rating from Specialist: Moderate as of 2024-05-03T18:48:15Z	Moderate
8. Stakeholders	Moderate
9. Other	Low
10. Overall	Substantial
Overall MPA Program Risk	

POLICY COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

ENVIRONMENTAL AND SOCIAL

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

LEGAL

Legal Covenants

Sections and Description
Not later than thirty (30) days after the Effectiveness Date, the Borrower has hired an environmental specialist and social specialist on a full-time basis, and has adopted the Labor Management Procedures (LMP). Not later than one

hundred and twenty (120) days after the Effectiveness Date, the Borrower shall prepare the following environmental and social framework documents: Environmental and Social Management Framework (ESMF) to include Resettlement Policy Framework (RPF); Chapter on Indigenous People risks assessment Plan (IPP); Code of practice for electronic waste management; Entitlement Matrix for the project affected people (PAP); Sexual Exploitation and Abuse / Sexual Harassment Risk Assessment (SEA/SH) and code of practice for electronic waste management.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	Article V	The Borrower has established the PIU with a mandate, terms of reference and resources, Satisfactory to the Bank, and has appointed to said PIU a Project coordinator, and recruited an adjunct coordinator, and a procurement specialist, all in accordance with the Procurement Regulations.	IBRD/IDA
Effectiveness	Article V	The Borrower has established the Project Steering Committee, with composition and mandate acceptable to the Bank.	IBRD/IDA
Effectiveness	Article V	The Borrower has prepared and adopted the Project Implementation Manual, in form and substance satisfactory to the Bank.	IBRD/IDA
Effectiveness	Article V	The Subsidiary Agreement has been executed on behalf of the Borrower and the Project Implementing Entity and all conditions precedent to its effectiveness shall have been met.	IBRD/IDA
Disbursement	Schedule 2	No withdrawal shall be made under Category (1) unless the Broadband	IBRD/IDA

		Connectivity Program Memorandum of Understanding has, been executed on behalf of the Project Implementing Entity and the relevant MDA, in form and substance satisfactory to the Bank.	
Disbursement	Schedule 2	No withdrawal shall be made under Category (2) unless the Borrower has, in form and substance satisfactory to the Bank: (i) prepared, adopted, and submitted to the Bank the Digital Inclusion Program Manual; and (ii) the Digital Inclusion Program Memorandum of Understanding has been executed on behalf of the Project Implementing Entity and the relevant MDA.	IBRD/IDA
Disbursement	Schedule 2	No withdrawal shall be made under Category (4) unless the Borrower has: (i) adopted an ID enabling legal framework, acceptable to the Bank, that aligns with the Principles on Identification for Sustainable Development; and (ii) a Memorandum of understanding on Digital Identification has been executed on behalf of the Project Implementing Entity and the relevant MDA.	IBRD/IDA

Disbursement	Schedule 2	No withdrawal shall be made under Category (5)(a) unless the Borrower has, in form and substance satisfactory to the Bank: (i) prepared, adopted, and submitted to the Bank the Digital Entrepreneurship Support Manual; and (ii) INAPEM Implementation Agreement has been executed on behalf of the Project Implementing Entity and INAPEM.	IBRD/IDA
Disbursement	Schedule 2	No withdrawal shall be made under Category (6) unless the Borrower has, in form and substance satisfactory to the Bank, prepared, adopted, and submitted to the Bank the Digital Entrepreneurship Support Manual; and (ii) INAPEM Implementation Agreement has been executed on behalf of the Project Implementing Entity and INAPEM.	IBRD/IDA

A. Sector Context

1. **Growing a vibrant digital economy has become a prerequisite for Angola's intention to transition from an oil economy to a more diversified economy that can benefit all parts of the society.** Angola's oil-export economic model has recently shown severe limitations to ensuring inclusive growth. Of the estimated population of 36.1 million, almost a third (31.1 percent) live below the international poverty line with less than US$2.15 per day.[48] This division is also reflected in the percentage of unique subscribers for mobile broadband service, which was only 39 percent at the end of 2023.[49] Only 5 percent of households have subscription to fixed internet,[50] and only 39 percent of the population in 2022 were thought to be accessing or using the internet. [51] These figures are well below other lower-middle-income countries and

[48] World Bank. 2024. Angola Economic Update. October.
[49] GSMA Intelligence. This indicator takes into account that mobile phone owners in Angola on average own two SIM cards.
[50] Telegeography; ITU World Telecommunication/ICT Indicators Database.
[51] ITU World Telecommunication/ICT Indicators Database.

digital exclusion becomes even more pronounced when considering access and usage by traditionally marginalized groups such as women: women are 25 percent less likely to use mobile internet.

2. **The Government of Angola (GoA), recognizing the need to accelerate uptake of digital infrastructure and services as inputs to economic and human development, has highlighted the role of digital solutions in key initiatives under the 2023–2027 National Development Plan.** And while Angola has some of the building blocks of a digital economy, further reforms and investments are needed for it to become a solid foundation for Angola's growth. One of the key building blocks is the telecommunications industry, one that Angola has made notable advancements in but with sole reliance on public and external debt financing, which is fast dwindling. Future investments will need to be designed to crowd in private investment for Angola to achieve universal access by 2030, a target set out by the United Nations and African Union. State intervention in the supply side, coupled with state ownership of telecom operators, has hindered real competition, hampered entry of new operators and therefore private and foreign investments, and produced a number of unprofitable operators that pose a fiscal burden for the GoA. This situation ultimately keeps prices for broadband services unaffordable for the majority of the population and stifles innovation. Steps have been taken to prepare the ground for significant reforms, as the GoA has included the state-owned telecom operators on its privatization list, Angolan Privatisation Programme (PROPRIV), approved by Presidential Decree no. 250/19 of August 5, 2019. In 2021 the GoA passed the Basic Law of Independent Administrative Entities, Law 27/21, to increase the independence of sector regulators, including the telecom regulator, *Instituto Angolano das Comunicações* (INACOM), which when implemented will help with promoting a more competitive broadband internet market. The GoA has been engaged with a joint IFC-World Bank team to pursue a more comprehensive approach to reducing state ownership in the telecom market to address market structure issues.To start, GoA has signed a mandate with the IFC Transaction Advisory Services team to support the partial privatization of Unitel. Following through with pro-competition reforms in the next few years will be critical to ensure a vibrant telecom industry, which will have direct implications on how vibrant Angola's digital economy will be.

3. **A groundswell of support is forming for another key building block, the DPI, the "digital rails and roads of the 21st century."** On the public sector front, the GoA's efforts to digitalize its public sector have been siloed, leading to duplication of efforts and inefficiencies. The country lacks a whole-of-government approach to digitalization and many of the GoA's administrative and public services are delivered offline. The country's foundational ID coverage is limited at around 46 percent of the population, due in large part to the country's complex and antiquated legal framework and non-standardized procedures for civil registration, as a birth certificate is a core requirement to obtain an ID (*Bilhete de Identidade,* BI). There is no data exchange layer to allow government entities to share data.Recent developments include simplification of birth registration and BI procedures through Presidential Dispatch 232/22, unique ID numbers in new birth certificates, the pilot interoperability of the civil registry and ID databases, approval of an interoperability framework, and de-bureaucratization and digitalization of high-impact services through the Simplifica initiative. The ID4D Ecosystem Diagnostic Report and the companion piece, the ID Enabling Environment Assessment (IDEEA), conducted by the World Bank is informing the Government's deliberation on the selection of high-impact use cases for its digital ID, for example, in the following:

- **In social protection,** with the expansion of the Kwenda cash transfer program (supported through the Strengthening the National Social Protection System Project (P169779)).—and the introduction of cash transfers in emergency situations—a unique ID system with a digitally verifiable ID could help identify eligible beneficiaries, authenticate their identity to ensure beneficiary uniqueness, and verify their identity as they receive payments.
- **In the financial sector,** one of the key reasons limiting the growth of DFS is the difficulties that providers have satisfying KYC requirements. If digital IDs were rolled out, the more than 50 percent of the population

excluded from the banking sector would be able to open low-value mobile money or bank accounts using these Government-issued IDs.

- **In education,** digital IDs could increase student completion of primary education: one barrier to completion is the requirement for students to present legal identification to continue studying past the Grade 6. Additionally, digital IDs could help reduce fraud associated with the World Bank-financed secondary scholarships program.

4. **To ensure sustainable and productive uptake of the internet and digital services, focus on demand-side interventions, particularly for the burgeoning youth population; entrepreneurs; and micro, small, and medium enterprises (MSMEs), will be as critical to ensure digital inclusion.** Of the active population, 11 million are employed or carry out some paid activity, with 80 percent working in the informal sector. The numbers are even more concerning for youth, since the unemployment rate for 15- to 24-year-olds is 52.9 percent. This is the highest unemployment rate by age group, an indication of the economy's inability to create economic opportunities for the growing population. Moreover, lack of job opportunities and low skill levels also disproportionately affect women in Angola.[52] The overall ecosystem for start-ups in Angola is in a nascent stage of development, with fewer than 1,000 start-ups currently operating.[53] The number of technology-based/technology-enabled start-ups is only 125. The existing Diversifica+ Project (P178035), and additional activities led by the IFC, address the needs of MSMEs that are adopting digital models and legal and regulatory barriers for start-ups. But gaps still exist in supporting digital start-ups, including early-stage financing. Increasing digital access will be particularly important in the Lobito Economic Corridor, given its growing importance for Angola's economic diversification. Additionally, the limited availability of skilled professionals in digital and IT remains among the main constraints for digital businesses in Angola. Firms report shortage of qualified software developers and engineers as one of their key challenges. This is due to the low number of specialized professionals available. For example, in 2014, Angola had only 596 graduates in IT.[54]

5. **As uptake of the internet and digital services increases across Angola, the GoA will need to strengthen cybersecurity and data protection capabilities to ensure that the digital space is safe for Angolans**. According to the 2021 Global Cybersecurity Index, Angola ranked 31 out of 43 countries in Africa, with a score of 12.99 out of 100. The country still needs to define its foundational policies, laws, and strategies, as well as institutions with the capabilities to detect, respond to, and mitigate incidents. Angola's recently established Data Protection Agency (*Agência de Protecção de Dados*, APD) is updating its data protection law to be more in line with the Malabo Convention. The Cybersecurity Directorate under the *Ministério das Telecomunicações, Tecnologias de Informação e Comunicação Social* (MINTTICS) is also working to increase its capacity. Capacity building of these agencies is needed to ensure implementation of the legal frameworks.

B. Relevance to Higher-Level Objective

6. **The proposed project is fully consistent with Angola's recently approved 2023–2027 National Development Plan, which is centered on human capital, infrastructure, and economic diversification.** The project interventions will directly support key programs under the National Development Plan including the promotion of digital literacy (Program 13) and digital entrepreneurship (17), the expansion of digital inclusion and connectivity (28), and the digitalization of the public sector (28). The project is aligned with the World Bank's Gender Strategy, with its focus on bridging gender gaps for increased digital inclusion. The project is aligned with key pan-African and regional government initiatives, such as the AU's 'Agenda 2063,' and the World Bank's DE4A Initiative.[55]

[52] World Bank. 2020. *Angola Poverty Assessment.*
[53] IFC and Startup Genome. 2023. Angola Startup Ecosystem Assessment.
[54] UNESCO (United Nations Educational, Scientific and Cultural Organization). Angola Education and Literacy. http://uis.unesco.org/country/AO.
[55] https://www.worldbank.org/en/programs/all-africa-digital-transformation.

7. **The project will support mobilization of private capital for digital infrastructure investments.** The project will contribute to the MFD agenda by promoting the participation of the private sector in the development of national broadband networks, data infrastructure, and digital skills programs. The project will strategically leverage public funds to directly support PCM, via investments in broadband network expansion through competitive tendering processes. The project will also address key bottlenecks to commercial investments by developing enabling legal and regulatory frameworks and demand stimulus that helps create markets, addressing identified market failures, in line with the cascade approach.

8. **The project is consistent with Angola's NDC and will contribute to country's efforts on climate change mitigation and adaptation.** Angola aims to reduce GHG emissions up to 24 percent by 2025 compared to the base year (2015).[56] The services sector, including telecommunications, is growing rapidly, accounting for over 40 percent of GDP.[57] By integrating low-carbon measures in telecom network activities, the project will contribute to reducing GHG emissions from the growing telecommunications sector, such as by replacing copper cables with higher efficiency and energy-saving fiber optic cables and supporting adoption of climate-informed guidelines and regulations in broadband connectivity infrastructure. Angola's NDC has also prioritized renewable energy solutions, to which the project will contribute, for instance, by replacing diesel generator cellular base stations with solar powered cables. While Angola is yet to finalize its National Adaptation Plan, the NDC outlines the need to build resilience in the national infrastructure and communities vulnerable to climate disasters to which the project will contribute by integrating climate resilience measures in digital connectivity infrastructure and provision of digitally enable services such as digital ID and emergency communication response solutions for communities in climate hot spots.

C. Project Description

9. **The PDO** is to accelerate digital inclusion, increase access to digitally enabled services, and unleash digital opportunities for the advancement of Angola's digital economy, measured through the indicators shown in table 4.1.

Table 4.1. Results Framework for Angola

Indicators	Baseline (June/2024)	End Target (October/2029)
PDO level indicators		
People using broadband internet (number of people) • of which female (number of people)	0	13,500,000 6,750,000
People with digitally verifiable identification (number of people) • of which female (number of people)	0	10,000,000 5,000,000
People using digitally enabled services (number of people) • of which female (number of people)	0	8,000,000 4,000,000
Firms that adopt or enhance digital technologies to offer digital services (additional number) • of which female-led (number)	0	400 100
Volume of international data traffic: used international bandwidth in kbit/s per capita (number)	5.5	10
Intermediate results indicators		
Private capital mobilized (US$, million)	0	80
Retail price of a standard package of mobile data services per month, as a share of GNI per capita (percentage)	2.7	2
Number of adopted reforms (number)	0	10
People trained through digital literacy programs (number)	0	100,000, 50,000

[56] https://unfccc.int/sites/default/files/NDC/2022-06/NDC%20Angola.pdf.
[57] https://unfccc.int/sites/default/files/NDC/2022-06/NDC%20Angola.pdf.

Graduates of advanced digital skills training programs (number) • of which female	0	5,000 2,500
Available digital enabled services (number)	0	30
Proportion of users of digital public services who report being satisfied with service (percentage)	0	75
Completed transactions requiring digital authentication (number)	0	500,000
National CIRT established and operational (number)	0	1
Increased sales for beneficiary firms (percentage)	0	50
Firms that receive support from BDS/incubators that receive project support (number) • of which female-owned • of which youth-owned	0	400 100 100
Survival rate of beneficiary start-ups (Percentage) • of which female-owned and -managed firms (Percentage)	0	25 25
Citizen engagement: Grievances registered that receive an adequate response within 30 days (percentage)	0	100
Climate-related: National standard bidding documents for broadband deployment updated with new climate resilience standards	0	5

10. **The following paragraphs provide a brief description of the project's components**, the details of which are found in the Financing Agreement, Technical Project Document, and Project Implementation Manual. The proposed project is an IPF operation comprising five components (table 4.2).

Table 4.2. Proposed Project Components and Funds Allocation

Component	Corresponding MPA Sub-pillar	IBRD (US$, millions)	PCM
Component 1: Affordable Broadband Connectivity and Inclusion		**100.0**	—
1.1: Broadband Connectivity Program	1.1	*75.9*	30.0
1.2: Digital Inclusion Program	1.2	*15.0*	—
1.3: Broadband Internet Market Regulatory Reform	1.4	*9.1*	—
Component 2: Scaling-up Inclusive and Safe Digital Public Infrastructure		**122.7**	—
2.1: Foundations for Digital Governance	2.1, 2.2, 3.1	*55.0*	—
2.2: Digital ID	2.1	*45.0*	—
2.3: Re- and Up-skilling the Public Sector	3.2	*10.0*	—
2.4: Strengthening the Cybersecurity and Data Protection Foundations	2.2, 2.3	*12.7*	—
Component 3: Productive Digital Usage for Economic Opportunities		**54.0**	—
3.1: Digital Entrepreneurship Support Program	3.3	*34.0*	50.0
3.2: Boosting Digital Skills	3.2	*20.0*	—
Component 4: Project Management		**22.6**	—
Component 5: CERC		**0.0**	—
TOTAL		***300.0[a]***	**80.0**

Note: a. Includes 0.25 percent IBRD front-end fee (US$750,000).

11. **Component 1: Affordable Broadband Connectivity and Inclusion.** This component will increase access to affordable and quality internet service, establish digitally enabled community spaces (that is, computer labs that offer digital literacy training), and digital literacy programs for first-time users of digital devices and services. Financing through the Broadband Connectivity Program is expected to catalyze a PCM ratio of 2.5:1 (US$75 million: US$30 million). This estimation reflects consultations with private sector providers and government counterparts, binding constraints in terms of available financing for network expansion including continued currency devaluation and declining oil revenue, as well as the levels of development (GDP and Human Development Index), market size (population and revenue generated by

users), and private sector interest. This component will have links to other development initiatives on developing the Lobito Economic Corridor to ensure that broadband internet connectivity inputs are available for those initiatives. It will also strengthen the legal and regulatory framework to dynamize competition in the broadband internet market. More specifically it would finance the following activities:

- **Subcomponent 1.1** will support(a) a broadband connectivity gap assessment to identify and prioritize unserved or underserved geographic lots and public institutions such as schools, and cross-border connectivity needs with neighboring countries to inform the design of the Broadband Connectivity Program; (b) TA for the design and implementation of a competitive tendering process to be adopted by the Broadband Connectivity Program; and (c) financing of the Broadband Connectivity Program that will, through competitive tenders, award catalytic gap financing to extend broadband networks to enable inclusive coverage through provision catalytic financing to private operators under a call for competitive tenders that will cover CapEx costs for new construction, repair, and upgrade of the national backbone network infrastructure (for example, copper to fiber cables) and last-mile access networks by following international best practices for energy efficiency. It is envisioned for the Broadband Connectivity Program to provide catalytic gap financing for the private sector, leveraging tender processes, such as the reverse auction or other methods, which will ensure private sector financing is optimized and public financing minimized.
- **Subcomponent 1.2** will support the design, establishment, and implementation of a grant mechanism for nongovernmental organizations, community groups, and social associations to establish and manage digitally enabled community spaces (such as computer labs) to increase digital inclusion (to be informed by the broadband gap analysis under Subcomponent 1.1). A grant manual will be prepared before disbursement of this activity. Support will be provided for the following: (a) financing of computer lab refurbishment; wiring of offices and buildings for internet connectivity; hardware such as computers, printers, and scanners; software for use of computer and the internet; and furniture and office supplies; (b) aggregated prepurchase of internet bandwidth capacity for 10–15 years; and (c) assessment, design, and implementation of a community-level, digital literacy program utilizing digital 'agents' or ambassadors, trained and supervised by *Fundo de Apoio Social* (FAS), to impart a mobile-first approach, basic digital literacy, and digital financial literacy skills (and other skills with tangible benefits) to underserved communities, based on the national digital skills strategy to be developed under Subcomponent 3.2(b). Digital literacy programs will be tailored to the needs of women, such as tying the digital literacy training to their livelihood and vocation, and considering the appropriate time of day the training would be held, both at the computer labs and also within the communities themselves, to ensure maximum inclusion. Trainings will focus on targeting underserved communities.
- **Subcomponent 1.3** will support strengthening of INACOM through (a) review and update of the telecom sector legal and regulatory framework; (b) TA for telecom SOE reform potentially supporting activities such as industrial cost accounting, revision of company statutes for telecom SOEs, and staff planning and strategies, to reconcile SOE arears between telecom SOEs and public administration; (c) development of secondary regulatory instruments following Presidential Decree no. 42/22 on infrastructure sharing, including significant market power assessments, pricing guidelines, model contracts, and dispute resolution mechanisms, and establishment of a live broadband infrastructure asset registry; (d) development of other regulations such as number portability, national roaming, rights-of-way and interconnection regulations, among others; (e) procurement of hardware and software for spectrum monitoring and management and QoS monitoring; (f) development of guidelines and national protocols for climate-smart digital infrastructure that will introduce tighter standards for energy efficiency and climate resilience in broadband infrastructure and to be applied to infrastructure deployment under Subcomponent 1.1; and (g) capacity-building training, workshops, and study tours to visit other regulators.

12. **Component 2: Scaling-up Inclusive and Safe Digital Public Infrastructure.** This component will unleash innovation in government and the private sector so that citizens can more easily access public and private services online. It will build Angola's DPI to put in place the framework and enabling environment for the growth of the country's digital economy. It will do this through four mutually reinforcing subcomponents aimed at (a) institutionalizing a whole-of-government approach to digitalizing the public sector, (b) introducing a digital identification solution to enable Angola's citizens to digitally access public and private services, (c) sustainably building the next generation of the public sector workforce to support the GoA's adoption of digital solutions, and (d) creating a secure and trustworthy online space for economic and social activities. Activities will focus on accessibility and inclusion and follow a mobile-first approach.

- **Subcomponent 2.1** will support (a) update of the legal and regulatory framework to build the enabling environment for the digital economy (including updating the ID, cybersecurity, cybercrime, and data protection enabling legal and regulatory frameworks); (b) whole-of-government and citizen-centric Digital Transformation Strategy; (c) TA to assess current and planned data hosting and data management needs; (d) digitalization of high-impact public services; (e) interoperability platform (piloted through the Single Trade Facilitation Window, financed through the Diversifica+ Project, P178035) and centralized GoA services portal; (f) expansion of access to services portal through design, piloting, and rollout of kiosks in government and community buildings; (g) PKI and e-signature platform; and (h) the GoA open data portal.
- **Subcomponent 2.2** will support (a) design of the digital identity policy and strategy; (b) development of a of a digital identity management system (using open standards); (c) implementation, piloting, and rollout of the digital identity management system, including integration with the automated biometric identification system and data protection by design aspects; (d) deployment of an online authentication platform that enables integration with existing functional IDs within key public sectors and thus the layering of services and support packages, as well as development of digital authentication and verifiable credentials for the public sector, including soft and hard copy credentials (that is, 'phygital' approach) to help minimize exclusion due to the digital divide; (e) provision of digital ID verification services for private sectors entities to facilitate the offering of digital services, including those requiring proof of vital events; (f) development of digital verifiable credentials; and (g) issuance of digital ID credentials for all existing BI holders, alongside issuance of credentials and enrollment of traditionally marginalized groups such as PWDs to avoid exclusionary risks. Dedicated registration events will be planned to ease access for women and their children, and registration would be coupled with information on public services that they would be eligible for with their new ID.
- **Subcomponent 2.3** will support (a) a methodology to assess and monitor the digital skills level of the public sector; (b) design and implementation of a public sector digital skills policy based on national digital skills strategy to be developed under Subcomponent 3.2(b); (c) transition of the National School of Administration and Public Policy (ENAPP) to offer online courses; (d) design, piloting, and scaling up of hybrid digital skills programs and courses for ENAPP; and (e) scaling up of ENAPP's collaboration with ADP and MINTTICS on data protection and cybersecurity trainings and sensibilization for public servants and the general public. Tailored courses will be designed for women to include awareness raising of how to protect oneself from on extortion, fraud, and SH targeting women and children online.
- **Subcomponent 2.4** will support (a) assessment of the current national cybersecurity maturity and development of a National Cybersecurity Strategy and Implementation Plan; (b) establishment of a CIIP framework; (c) establishment of incident response capabilities including designing and establishing a CIRT/Security Operations Center; (d) capacity-building training; (e) design and delivery of cybersecurity skills and awareness raising programs; (f) development of internal APD regulations and standards, guidelines, codes of conduct, and certification schemes; (g) TA for the establishment of budget, staffing, capacity building, and training plans; (h) TA for the establishment of M&E activities and development of simplified and automated processes; and (i) support for twinning/partnerships opportunities with other regulators.

13. **Component 3: Productive Digital Usage for Economic Opportunities.** Finally, the project will create more digital opportunities for Angolans by leveraging economic opportunities of getting online and supporting their entrepreneurial efforts as well as boosting digital skills adoption. This component will support the development of digital businesses and entrepreneurs, including existing traditional businesses with the potential for digital adoption. The digital entrepreneurship subcomponent will increase institutional capacity to support digital businesses, strengthen firm capabilities through TA and funding, improve the product offer of incubators and business service providers, and increase early-stage financing for digital entrepreneurs through acceleration programs. Financing through the acceleration programs is expected to catalyze a PCM ratio of approximately 5.5:1 (US$50 million:US$9 million). This estimation reflects calculations based on similar work in other countries and consultations with accelerators. It will also support the business environment by building the country's supply of digital skills and linking it to private sector demand. More specifically it will finance the following:

- **Subcomponent 3.1** will focus on strengthening the digital entrepreneur ecosystem by providing (a) TA to strengthen the National Institute for the Support of Micro, Small, and Medium Enterprises (INAPEM), including strengthening the existing one-stop-shop portal for business development, developing a sustainable strategy for start-up support, and implementing key activities through the development of a Start-up Angola Program, greater links with university programs to develop digital entrepreneurs, and strengthening the start-up culture by organizing networking and learning events; (b) support to start-ups and businesses developing digital products to diagnose needs, provide vouchers to select firms to purchase TA from business service providers, and provide matching grants for select firms with innovative 'proof of concept' ideas to implement; (c) TA for various incubators and business service providers to strengthen their service offerings for digital start-ups and firms developing digital products and encourage new digital start-ups; and (d) establishment of acceleration programs focusing on digital start-ups. The matching grant program will include priority amounts/windows for women-, PWD-, and youth-owned or youth-managed businesses. A dedicated grant window for women will tailor criteria to their needs. A manual for this subcomponent, including the matching grants, will be prepared before disbursement of this activity. Similar to the Diversifica+ Project, the subcomponent will include a focus on firms and business service providers in the Lobito Economic Corridor.
- **Subcomponent 3.2** will support the GoA in developing and implementing a national strategy for the provision of basic, intermediate, and advanced digital skills training that is focused on empowering the youth and underemployed so they can obtain better jobs, and to ensure supply of human capital needed to grow the digital economy. Activities would include (a) a needs assessment to determine demand and supply of basic, intermediate, and advanced digital skills required by the public and private sectors; (b) national digital skills strategy and implementation plan to inform Subcomponents 1.2, 2.3, and 3.2; (c) design and implementation of a digital skills development program to tackle youth unemployment based on findings from the needs assessment; (d) TA with a gender lens to the design of dedicated programs for the development of IT capabilities focused on women; (e) financing, designing, and expanding basic, intermediate, and advanced digital skills courses/programs working with relevant government agencies, private providers, entrepreneur support organizations, TVETs, and neighborhood associations; and (f) internet connectivity and hardware and software such as computers to the National Labour and Professional Training Institute . The training programs will include specific targets to encourage maximum participation of women and girls, to promote greater opportunities for them in digitally enabled professions and businesses, and PWDs.

14. **Component 4: Project Management and Implementation Support.** This component will finance project management and implementation of project-associated activities, including staffing and operating costs of the PIU, independent audits and quality assurance, and M&E to support implementation and ESF compliance.

15. **Component 5: Contingency Emergency Response Component (CERC).** In recognition of Angola's vulnerability to shocks, a CERC is included to help respond swiftly to eligible crises and emergencies.

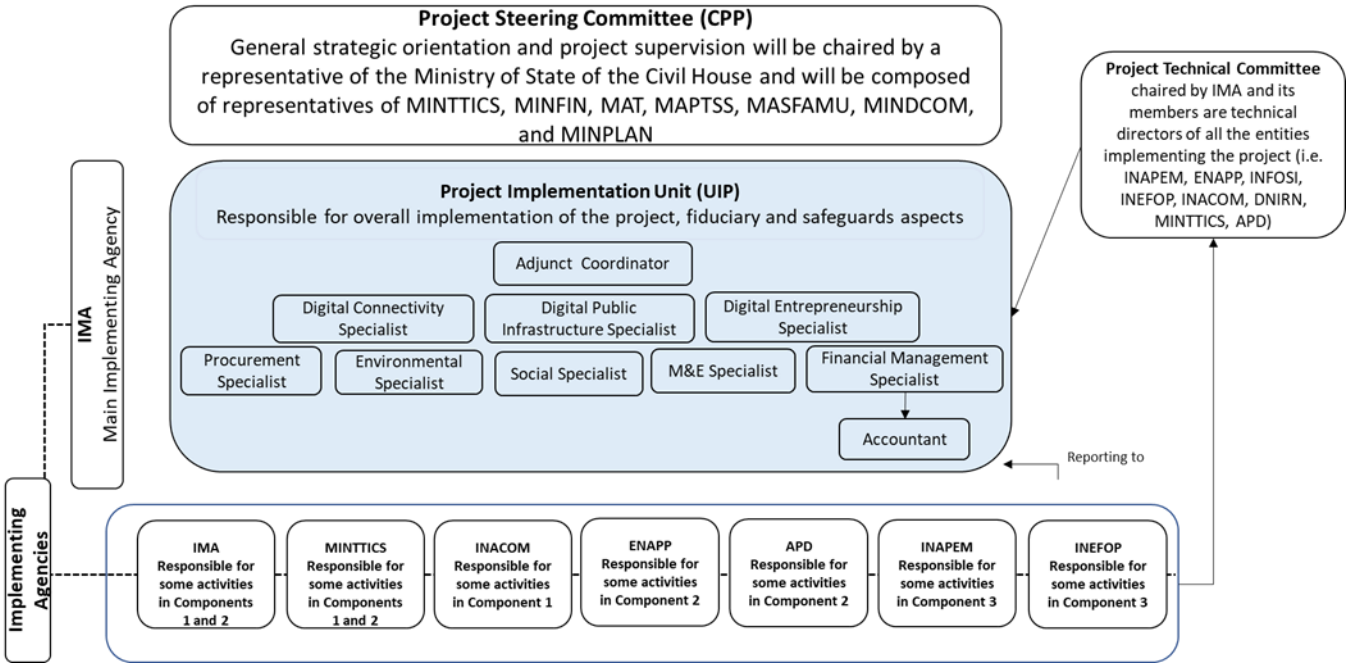
D. Project Beneficiaries

16. **The proposed project aims to benefit the entire Angolan population, particularly the digitally excluded.** These include women, PWDs, and people in low-income areas. Citizens and businesses in peri-urban and rural areas underserved by the digital economy will benefit from increased access to affordable and quality internet. They will also be able to leverage digital ID to access public and private services in a more secure digital marketplace owing to robust cybersecurity and data protection institutions and frameworks in place. Public servants and digital entrepreneurs will benefit from upskilling and reskilling and support to productively leverage digital solutions.

E. Institutional and Implementation Arrangements

17. **The GoA selected the *Instituto de Modernização Administrativa* (IMA) to implement and coordinate the project, as well as house the PIU, due to its central position in the Government and coordination role in implementing the Government's digital transformation agenda.** IMA sits under the Minister of State and Chief of Staff Office, within the Presidency. Two committees will be formed through a Presidential Decree to ensure interministerial coordination and coordination with the rest of the World Bank country portfolio: (a) a Steering Committee to be chaired by the minister and will comprise ministers from participating ministries for strategic direction and (b) a Technical Committee, chaired by IMA's director and composed of directors from the project's implementing ministries and agencies. The Technical Committee will convene relevant government MDAs on a more regular basis to support key technical-level decisions that require broader agreement, escalating issues to the Steering Committee, where needed. Both the Steering Committee and Technical Committees will provide a continuous platform for cross-sectoral coordination, building on the government working group established during the project preparation phase. Related arrangements will be further detailed in the PIM. The Steering Committee's mandate will also include sustainability of implementation arrangements beyond the project life cycle and ensuring coordination between all digital transformation initiatives.

Figure 4.1. Project Implementation Arrangements



F. Appraisal Summary

18. **Implementation readiness.** The GoA is ready to implement the project. A PPA was signed on January 8, 2024, to finance the hiring of PIU staff and commence preparatory and key feasibility studies. As of May 2024, the A-ESRS has been cleared, the client has prepared and disclosed the SEP and ESCP, and the PPSD was approved. Other Environmental and Social Framework (ESF)_instruments and manuals are being developed and should be finalized within the next few months.

19. **The project is aligned with the Paris Agreement on both mitigation and adaptation goals.**

- **Assessment and reduction of mitigation risks.** The project will contribute to the country's low-carbon development goals by prioritizing renewable energy to power the digital connectivity infrastructure and integrating energy efficiency requirements. A site-specific preliminary assessment will be conducted to identify energy efficiency measures for the refurbishment of computer labs and best-possible lower GHG/energy efficiency measures (that are economically and technically feasible) will be incorporated. Where there is no grid connection available for computer labs in rural areas, renewable energy or hybrid-powered energy systems would be utilized. The IT equipment (computers, printers, and scanners) and other electrical equipment such as air conditioning units will be energy efficiency certified. These measures will ensure project activities are considered aligned with mitigation goals in that the carbon lock-in and transition risks associated with the project are low.
- **Assessment and reduction of adaptation risks.** The main climate risks likely to affect project investments are intense rainfall and floods (for example, flooding can damage terrestrial cables, see annex 6 for more information on climate risks). To manage these risks, the project will finance climate-informed guidelines and accordingly integrate adaptation measures to strengthen climate resilience of digital connectivity infrastructure (see annex 6 for details). The refurbishment of computer lab rooms will include site-specific climate risk assessments to determine the need for adaptation measures, and adequate measures will be integrated to ensure the adaptation risks are reduced to an 'acceptable' level.

20. **FM.** The project's FM arrangements were assessed in line with the guidelines in the World Bank Directive Financial Management Manual for World Bank Investment Project Financing (IPF) Operations issued September 7, 2021 (OPS5.05-GUID.180), and effective on March 1, 2010, to determine if the project has acceptable FM arrangements in place that satisfy the World Bank's minimum requirements. Based on this assessment, the overall FM arrangements of the project were assessed as adequate, with Substantial residual FM risk. The following actions need to be taken to ensure that acceptable FM arrangements are in place: (a) appoint two finance staff from IMA to be fully dedicated to the project during implementation; (b) recruit an internal auditor to work as a staff of IMA and appoint a staff to be fully dedicated to project implementation, no later than three months after project effectiveness; (c) World Bank shall conduct an FM and disbursement training on bank requirements and procedures for the FM staff and other officials in the project, (d) adopt the PIM, which includes administrative, accounting, and financial procedures; (e) Use the Sistema Integrado de Gestão Financeira do Estado accounting module to generate financial information in Excel and populate the reports in a format agreed upon with the World Bank; and (d) recruit the external auditors no later than six months after project effectiveness.

21. **Procurement.** Procurement of input-based (procurable) items under the project will be carried out in accordance with the World Bank Procurement Regulations for Borrowers under Investment Project Financing, dated September 2023; Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, revised July 1, 2016; and the provisions stipulated in the Financing Agreement. The PPSD has been prepared by the client and cleared by the World Bank on May 6, 2024. The PPSD, prepared by IMA, sets out market approaches and selection methods to be followed during project implementation. Optimum procurement strategies on how fit-for-

purpose procurement of activities will support project operations for the achievement of PDOs and deliver value for money. Based on the PPSD findings, the Procurement Plan for the first 18 months was prepared, setting the selection methods to be used by the borrower for main contracts under the project. The Procurement Plan will be updated at least every 12 months, or as required, to reflect the actual project implementation needs. Each update shall require World Bank approval and will be publicly disclosed in accordance with the World Bank disclosure policy. The procurement activities for the project will be managed by IMA, where the PIU will be located. IMA presides under the *Ministro de Estado e Chefe de Casa Civil*. Procurement activities under IMA are implemented in accordance with the Angolan Procurement Law IMA. The PIU established under IMA will have the full responsibility to undertake procurement activities according to the World Bank's Procurement Regulations. The Procurement Plan for the activities will be managed through the World Bank's tracking tool, STEP.

22. **Environment and social.** The environmental and social risk rating is Moderate at appraisal owing to activities that may involve small civil works associated with excavation and ground works due to network and power lines installation, demolition, drilling, or rehabilitation of buildings and installation of power backup stations. Key environmental and social risks and impacts expected are associated with occupational health and safety concerns, including (a) physical hazards, injuries, and accidents; (b) community health and safety issues, noise, and vibration; (c) electronic waste management issues; (d) involuntary resettlement due to land acquisition and physical and economic displacement during the expansion of connectivity works; (e) possible SEA/SH risks resulting from conditional benefits access, due to limited availability of places on digital entrepreneurship initiatives and other training vacancies in the project activities; (f) minor labor influx risks, including sexually transmitted infections, teenage pregnancies, and early marriage; and (g) risks of social conflicts and population discontent resulting from limited access to new digital services, especially for those who do not have devices or internet access to benefit from the services provided by the project. During project implementation, there will be occupational health and safety risks specific to optical fiber cables. Subcomponent 2.3 also plans to support procurement of hardware and software, which could result in an increase in e-waste. To address these risks and impacts, IMA will prepare an ESCP, SEP, ESMF, LMP, RFP, Indigenous Peoples Plan (IPP), and Entitlement Matrix and Resettlement Plans or Livelihood Restoration Plans, as needed, proportional to the affected areas. IMA will hire and maintain at least one dedicated environmental specialist and one social specialist, whose skills and experience will be determined as part of the Environmental and Social Assessment. These specialists will be complemented with other relevant experts and will be responsible for the oversight of environmental and social aspects of the project, including the drafting of the environmental and social risk management instruments.

23. **Stakeholder engagement.** The project conducted a series of consultations for development of the SEP, which outlines both institutional and citizen engagement strategies for the project life cycle. It includes dialogue mechanisms for project stakeholders and project-affected people, including surveys, public meetings, focus group discussions, radio debates, and so on. Additionally, a grievance redress mechanism will be established, with capabilities for stakeholders to submit complaints and suggestions through the project's communications platform. This will be complemented by satisfaction surveys, which will be integrated into the overall monitoring process to flag opportunities and challenges related to the project activities and improve approaches throughout the project life cycle and ensure that the project is in line with the expectations and needs of the population, particularly, minority populations and/or disadvantaged groups.

24. **Economic and financial analysis.** Overall results indicate that the project design and planned interventions should produce economic and financial returns for the country, highlighted by positive NPVs and IRRs, except in the pessimistic scenario. The NPV in the neutral scenario is estimated at US$18.19 million, with an IRR of 29 percent over a 10-year period. For the optimistic and pessimistic scenarios, the NPVs and IRRs were US$48.66 million and 37 percent, and –US$8.03

million and 21 percent, respectively. The model was discounted at 23 percent,[58] and according to the results from the neutral and optimistic scenarios, the project is feasible, with positive NPVs and IRRs above the discount rate. Although the parallel exchange rate can is high (up to 20 percent) in Angola, the grand majority of project expenditures are in US dollars, and thus the impact is negligible. The project impacts may go beyond the calculated estimated results, since there are some activities, especially those related to cybersecurity and data protection, that could produce economic and social gains. These gains may come from the increase of online services and transactions that could occur from the improvement of safety and trust of the digital workspace. But these impacts are hard to measure not just due to their nature but also because the country lacks data on the losses that were incurred from the multiple cyberattacks[59] over the years.

G. Key Risks

25. **The overall risk for the project in Angola is *Substantial*.** The following paragraphs provide information on risks rated Substantial.

(a) **Political and governance risk is rated *Substantial*.** Risks associated with significant state ownership and vested interests in the supply side of the telecoms market, hampering real market competition, is significant and could pose risks to achieving the development outcomes of the project if the reforms are not carried out. The GoA has already taken steps to address this, including preparations for privatization of SOEs and award of a new license in 2022. Mitigation measures to ensure good governance of the sector would include (i using open and competitive tendering for deployment of infrastructure, (ii) strengthening regulatory oversight to enhance competition, and (iii) providing support through a joint World Bank -IFC team to telecom sector reforms. Another potential political risk is low trust around the digital ID solution, given the challenges associated with the GoA's foundational ID. To mitigate this risk, the team has conducted in-depth analytical work to identify legal, regulatory, and institutional reforms necessary and front-loaded these activities within the project before launching the digital ID. The team is supporting APD with TA and updates to the country's data protection law, and has planned as one of the project's first activities the strengthening and modernization of the enabling legal and regulatory environment.

(b) **Macroeconomic risks are *Substantial***. The country remains dependent on oil and drops in price can still cause economic shocks to the country, which could lead to alterations to the cautious current fiscal policy and debt weight percentage of the GDP. This, together with continued currency depreciation, could increase the cost of importing telecom hardware and equipment. To mitigate this, the project expects to collaborate closely with telecommunications operators and digital start-ups, to leverage private and foreign investments when possible.

(c) **Sector strategies and policies risk are *Substantial*.** There are overlaps in mandate between IMA and the other technical MDAs and some of the implementation arrangements, in particular for broadband infrastructure deployment need to be clarified further. For example, the leadership and implementation arrangements for the Broadband Connectivity and Digital Inclusion Programs remain unclear, as it needs to address the needs of the project and national objectives, which still need to be discussed at the Steering Committee level (to be established by a Presidential Decree and which will oversee the GoA's digital agenda more broadly and include the proposed project). Another example is in the area of cybersecurity, the decree that creates IMA gives it a broad mandate over the digital systems and platforms of public administration, including ensuring their cybersecurity. MINTTICS's Cybersecurity Directorate, on the other hand, holds the

[58] The discount rate used for the calculations is 23.3 percent, which was derived from adding lending interest rate in Angola in 2023, plus a spread reflecting the project risk and nuances. The rate is in line with Angolan Central Bank reference lending rates.
[59] According to INACOM, Angola was the second African country with the most cyberattacks. https://inacom.gov.ao/ao/noticias/angola-e-o-segundo-pais-em-africa-com-maior-registo-de-ciberataques/.

policy and operational mandate over cybersecurity, meaning that responsibility for the cybersecurity of the public administration's digital platforms and systems is unclear. To mitigate the coordination risk, the Steering Committee, once established, will be tasked with determining how to delineate responsibilities and ensure coordination for both cybersecurity and broadband/digital inclusion programs, as well as other key activities under the project. Memoranda of Understanding will also be signed between IMA and the relevant MDA for subcomponents 1.1, 1.2, 1.3, 2.2 and Implementation Agreement to be signed by IMA and the relevant MDAs for subcomponent 3.1. The national telecom regulator, INACOM, requires further autonomy and capacity to oversee an increasingly dynamic broadband sector. To mitigate this risk, the project will build INACOM's capacity to enforce its regulations.

(d) **FM risk is rated *Substantial*.** The FM assessment was carried out in accordance with the World Bank Directive Financial Management Manual for World Bank Investment Project Financing (IPF) Operations, issued on September 7, 2021, determined that IMA, the implementing agency, can provide reasonable assurance that financing proceeds will be used for their intended purposes, adhering to the principles of economy, efficiency, effectiveness, transparency, and accountability. Regardless, substantial residual risk remains. Mitigating factors were detailed under the Appraisal Summary section.

(e) **Procurement risk is rated *Substantial*.** A procurement capacity risk assessment was carried out in accordance with the World Bank's Procurement Regulations for Borrowers under Investment Project Financing, dated September 2023 and as amended over the time. The project will be subject to the World Bank 's Anticorruption Guidelines, dated October 15, 2006, revised in January 2011, and July 1, 2016, and other provisions stipulated in the Financing Agreement. The project will use the STEP tool to plan, record, and track procurement transactions. During project preparation, a PPSD will be prepared by the borrower, with the World Bank's support. Capacity of the implementing agency will be assessed during appraisal and adequate measures will be proposed to ensure that the project has strong procurement arrangements in place with adequate staff and procedures. Since this is the first World Bank operation to be managed by IMA, significant mitigation measures must be taken to address residual risk (see above, under Appraisal Summary).

(f) **Climate and disaster risk is rated Substantial.** The country is exposed to high risk of flood, which may adversely affect digital infrastructure by damaging fiber optic networks and microwave networks, for which the project will be financing deployment. Soft components such as TA for developing climate-resilient and low-carbon digital network connectivity will help mitigate the risk. Additionally, support for digital skills training will allow vulnerable populations to receive emergency alerts and weather information on devices, which will help improve their resilience (see Annex 6 for more details on adaptation and mitigation).

ANNEX 5: Republic of Malawi

Task Team Leaders: Luda Bujoreanu and Tim Kelly (IDD04)
Core Team: Paul Ndungutse, (IDD04), Justina Kajange (IDD04), Komana Rejoice Lubinda (EAERU), Anthony Aggrey Msendema (EAERU), Davies Madalitso Luhanga (SAES2), Mercy Chimpokosera-Mseu (SAEE2), Trust Chamukuwa Chimaliro (EAEG1); Alex Twinomugisha (HEDGE) and Efrem Chilima (EAEF1); Thea Hilhorst (DECSI); Thibault Foucher (IFC), Chipo Msowoya (HAES1), Esther Lozo (AEMMW); Elizabeth Mangani (AEMMW); George da Silva, Sandra Kuwaza (WFACS), and Edith Ruguru Mwenda (LEGAM).

DATASHEET

BASIC INFORMATION

Project Beneficiary(ies)	Operation Name		
Malawi	Digital Malawi Acceleration Project (DMAP)		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P505095	Investment Project Financing (IPF)	Substantial	

Financing & Implementation Modalities

[✓] Multiphase Programmatic Approach (MPA)	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternative Procurement Arrangements (APA)	[ ] Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date	Expected Program Closing Date
27-Jun-2024	31-Oct-2030	31-Oct-2032
Bank/IFC Collaboration	Joint Level	
Yes	Complementary or Interdependent project requiring active coordination	

MPA Program Development Objective

MPA FINANCING DATA (US$, Millions)

MPA Program Financing Envelope	2,480.00
with an additional request to IBRD	5.28
with an additional request to IDA	86.00

Proposed Development Objective(s)

Increase access to, and inclusive use of, the internet and improve the Government's capacity to deliver digitally enabled services.

Components

Component Name	Cost (US$)
1. Affordable broadband and secure data hosting	110,000,000.00
2. Interoperable and secure data platforms	45,000,000.00
3. High-impact digital services and productive digital usage	35,000,000.00
4. Program management	10,000,000.00

Organizations

Borrower:	Republic of Malawi
Implementing Agency:	Public Private Partnership Commission

MPA FINANCING DETAILS (US$, Millions)

Board Approved MPA Financing Envelope	**0.00**
MPA Financing Envelope:	2,480.00
of which Bank Financing (IBRD):	440.00
of which Bank Financing (IDA):	2,040.00
of which Other Financing sources:	0.00

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)?	Yes
Is this project Private Capital Enabling (PCE)?	Yes

SUMMARY

Total Operation Cost	**90.00**
Total Financing	**90.00**
of which IBRD/IDA	**70.00**
Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Development Association (IDA)	70.00
IDA Grant	70.00

Non-World Bank Group Financing

Commercial Financing	20.00
Unguaranteed Commercial Financing	20.00

IDA Resources (US$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
National Performance-Based Allocations (PBA)	0.00	70.00	0.00	0.00	70.00
Total	**0.00**	**70.00**	**0.00**	**0.00**	**70.00**

Expected Disbursements (US$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030
Annual	0.00	11.00	15.00	15.00	10.00	10.00	9.00
Cumulative	0.00	11.00	26.00	41.00	51.00	61.00	70.00

PRACTICE AREA(S)

Practice Area (Lead)

Digital Development

Contributing Practice Areas

Social Protection & Jobs; Finance, Competitiveness and Innovation; Education; Urban, Resilience and Land

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary No Fiduciary risk rating under Preparation Phase has been completed in Financial Management System to date. Procurement Risk rating from Specialist: Moderate as of 2024-05-30T00:00:00Z	Moderate
7. Environment and Social Environment Risk rating from Specialist: Moderate as of 2024-05-20T11:44:14Z	Substantial

Social Risk rating from Specialist:
●Substantial as of 2024-05-20T11:44:14Z

8. Stakeholders	● Substantial
9. Other	● Substantial
10. Overall	● Substantial
Overall MPA Program Risk	

POLICY COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

ENVIRONMENTAL AND SOCIAL

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

LEGAL

Legal Covenants

Sections and Description
The Recipient shall establish, not later than sixty (60) days after the Effective Date, and thereafter maintain throughout the implementation of the Project, a Project steering committee with composition, functions, and resources satisfactory to the Association, to be responsible for, inter alia, providing overall strategic guidance on the implementation of the Project ("Project Steering Committee" or "PSC"
The Recipient shall establish, not later than sixty (60) days after the Effective Date, and thereafter maintain throughout the implementation of the Project, a Project technical committee, with composition, functions, and resources satisfactory to the Association, to be responsible for, providing inputs to the PSC and Project Implementing Unit (PIU) on technical issues including major investments such as for connectivity, digital ID, and allocation of grants to tech hubs ("Project Technical Committee" or "PTC")
The Recipient shall cause PPPC to, not later than ninety (90) days after the Effective Date, enter into separate legal arrangements acceptable to the Association, with MAREN, National Registration Bureau, and MACRA, respectively, setting out the respective roles and responsibilities of the PPPC and each of MAREN, the National Registration Bureau, and MACRA, respectively, as may be further provided in the PIM
The Recipient shall cause the PPPC to not later than sixty (60) days after the Effective Date, appoint to the PIU and thereafter maintain throughout the implementation of the Project, an environmental specialist and a social specialist with qualifications, experience and under terms of reference satisfactory to the Association.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	5.01 (a)	The Recipient has prepared and adopted the Project Implementation Manual in accordance with the provisions of Section I.C(1) of Schedule 2 to this Agreement.	IBRD/IDA
Effectiveness	5.01 (b)	The Recipient has prepared and executed a Subsidiary Agreement with PPPC, in form and substance satisfactory to the Association.	IBRD/IDA

Effectiveness	5.01 (c)	The Recipient has prepared, consulted on, adopted, and disclosed an Environmental and Social Management Framework including the following annexes: (i) a GBV/Sexual Exploitation and Abuse/Sexual Harassment Prevention and Response Action Plan; (ii) E-Waste Management Plan; and (iii) Occupational Health and Safety Plan; and (b) Resettlement Policy Framework, and (c) the Labor Management Procedures - all in form and substance satisfactory to the Association and in accordance with the Environmental and Social Commitment Plan	IBRD/IDA
Effectiveness	5.01 (d)	the Recipient has updated and disclosed the grievance mechanism for the Project, in form and substance satisfactory to the Association.	IBRD/IDA
Disbursement	B. 1. (b)	No withdrawal shall be made under Category (2) unless and until the Association has received the Commercial Transactions Manual including: (i) the template form of a Sub-Project Agreement duly adopted by the Recipient, detailing the modalities for Sub-Projects; and (ii) draft bidding documents and proposed safeguards to	IBRD/IDA

		ensure competitive tendering - all in form and substance satisfactory to the Association.	
Disbursement	B. 1. (c)	No withdrawal shall be made under Category (3) unless and until the Association has received the Grants Manual, including: (i) draft call for expressions of interest from tech hubs, specifying expectations for their performance; and (ii) draft call for expressions of interest from digital start-ups and high-growth firms, to receive matching grants, specifying expectations for their performance.	IBRD/IDA
Disbursement	B. 1. (d)	No withdrawal shall be made under category (4) unless and until the Recipient has an information technology authority law, acceptable to the Association, as part of its information, technology, and communication legal framework.	IBRD/IDA

A. Sector Context

1. **Malawi has a relatively competitive telecommunications market**, with three licensed mobile operators (Airtel, TMN, and ACL), at least six ISPs, and an experienced regulatory authority, Malawi Communications Regulatory Authority (MACRA). However, the growth of the market is constrained by low incomes and relatively high prices, compounded by high excise duties on imported ICT equipment. Internet penetration, at around 24 users for every 100 inhabitants, is below the AFE regional average of 28 percent. During the implementation period of the Digital Malawi Foundations Project SOP-1 (P160433; 2017–2024), the wholesale price of international internet bandwidth was reduced to below 10 percent of its previous level, but at around US$35 per Mbit/s, it is still well above the typical price of below US$5 experienced in coastal countries such as Kenya. A monthly data bundle of 2 GB costs almost 10 percent of the annual GNI per capita. However,

the market entry of LEO satellite operator, StarLink, in October 2022, may bring greater price competition and provide new connectivity options in rural areas.

2. **Digitalization can be a powerful tool for development in Malawi, transforming service delivery in key sectors and creating employment opportunities as well as assisting in tackling challenges such as climate vulnerability and health emergencies.** Given the importance of the digital economy for increased productivity and efficiency, its potential benefits are amplified in the context of addressing natural disasters and health pandemics, as demonstrated during the COVID-19 pandemic. Malawi will increasingly need to rely on digital technologies to ensure that public services, businesses, and individuals are able to withstand current and future hazards and develop a set of resilience measures, to ensure business continuity of government and avoid interruptions in service delivery. Under Digital Malawi, an emergency program of over 100 public WiFi hotspots was rolled out in schools, post offices, markets, community centers, and airports as well as internet connectivity to over 80 HEIs, which allowed continued learning during the pandemic, when on-site access was limited due to lockdowns. A combination of widespread access to broadband, digitally enabled services, and payments can offer a powerful platform to remove barriers of distance, lower costs and improve efficiencies in the delivery of services, and create new job opportunities and improve human development, while also contributing to economic growth and reduced poverty.

3. **Malawi is included in the first phase of countries in the IDEA MPA**, with an appraisal amount of US$150 million[60] in national and regional IDA, plus a further US$50 million expected to be leveraged in UCF from the private sector. The project design follows a One World Bank approach with close coordination between the IDA team, IFC and MIGA. The Government of Malawi, by a letter of December 18, 2023, requested that Malawi be included in this new regional program.

B. Relevance to Higher-Level Objective

4. **The project is fully aligned with the World Bank's CPF for Malawi FY21–25,**[61]and will support all three pillars of bolstering the foundations for growth and accountability, promoting private sector-led jobs and livelihoods, and strengthening human capital development. The project also responds to the AU's Digital Transformation Strategy, which calls for achieving universal access by 2030. In line with UN Sustainable Development Goal 9, the 2022 Dakar Call to Action, and Agenda 2063, IDEA will advance the 'Single Digital Market Framework' for East Africa,[62] reducing barriers for regional telecom infrastructure and digital services across borders. It will also aid in narrowing gender gaps in alignment with the upcoming World Bank Gender Strategy (FY24–30).

5. **The project is consistent with Malawi's NDCs and will contribute to country's efforts on climate change mitigation and adaptation.** Malawi aims to reduce GHG emissions by up to 51 percent by 2040 as compared to a business-as-usual scenario.[63] Emissions from the digital sector are low but will grow as Malawi becomes increasingly digitized. By integrating low-carbon measures in telecom network investment, as specified in annex 6, the project will contribute to reducing GHG emissions from the growing digital sector. On adaptation, the NDC focuses on: (a) developing climate-proofed infrastructure, buildings, and energy systems; (b) advancing an effective early warning system and integrating disaster risk management in all sectors and programs; and (c) flood, drought, and integrated watershed management. Malawi's CCDR identifies the need to build infrastructure to withstand climate shocks and stressors as one of the three

[60] The country is committed to expanding the Program's scope in the near future. Thus, the overall investment in Malawi is split into two operations commensurate to the existing implementation capacity (US$70 million in the first operation and US$80 million in the second, thus totaling the US$150 million appraised amount). This approach is deemed necessary to ensure the successful implementation of the Program in the country.

[61] Malawi - Country Partnership Framework for the Period FY21–FY25 (English). Report No. 154505-MW. Washington, DC: World Bank Group.

[62] World Bank. 2019. Single Digital Market for East Africa. Report 136699. Washington, DC.

[63] Under its updated NDC, Malawi adopted economy-wide targets for cutting GHG emissions 6 percent unconditional, plus a further 45 percent conditional on support by 2040. https://unfccc.int/sites/default/files/NDC/2022-06/Malawi%20Updated%20NDC%20July%202021%20submitted.pdf.

top priorities.[64] The project directly supports and enables Government's adaptation priorities, by integrating climate resilience measures in digital connectivity infrastructure and providing access to digital connectivity and hence digitally enabled services such as digital ID and emergency communication response facilities for communities in climate hot spots.

C. Project Description

6. **The PDO is to** increase access to, and inclusive use of, the internet and improve the government's capacity to deliver digitally enabled services. The Results Framework is aligned with the overall IDEA MPA and is set out in table 5.1.

Table 5.1. Results Framework for DMAP

Indicators	Baseline (2022)	End Target (Oct 2030)
PDO-level indicators		
People using broadband internet (number of people) - of which female	0 0	7,500,000 3,750,000
People with digitally-verifiable identification (number of people) - of which female	0 0	2,000,000 1,000,000
People using digitally enabled services (number of people) - of which female	0 0	2,000,000 1,000,000
Volume of international data traffic: used international bandwidth in kbit/s per capita (number)	9.5	25
Intermediate results indicators		
Component 1: Affordable broadband and secure data hosting		
Kilometers of fiber optic network added (number) - Of, which, climate resilient and energy efficient	0 0	2,000 1,600
Public institutions provided with new or improved access to broadband (additional, number): - Of, which, educational institutions - Of which, other Government institutions	0 0 0	2,500 2,000 500
Government data governance frameworks, including data classification and cloud policies, enacted and mandated for use (number)	0	3
Number of entities hosting their data in the national data center - Of which public entities of which private entities (through colocation)	0 0 0	25 20 5
Component 2: Interoperable and safe data platforms		
Number of entities on-boarded onto the government exchange platform - Of which, public entities - Of which, private entities	9 9 0	25 25 5
Retail price of a standard package of mobile data services per month, as a share of GNI per capita (percentage)	9.4	4
Component 3: High impact digital services and productive digital use		
People enrolled in digital skills training programs supported by the project (number) - Of which, female	0 0	10,000 5,000
Graduates of advanced digital skills training programs (number) - Of which, female	0 0	1,000 500
Successful digital authentications in the context of service delivery (number)	0	5,000,000
People using digital payments (additional number, millions, age 15+) - Of which, female	0 0	3 1.2
Component 4:		
Private capital mobilized (US$, millions)	0	50

[64] World Bank. 2022. *Malawi Country Climate and Development Report. CCDR Series*. Washington, DC: http://hdl.handle.net/10986/38217.

Indicators	Baseline (2022)	End Target (Oct 2030)
Citizen engagement indicator: Grievances registered that receive an adequate response within 30 days (percentage)	0	80

7. **This project is an integral part of the regional IDEA MPA.** The following is an overview of the project's components (table 5.2). More details can be found in the Financing Agreement, the project's Technical Document, and the Project Implementation Manual.

Table 5.2. Project Components and Funds Allocation

Component	Regional IDA (US$, millions)	National IDA (US$, millions)	PCM (US$, millions)	Total (US$, millions) Phase 1	Total (US$, millions) Phase 2
Component 1: Affordable broadband and secure data hosting (US$110 million; US$35 million in Phase 1 and US$85 million in Phase 2)					
1.1 Rural Connectivity	0	20	10	10	10
1.2 Connecting schools and HEIs	15	30	10	0	45
1.3 Regional connectivity and climate resilience	10	0	5	5	5
1.4 Enhancing data hosting capacity and transition to cloud computing	0	5	5	5	0
Component 2: Interoperable and secure data platforms (US$45 million, all in Phase 1)					
2.1 Next generation digital ID, identity verification, including for eKYC and PKI	10	15	7	20	5
2.2 Extending the *Bomalathu* data exchange platform for Government and Financial Institutions	0	5	3	5	0
2.3 Enhancing policy and regulatory frameworks, operationalizing the Data Protection Agency and supporting the Government CIRT	5	0	0	3	2
Component 3: High impact digital services and productive digital usage (US$45 million; US$10 million in Phase 1 and US$25 million in Phase 2)					
3.1 Support to tech hubs and sub-grants for digital start-ups	0	10	5	5	5
3.2 Participation in regional program on device affordability	5	0	5	1	4
3.3 Sectoral deep dives, including social protection, disaster and emergency response, financial inclusion and land management	0	10[65]	0	10	0
Component 4: Project management (US$10 million; US$6 million in Phase 1 and US$4 million in Phase 2)					
4.1 Establishment of MITA	2.5	2.5	0	3	2
4.2 Program coordination and management	2.5	2.5	0	3	2
Total (US$70 million IDA in Phase 1 and US$80 million IDA in Phase 2)	**50**	**100**	**50**	**70**	**80**

Note: Phase 1 will be implemented starting in FY25. Phase 2 will commence based on availability of IDA funds. For Phase 2 activities, feasibility studies will already be initiated in Phase 1. Phase 1 and 2 totals include only IDA (not PCM). PCM levels are estimated but are expected to be higher under Phase 2 (US$30m) than Phase 1 (US$20m). The actual levels of PCM will be an outcome of the competitive tendering processes.

8. **The DMAP is structured around four components** that are aligned with the IDEA Program, as follows:

Component 1: Affordable broadband and secure data hosting. This component will cover the following activities:

[65] This will be supplemented through funding from other sectoral programs.

Sub-component 1.1: Rural connectivity

a) **Expand broadband coverage in rural areas** with the aim of achieving universal coverage of mobile broadband, including for traditionally marginalized and climate-vulnerable communities and climate hotspots that are unserved or underserved by affordable and quality internet services. The project will provide matching investments ('catalytic gap financing') to incentivize private sector investment in the areas where private sector would not go otherwise. This investment will be used to support the private sector in rolling out mobile broadband coverage (4G/5G cellular and/or LEO satellite) and upgrading 2G cell sites to more energy efficient 4G/5G cellular technologies, as well as installing additional IXPs and data caches, at a local level, to improve latency.[66] The matching investments will be awarded based on a competitive tendering process, subject to the provisions of a commercial transaction manual to be developed. Other methods such as reverse auctions; PPPs; and build, transfer, operate may also be considered. This subcomponent is expected to leverage private sector investments, roughly in the ratio of 2:1 public versus private.

b) **Closing last-mile connectivity gaps for government institutions** (offices, hospitals, and post offices) in rural areas. Under Digital Malawi Phase 1, around 530 institutions were provided with access to high-speed internet through the provision of last-mile fiber, and the pre-purchase of international internet capacity under long-term supply agreements. Under DMAP, an additional 500 institutions will be targeted, including sites of new beneficiaries, such as Ministry of Lands, the National Statistical Office and the National Registration Bureau (NRB), to improve government efficiency, resilience, and ability to sustain operations even in the face of natural disasters. A variety of technologies will be used, such as last-mile fiber as well as LEO satellite. Every effort will be made to increase energy efficiency and climate-smart solutions following international standards and best practices.

Sub-component 1.2: Education sector connectivity

a) **Universal school connectivity,** building upon Phase 1, which connected 80+ HEIs, the project will aim to connect up to 2,000 schools under DMAP. This will be done through Malawi Research and Education Network (MAREN), which proved to be an able partner under Phase 1, and use the existing connected HEIs under a hub-and-spoke model to reach the surrounding schools. The expected PCM ratio, at 2.33:1, is slightly lower than for Subcomponent 1.1. The attraction for the private sector is the possibility of having an anchor tenant (school or HEI) to cover their base investment, so they can then reach out to other clients in each locality on the principle of 'build once, use by all'. An 'ecosystem approach' will be followed in which provision of connectivity will be coordinated with the supply of renewable energy, computer labs, digital skills training, and O&M to the same schools.

b) **Sponsoring Malawi's participation in the EU Africa Connect 4 program,** in partnership with the UbuntuNet Alliance. This will enable the program to leverage additional EU funding. This activity will also include pre-purchase of internet capacity for Malawi's schools and HEIs, which may be coordinated at the regional level, drawing upon the resources of the planned regional financing facility, to leverage cost savings through economies of scale.

Sub-component 1.3: Regional connectivity

a) **Addressing gaps in missing cross-border broadband links,** possibly drawing upon a regional financing facility. To this end, a survey of missing broadband links has been commissioned. Investments will be coordinated with IDEA Programs in neighboring countries (for example, DRC and Zambia) and with other development partners, to ensure that there is end-to-end connectivity and efficient route planning.

b) **Integrated infrastructure planning of 'digital corridors' for Southern Africa.** At the 2023 Transform Africa Summit, hosted at Victoria Falls, in April 2023, Heads of State from four countries—Botswana, Malawi, Zambia, and

[66] World Bank. 2024. *Green Digital Transformation: How to Sustainably Close the Digital Divide and Harness Digital Tools for Climate Action*. Climate Change and Development Series.

Zimbabwe—came together to commit to build 'digital corridors' that would facilitate the growth of trade in the region. The project can support this initiative by further integrated regional planning of investments.

c) **Demand aggregation** at the regional level for internet connectivity for education, health, and government. The planned regional facility under IDEA can play a role in administering a framework contract for bandwidth suppliers to bid for competitively awarded connectivity contracts, to serve the region's users and serve as an incentive for the private sector to establish cross-border links.

d) **Climate resilience TA,** including development of regionally harmonized standards and guidelines for development of climate resilient digital infrastructure.

Sub-component 1.4: Enhancing data hosting capacity and transition to cloud computing

a) **Provide ongoing support to the national data center and enabling cloud services at the national and regional levels.** In the late stages of Phase 1 of Digital Malawi, project funds were used to establish a national data center in Lilongwe. But additional TA will be required to oversee the development of a sustainability plan, including looking at options for leasing co-location space to the private sector, and handling the transition to a cloud-first national data strategy.

b) **Ensure safe hosting of government data:** this will be done by supporting migration of government data from various MDAs, currently located in server rooms that were not purpose-built and are currently in a deteriorated condition, presenting a high risk to critical government data. The project will support the migration of data to the newly built data center in Lilongwe and put in place various back up and disaster recovery options, including by establishing fiber links with a datacenter in Blantyre. Support will also be provided to introduce a government cloud.

c) **Providing managed IT services** and a help desk to ensure smooth functioning of the national data center to keep government data and applications safe.

d) **Development of a National Data Strategy** to ensure a well-structure framework for data governance and sharing protocols.

Component 2: Interoperable and secure data platforms. This component will cover the following activities:

Sub-component 2.1: Next Generation Digital ID and identity verification services, including for eKYC and PKI

a) The rollout of first-generation national ID was implemented by the NRB and supported by UNDP. However, the limitations of the physical ID with a smart chip, are now apparent, with millions of ID cards expiring and too expensive to replace. Moreover, the chip technology was never used, and more advanced solutions have emerged over the years, such as QR codes. Project funds will support the Government to transition to a next-generation cost-effective digital ID, introduction of a choice of credentials (such as Mobile ID), support for streamlined identity verification to needed by multiple sectors, enabling secure digital authentication services, including for electronic Know-Your-Customer (eKYC). Support will also be provided for the development of cross border mutual recognition mechanisms of IDs in SADC.

b) Develop e-Signatures capability for e-services that require a higher level of assurance. This will include development of PKI which may also be developed based on a PPP arrangement and based on "buy it as a service" model.

Sub-component 2.2: Extending the *Bomalathu* data exchange platform for Government and Financial Institutions

a) **The Digital Malawi Foundations Project supported the development of a government data exchange platform,** now known as *Bomalathu* ('my Government'), which has onboarded seven Government agencies so far and has developed an e-services portal, as a pilot. However, much more needs to be done to extend the data exchange platform and on-board more government agencies, as well as expand the e-services portal to offer more e-services in key sectors. This will require investment in the development of Application Programming Interfaces (APIs) for up to 30 MDAs, additional

consultancy services, and capacity building among the newly onboarded government institutions to experience full benefits from seamless data exchange, identify verification and ability to pay for services digitally.

b) **To become truly transformational, it will be necessary to extend functionality of *Bomalathu* to the private sector,** by developing APIs for the financial institutions that have a requirement for eKYC and seamless identity verification. It is expected that this extension will also generate revenue for the Government from identity verification fees, to help with sustainability. The e-Government department, which runs *Bomalathu,* may require additional TA to develop a competitive price structure for these services and support effective operation of this new data exchange platform.

c) **Expansion of e-services portal:** The Digital Malawi Foundations Project also supported the development of the e-services portal that benefits from the data exchange platform. However, only a few e-services have thus far been tested with many more expected to go live under this project.

Sub-component 2.3: Enhancing policy and regulatory frameworks, operationalization of the Data Protection Authority and supporting the MCERT

a) **Regional policy and regulatory harmonization** to support digital integration, cross-border digital services, and data flows, with the goal of increasing digital trade. This will cover, for instance, guidelines on data classification (in conjunction with the e-Government department, NRB, and other stakeholders), e-commerce, taxation of cross-border digital services, modernization of the relevant legal and regulatory framework for e-transactions/e-commerce, and so on. Under EARDIP, regulatory harmonization work is under way at the EAC, and a coordination agreement will be developed between ECA and COMESA under this new MPA. Extending this work also to COMESA, and potentially also SADC, will greatly increase the number of countries that will benefit.

b) **Operationalization of the Data Protection Authority (DPA),** for which the Data Protection Bill was approved by Parliament on December 7, 2023,[67] as well as support for MACRA, the regulatory authority, which currently hosts the DPA. TA for the DPA will include provision of expert consultant services, study tours, capacity building, and support for the development of various data protection regulations.

c) The project will support Malawi in enhancing **cybersecurity resilience** by, among other things, supporting the Malawi Computer Emergency Response Team (MCERT), including support for Government emergency response.

Component 3: High impact digital services and productive digital usage. This will cover the following activities:

Sub-component 3.1: Digital skills and digital literacy

a) The Digital Malawi Project SOP-1 provided seed funding to 10 tech hubs across the country and trained over 19,000 youth in digital literacy, advanced digital skills (such as AI and drones), digital entrepreneurship, and supported internship and other activities. Under DMAP, it is planned to expand support to the tech hubs through a further round of competitively awarded performance-based grants, disbursed in tranches, with agreed targets for offering higher-level ICT skills, digital entrepreneurship and development of the digitally enabled solutions that contribute to climate change mitigation and adaptation.

b) **DMAP will also initiate a sub-grants program for digital entrepreneurs** of up to US$100,000 for around 20 grants to digitally enabled start-ups and high-growth firms, including those that work in the area of addressing climate change induced disasters. The program will be administered by the tech hubs under overall supervision of the World Bank and will use matching grants to leverage private sector investment while the focus on the digital sector will ensure continuity with other aspects of DMAP. Those firms receiving grants will be tracked over time to identify what factors

[67] The text of the bill can be found at https://parliament.gov.mw/uploads/doc_bills/doc_bills_87718172-12d2-4a15-a397-9ec52ec079b81701965503149.pdf.

contribute to their success, so that these learnings can be built into future phases, and the number of jobs created will be closely monitored.

c) Provide TA to **facilitate the establishment of tech entrepreneur associations**, the development of the necessary policies, strategies, and implementation plans, and the provision of seed financing to start-ups.

Sub-component 3.2 Participation in regional program on device affordabilit

a) **Malawi, one of the world's poorest markets, is too small to attract major device manufacturers to invest.** Yet, the excise duty on some imported ICT devices is close to 35 percent. Thus, device affordability is a major barrier to further market development, particularly, for higher-end devices such as smartphones and laptops. The project will support a variety of schemes to decrease the cost of device for end users and improve the ability of the poorest to acquire a mobile phone. Some of these schemes may involve working through a financial intermediary such as IFC. Malawi may also participate in a planned regional device affordability program that will offer a de-risking platform to organizations (such as mobile operators, banks, micro-lenders, and so on), which provide 'pay-as-you go' lending for devices. Digital start-ups that support innovative device affordability activities in the energy and digital sectors, such as Yellow,[68] can also be supported through the digital start-ups program in Subcomponent 3.1.

b) **The device affordability program will be complemented by an e-waste initiative for recycling and resale or safe disposal of laptops and phones.** This will be carried out in conjunction with the tech hubs, with a focus on skills development and job creation for young people and PWDs. This activity will also include development of a national e-waste strategy, capacity building, and TA to support drafting of the necessary e-waste-related regulations.

Sub-component 3.3. Sectoral deep dives: social protection, disaster and emergency response, financial inclusion, and lands management

a) **In line with national priorities, and in coordination with other projects in the World Bank portfolio in Malawi, four key priority sectors have been selected for deep dives in digitalization:** (a) social protection, with a focus on facilitating identity verification needed for proper functioning of the dynamic social registries as well as digitalization of safety nets and disaster emergency payments, including through a choice model, such as via mobile money. This (b) financial sector, including implementation of eKYC, activities related to credit reference system, upgrade of collateral registry, and support for the deposit insurance system; (c) disaster and emergency response, which may include support for establishing early warning systems and addressing the urgent needs arising when disaster strikes (including climate disasters); and (d) to ensure better land management, support will be provided to improve connectivity for land registries, identity verification, capacity building for full use of new LIMS capabilities related to the use of GIS for planning and disaster response, the use of LIMS dashboard for performance and efficiency tracking, development of technical capability to estimate climate and hazard risks, and trainings focused on the use of geo-spatial data for forest preservation. The project will also support integration of LIMS with ePayment gateway, digitization of paper records and certain aspects of rolling out the existing lands information management system launched by Government in 2024. Seed funding provided under this component will complement the financing already made available to Malawi in these sectors through sector specific World Bank projects. The support to update the legal and regulatory framework will be provided under Subcomponent 1.5.

[68] http://Yellow.africa, a company active in Malawi, is an example of a new generation of micro-lenders that provide pay-as-you-go support for both solar-powered devices and smartphones.

Component 4: Project management. This component will cover the following activities:

Sub-component 4.1. Establishment of MITA

a) DMAP will provide funding for the establishment and operationalization of the newly created Malawi Information Technology Authority (MITA), including support for selected consultants to be embedded in MITA. It is expected that some of the staff of the existing e-Government department will transition into MITA, on a competitive selection basis.

b) Until MITA is established, the project will continue to support the existing eGovernment department of MID, including through support for internships and teams of ICT professionals.

Sub-component 4.2. Program management and coordination

Coordination and program management, including procurement, FM, and adherence to the ESF. Other standard project management functions include communications, M&E, security, and gender awareness.

D. Project Beneficiaries

9. The project will benefit all households (especially low-income), climate-vulnerable populations, disadvantaged women and girls (especially in remote areas), digital entrepreneurs, and users of public facilities. The beneficiaries will gain from enhanced access to affordable, high-quality broadband, more affordable devices, enhanced data protection and cybersecurity, and e-services in key sectors and job opportunities created in sectors requiring higher skill levels. The project design is aligned with the World Bank's corporate commitments. Gender parity is tracked in five indicators, of which three are PDO indicators (internet access, digital ID, and digitally enabled services [see annex 7]). Climate change is tracked in three indicators (see annex 6). Citizen engagement is tracked in four indicators, while PCM is tracked in five indicators and PCE in two indicators.

E. Institutional and Implementation Arrangements

10. **The project will utilize the implementation arrangements of the ongoing Digital Malawi Project** (P160533), with the Public Private Partnership Commission (PPPC) again hosting the PIU. The functions of the PIU will cover project coordination, procurement, FM, ESS, M&E, communications and gender. There will be other improvements, building on the lessons from the current project, notably a bigger role for MAREN as an implementing partner for the 'internet in schools' initiative, as well as a central role for the Ministry of Information and Digitalization. The project will introduce additional beneficiaries, such as the NRB, and newly created organizations, such as DPA and MITA, planned to be operationalized under this project. The implementing partners and beneficiaries will be represented on the PSC, to be chaired by the Principal Secretary of the Ministry of Information and Digitalization, with the PIU providing secretariat services. They will also be represented in a Technical Committee, reporting to the PSC, which shall additionally include representation from the private sector and civil society.

11. **Implementation readiness.** Although Malawi joined the IDEA Program relatively late, the PIU was able to catch up. This is because the existing Digital Malawi Foundations Project (P160533), which is due to end in June 2024, was designed as an SOP, and intensive discussions on the shape of any future program had already taken place with the Government. Working with the same PIU and scaling up existing operations will facilitate a rapid start to implementation. As of April 2024, the A-ESRS has been cleared, and the client has prepared advanced drafts of the PPSD and has prepared and disclosed the SEP and ESCP. Other ESF instruments, and manuals, will be effectiveness conditions.

F. Appraisal Summary

12. **Paris alignment.** The project is aligned with the Paris Agreement on both mitigation and adaptation goals.

a) **Assessment and reduction of mitigation risks.** The project will contribute to the country's low-carbon development goals by prioritizing renewable energy to power the digital connectivity infrastructure and integrating energy efficiency requirements in all project components. This project will not finance data centers and will only support

migration of data from old servers of various MDAs, currently housed in an old server room, by financing consultancy services. The project's activities are considered universally aligned with mitigation goals since the integrated low-carbon measures will ensure that the carbon lock-in and transition risks associated with the project are low.

b) **Assessment and reduction of adaptation risks.** The main climate risks likely to have an adverse impact on project investments, as identified in the CDRS tool, are intense rainfall and floods. They can damage telecommunication cables causing network failure in affected areas and inundating telecom equipment. The project has included activities to reduce adaptation risks to an 'acceptable' level by (a) integrating projected increase in risk and intensity of flood events, temperatures, and other climate hazards identified in site-specific climate risk assessments in the design of digital connectivity infrastructure; (b) following structural climate adaptation measures for climate-resilient digital connectivity; and (c) complying with disaster response requirements. Additionally, the project will contribute to adaptation goals by financing disaster recovery site to prevent data loss resulting from climate-related damage to existing data storage facilities (see annex 6 for details).

13. **FM.** The FM risk of the project is assessed as Moderate. The PPPC has a good FM track record, including under several previous World Bank-financed projects: Digital Malawi Phase 1 (closing date is June 2024); its predecessor, the Regional Communications Infrastructure Project, which closed in Malawi on June 30, 2016; and the Business Environment Strengthening and Technical Assistance Project (BESTAP), which closed on December 31, 2012. The PPPC has well-qualified and experienced FM staff who have worked in the projects noted above. It has a computerized system that is used for transaction processing and reporting. IFRs under the previous project have been submitted on time and were considered to be of good quality. The audited financial statements with clean audit opinions were always submitted before due dates and the Management Letters did not have serious control and accountability issues.

14. **Procurement: procurement procedures.** Procurement activities under the proposed project will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers (Procurement Regulations), fifth edition (September 2023); World Bank 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, and revised in January 2011, and July 1, 2016 (Anti-Corruption Guidelines); and other provisions stipulated in the Financing Agreements. Procurement procedures will be reflected in the procurement section of the PIM.

15. **PPSD.** The main procurable activities comprise (a) ICT equipment; (b) prepurchase of internet and last-mile connectivity; (c) consulting services to identify sites to be connected in uncommercial rural areas, government institutions, and schools; (d) consulting services for ESS assessments; (e) development of regional resilience activities; and (f) several consulting services to conduct different studies. Similar activities have already been implemented under the ongoing Digital Malawi (P160533) and do not present any major challenge to the PIU. Traditional market approaches such as open, national, and limited will be used. A few procurement packages will use the open international market approach. The PPPC has approved a PPSD which defines, in detail, the market approaches and selection methods for the major contracts, and the Procurement Plan, for the first 18 months has been prepared and approved. The PPPC will use the STEP tool to prepare, submit, review, and clear all Procurement Plans; conduct all procurement transactions for the implementing agency of the MPA program; monitor delays; and measure procurement performance.

16. **Procurement capacity assessment for the project.** Procurement activities will be carried out by an existing PIU hosted at the PPPC. The assessment concluded that the PPPC has good experience in implementing World Bank-financed projects including the ongoing Digital Malawi (P160533). The PIU has three procurement staff (a senior procurement specialist, a procurement specialist, and an assistant procurement specialist), all with acceptable experience. The PIU's procurement performance under the existing project has been rated Moderately Satisfactory. The current staffing is considered adequate to implement the new project. The above assessments rated the overall residual procurement risk 'Moderate' including the procurement organization within the PIU.

17. **National procurement procedures.** National open competitive procurement procedures may be used while approaching the national market. National open competitive procurement will observe the requirements stipulated in the Procurement Regulations on National Procurement Procedures. Other national procurement arrangements (other than national open competitive procurement), which may be applied by the borrower (such as limited/restricted competitive bidding, request for quotations/shopping, and direct selection), shall be consistent with the World Bank's Core Procurement Principles and ensure that the World Bank's Anti-Corruption Guidelines and Sanctions Framework and contractual remedies set out in its Legal Agreement apply.

18. **ESS.** The possible ESS risks and impacts related to the project during the construction and operation/maintenance phases are diverse and are expected to have both positive and negative impacts on the environment, as well as potential health and safety risks to workers and communities if not managed properly. To mitigate these risks, the client is preparing, and plans to disclose, appropriate ESF instruments. Site-specific instruments for some activities, including the ESIA/ESMF, Resettlement Action Plan, and Occupational Health and Safety Plan will also be prepared before commencement of the project activities. These instruments will guide project implementation, in accordance with the ESF. The ESS risk is Substantial.

19. **Economic and financial analysis.** DMAP is expected to contribute to sustainable economic growth, through long-term cost-savings, efficiency, and productivity gains, fueled by greater digital adoption by citizens, businesses, and government.[69] The economic and financial analysis undertaken follows a standard CBA approach and relies on available secondary data and reasonable assumptions, based on experience and studies. Cashflows are calculated for three different scenarios (pessimistic, optimistic, and neutral), with results derived primarily from economic impact in GDP growth due to broadband penetration increase, economic impact due to digital services, reduced KYC costsand fraud, and economic impact from digital skills trainings and innovation. Discounted at 25 percent,[70] the neutral scenario NPV reaches US$1.43 million and yields an IRR of 26 percent. For the optimistic and pessimistic scenarios, the NPVs and IRRs are US$18.15 million and 34 percent and –US$14.31 million and 17 percent respectively. Although Malawi has experienced an unstable exchange rate in recent years, this is not expected to impact these results as most contracts will be bid in US dollars.

20. The project's impact may go beyond these estimated results, since there are some activities, especially those related to cybersecurity and improved data hosting capability, that could produce additional economic and social gains from greater security and safer handling of government data. The additional positive impact is expected from the increase of digitally enabled services and online transactions that would result in greater efficiencies and improved safety and trust on the digital workspace. Furthermore, it is expected that sectoral deep dives in social protection will result in better use of government resources by avoiding double-dipping and eliminating 'ghost' recipients of safety nets, which, as observed in other countries, may result in considerable savings.

G. Key Risks

21. **The overall risk for the Project in Malawi is *Moderate*.** The risks rated Substantial are elaborated below:

(a) **The ESS risks are *Substantial*.** For social standards, the rating considers the likely social risks and impacts resulting from project activities related to support national ID, scale-up of the data exchange platform, and development of e-services that require safe handling and protection of personal data. There will also be risks associated with the rollout of the broadband infrastructure, which may include temporary displacement of people or land acquisition. There could also be possible inherited risk of social exclusion due to lack of affordable devices in the country. These are mitigated through support to the DPA; strict adherence to World Bank ESS guidelines; and measures intended to promote inclusion, such as the device affordability program.

[69] World Bank 2016; World Development Report: Digital Dividends.

[70] The discount rate used for the calculations is 25 percent, which was derived from adding lending interest rate in Malawi in 2023, plus a spread reflecting the project risk and nuances. Source: Data World Bank https://data.worldbank.org/.

The environmental risks are associated with the e-waste management, which is being supported by the project.

(b) **Other risks are rated *Substantial*.** The country is exposed to a high risk of flood, which may adversely affect digital infrastructure by damaging fiber optic networks and microwave networks, for which the project will deploy financing. Soft components such as TA for developing climate-resilient and low-carbon digital network connectivity will help mitigate the risk (see annex 6 for more details on adaptation and mitigation

ANNEX 6: Climate Action Supported by the IDEA MPA

Regional Activities under the MPA

Climate Adaptation and Mitigation Activities under COMESA	US$, millions
Component 1 COMESA: Regional Harmonization and Planning Platform	**4.0**
Activities under this component include the following: • Developing regionally harmonized frameworks, guidelines, and standards to promote digital access and usage; applying inclusive, climate-resilient, and energy efficient approaches; and incorporating measures on e-waste management (**adaptation/mitigation**). • Developing guidelines, standards, and policy and regulatory recommendations, including the use of emerging technologies for climate change adaptation and mitigation (**adaptation/mitigation**). • Supporting integrated infrastructure planning to cover digital infrastructure, with dedicated focus on climate adaptation/resilience and demand for internet connectivity; developing least-cost options to connect cross-border areas and priority public entities, such as schools and health clinics; and enhancing cross utility coordination for energy and digital, including promoting access to and use of renewable energy resources for connectivity for schools, clinics, and other beneficiaries (**adaptation/mitigation**).	**1.5**
Component 2: Regional Knowledge and Capacity Building	**2.4**
Activities under this component include the following: • Developing practical tools and providing trainings for participating countries to enhance and accelerate program implementation, such as sample TOR for procurement, (including green procurement principles, for example, factoring resilience of infrastructure and energy efficiency requirements), model ESS instruments, and so on.	**1.0**

Angola

Climate vulnerability profile. Climate change poses a serious risk to Angola's sustainable development trajectory. Angola ranks 159 out of 185 countries in the 2021 Notre Dame Global Adaptation Index, illustrating its high vulnerability to climate change. Among climate risks, flooding is a recurring natural hazard throughout Angola. The 2022 CCDR for Angola "indicates that the country could become warmer between 1.5 to 2.5° by 2040 to 2060, potentially aggravating impacts such as water availability, drought severity, extreme heat, and rainfall variability."[71] An estimated 3.8 million people in the six southern provinces were reported to have insufficient food. Direct economic losses in agriculture from climate impacts represents as much as US$100 million per year nationwide. The country is at high risk of river floods, urban floods, and coastal floods and is also exposed to earthquakes and landslides. Damage to infrastructure, especially from floods, disrupts electricity service, broadband connectivity, travel, and business operations and imposes large costs for repairs and rebuilding, diverting scarce resources from other development needs. Without adaptation measures, climate change impacts could reduce Angola's GDP by up to 6% by 2025. Achieving Angola's economic diversification and development is inextricably linked to climate resilience. The CDDR calls for green and climate-resilient cities and infrastructure and to bolster human capital and culture of climate-preparedness.

Climate adaptation and mitigation activities under the Angola project	US$, millions
1: Affordable Broadband Connectivity and Inclusion	100.0
1.1: Broadband Connectivity Program	75.9
1.1a: This TA will conduct a country-wide identification assessments of traditionally marginalized and climate-vulnerable communities/climate hotspots that are unserved or underserved by affordable and quality broadband internet services. This will inform the design and financing of the Broadband Connectivity Program to address the coverage and financing gap and deliver broadband internet coverage in the identified areas[72] and include	0.4

[71] World Bank Group. 2022. *Angola Country Climate and Development Report. CCDR Series*. Washington, DC: World Bank. http://hdl.handle.net/10986/38361 License: CC BY-NC-ND.

[72] Areas to be covered by the Broadband Extension Program will specifically target areas most severely and frequently affected by high levels of climate shocks, including provinces of Luanda, Namibe, Lunda Norte, Lunda Sul, Malanje, Cuanza Norte, and Moxico, and areas where digitally enabled responses to climate events are limited both by a lack of climate-resilient digital infrastructure and poor digital

identification of beneficiaries and areas covered by the Social Safety Nets for Resilience and Opportunities Project (P181495) to increase effective targeting and efficiencies in cash transfer programs through the use of mobile payments. The project also focuses on targeting climate-vulnerable people and areas expansion of affordable and resilient broadband networks in rural and peri-urban areas, with prioritized routes to cover unconnected climate hotspots to expand high-quality digital connectivity access to digital services, allowing for access to extreme weather alerts and remote delivery of basic services, for example, emergency cash transfers through mobile money and so on **(Adaptation).**	0.5
1.1b: This activity will ensure that mandatory requirements to deploy climate-resilient and optimized energy efficient broadband infrastructure are embedded into the national Broadband Connectivity Program, which will set the standards for the sector beyond the project duration. The requirements will be informed by Angola's NDC and CCDR as well as TA on climate-smart/informed broadband infrastructure under Subcomponent 1.3. Technical design specifications for the competitive tenders to telecom operators and the service-level agreements (SLAs) with winning operators for infrastructure deployment will include these climate data, climate risks, and resilience requirements and measures that will be monitored throughout the project duration. These will account for projected increases in flooding, sea level rise, storms, and other extreme climate hazards, as indicated by site-specific climate risk assessments to be conducted before deployment of a particular route **(Adaptation/Mitigation).**	
1.1c: Financing (through the Broadband Connectivity Program) for new construction, repair, and upgrade of the national backbone, backhaul and last-mile network infrastructure design will include the following adaptation and mitigation measures: **(Adaptation)** • Climate resilience measures for the broadband connectivity infrastructure (backbone, backhaul, and last-mile networks) will follow recommendations from the ITU Standardization Sector on adaptation[73] to determine the choice of technology, such as between microwave, underground, and aerial fiber optic cables; deploy weather-resistant fiber optic, weather-proofing ducts, poles, switches, sockets, and appliances in the network; and embed elevation in the communication towers to prevent damage from floods and heavy precipitation. • A site-specific climate risk assessment will be conducted to determine the choice of underground or aerial electrical lines/cables so that they are less likely to be affected by adverse climate events. • Features to reduce the disruptions to network operations due to flooding and other extreme climate events through appropriate standards for network infrastructure such as reinforcing existing towers will be embedded into supervision of infrastructure deployment as per the contracts and SLAs designed under Subcomponent 1.1b. • The backbone and last-mile access will specifically target/prioritize unconnected climate hot spots to expand quality and access to ICT services as per the findings of the identification conducted under Subcomponent 1.1 above. **(Mitigation)** • The procurement of all telecommunications network equipment under this component will leverage the use of energy efficient technologies and measures to support energy conservation and reduce GHG emissions such as optimized network topology, optimized processor use, smart network management (switch off core nodes), and backbone network virtualization and will be in accordance with international best practices such	75.0

connectivity. Connecting vulnerable communities to digital infrastructure in these regions would allow people to have connectivity during and after extreme climate events, thus helping them receive early warning/weather forecast in time and immediate response/relief through electronic cash transfers.

[73] For example, Recommendation ITU L.1502: Adapting information and communication technology infrastructure to the effects of climate change; and ETSI ETS 300 019-1-3 standard concerned with environmental conditions and environmental tests for telecommunications equipment and specifies different standardized environmental classes.

as Green ICT Standards[74] and/or recommendations from the European Commission's Joint Research Centre report Best Environmental Management Practice in the Telecommunications and ICT Services Sector. The SLA developed under Subcomponent 1.1b will ensure that these requirements are included in the contracts with the infrastructure providers. • Existing copper cables will be upgraded to energy efficient fiber optic cables. The migration from a copper to a fiber optic-based network is expected to significantly reduce energy consumption and CO_2 emissions.[75] • Extending fiber backbone coverage will help to reduce the size of the microwave backhauling network for backbone connectivity and last mile and will result in a significant reduction in GHG emissions associated with the data traffic, as optical fiber is two to three times more efficient than microwaves for backhauling, allowing power savings from 54 to 94 percent on the backhaul deployment in a 4G scenario.[76] The new construction of national backbone and last-mile network will also deploy energy efficient fiber optic technology, which is the best available (that is, most energy efficient) technology in Angola and also significantly more energy efficient than the copper cables, which still exist in the country. • Furthermore, Angola currently does not have a national power grid. Once outside the urban centers, the rural and even the peri-urban areas that have significant populations have limited to no access to electricity. The SLA developed under Subcomponent 1.1b will include mandatory requirements for using renewable (solar) to the extent possible in these rural and peri-urban areas for powering base transceiver stations or other equipment transmitting mobile radio frequency services. This includes adoption of green (low-carbon) routing, for example, using power generated by renewable energy sources and switching off routers and selective interfaces during low demand and so on.	
1.2: Digital inclusion program	15.0
1.2a-b: Expand access to and use of the internet by climate vulnerable people, PWDs, and women through the development of digitally enabled community spaces and computer labs with access to the internet and online services. Climate-vulnerable populations will largely include subsistence farmers especially in the south of the country,[77] for whom mobile phone capabilities would equip them with digital solutions to address climate-related challenges. These would include information services for climate/weather; access to AgTech solutions, equipping them with capabilities to receive cash transfers in times of climate-induced crisis (drought and flooding are frequent in Angola); and access to micro-finance and insurance services (an initiative being implemented by the United States Agency for International Development [USAID] and others).[78] (**Adaptation)** Furthermore, centralized financing to ensure procurement of certified energy efficient equipment. These would include US$1.5 million of computer lab refurbishment; wiring of offices and buildings for internet connectivity; hardware such as computers, printers, and scanners; software for use of computer and the internet; and furniture and office supplies. The IT equipment (computers, printers, and scanners) and other electrical equipment such as	7.2 1.5

[74] Relevant energy efficiency strategies or best practices/international standards on energy efficiency, such as those on compliance with green ICT standards (ITU-T, Green ICT Standards and Supplements, IEEE 802.3az Energy Efficient Ethernet standard, ISO 14001 v2015: Environmental Management Standard, ISO 50001 v2011: Energy Management Standard, ISO/TR 14062 v2002 : Environmental Management); Operational Energy Efficiency for Users (OEU); Technical Global KPIs for Fixed Access Networks (ETSI), (2017-04); Environmental Engineering (EE).

[75] The country has legacy copper cables that will be replaced with fiber optic cables under this project. Research has shown that coaxial cables consume more energy than fiber optic cables; copper networks consume about 3.5 W at full 100 m reach capability while fiber networks may use less than 1 W to transmit the 10 GbE signal over 300 m. See How Fiber Can Help Make the Network Greener.
It is estimated that fiber optic networks save 40–60 percent of energy consumption compared to traditional copper-based networks; see Godlovitch, Ilsa, Peter Kroon, Sonia Strube Martins, and Fabian Eltges. 2019. "Copper Switch-off, A European Benchmark." *FTTH Council Europe Conference*, Amsterdam, page 8.

[76] https://europacable.eu/wp-content/uploads/2022/07/Politecnico-di-Milano-for-Europacable-Energy-efficiency-of-fiber-on-mobile-networks-December-2021-2.pdf.

[77] Southern Angola has experienced a severe and protracted drought over the past decade. In 2021, an estimated 3.81 million people in the six southern provinces were reported to have insufficient food, and 1.32 million faced high levels of acute food insecurity. World Bank, Country Climate Development Report.https://documents1.worldbank.org/curated/en/099150012022242096/pdf/P1769170f457c3010098d30b375aaddd937.pdf.

[78] For example, https://www.state.gov/embassy-luanda-launches-the-dinheiro-digital-e-melhor-project-to-increase-financial-inclusion/ and https://itweb.africa/content/LPwQ5Mlbm9LvNgkj.

air conditioning units will be energy efficiency certified at levels that surpass the country's existing energy efficiency levels for similar equipment (in line with internationally recognized certifications such as Energy Star[79]). When needed, such as in rural or peri-urban areas that are off-grid, or areas where the electricity supply is vulnerable to climate events, the upgrade will also include solar-powered back up energy supply/generator **(Mitigation)**.	
A site-specific climate risk assessment for individual rooms will be conducted to determine the need for adaptation measures, and adequate measures will be integrated to ensure that the risks are reduced to a low level. There is limited grid connection, so renewable energy or hybrid-powered energy systems will be utilized. When needed, such as in rural or peri-urban areas that are off-grid, the upgrade will also include solar-powered back up energy supply/generator. (**Adaptation/Mitigation)**	0.5
1.2c: Design and implementation of mobile digital literacy program prioritizing women, PWDs, and climate-vulnerable populations at the computer labs so that people who are not familiar with how to use a computer, the internet, and mobile device have the training they need on how to protect themselves online (data privacy). Training will include awareness raising on information and services available online including those that will enable subsistence farmers to diversify into less climate-vulnerable streams; identify AgTech applications, for example, to identify drought-resistant seeds; and apply for micro-credit/micro-insurance for when crops fail. **(Adaptation)**	6.3
1.3: Broadband Internet Market Regulatory Reform	9.1
1.3f: Development of guidelines and national protocols for climate-smart digital infrastructure to be applied to infrastructure deployment under Subcomponent 1.1a, b, c, and Subcomponent 1.2 a–b. This subcomponent will introduce tighter standards for energy efficiency, including renewable energy resources (such as solar energy) for low-carbon telecom infrastructure, energy conservation measures and technologies, and development of e-waste management plans (that will contribute to reduction in GHG emissions by addressing e-waste collection, dismantling, refurbishing, and recycling which will greatly reduce the demand for virgin raw materials). Guidelines on embedding climate resilience will include mandatory site-specific climate risk assessment infrastructure and embedding adequate climate resilience measures. (**Adaptation/Mitigation)**	0.2
2 Scaling-up Inclusive and Safe Digital Public Infrastructure	122.7
2.1: Foundations of Digital Governance	55.0
2.1c: TA to assess current and planned data hosting (including adoption of cloud-based services and with climate risk and low-carbon considerations standards) and data management needs, looking at demand and supply, regional demand aggregation, and the need for disaster recovery sites in climate-safe locations; cloud services will also include energy efficiency considerations guided by international best practices such as ITU-T recommendations for green ICT infrastructure. Increased use of cloud services for data storage will also avoid the need for the Government to build its own data center, which would reduce GHG emissions. Without the World Bank's intervention and in a non-project scenario, the Government would be constructing more data centers. **(Adaptation/Mitigation)**	0.35
2.1h: GoA open data portal, including Government climate and geospatial data. **(Adaptation)**	1.0
2.1d-f: Digitalization of public services and deployment of e-services platform, including US$20 million of front- and back-office ICT equipment certified energy efficient at levels that surpass the country's existing energy efficiency levels for similar equipment (in line with internationally recognized certifications such as Energy Star). **(Mitigation)**	20.0

[79] There are no national energy efficiency performance standards or energy labeling systems in Angola. Source: https://rise.esmap.org/country/angola.

2.2: Digital ID	45.0
2.2a-d: Deployment of a digital authentication platform integrating digital IDs with existing siloed functional IDs (health, citizen, and so on) enabling enhanced services and social protection packages to more citizens, including response to climate change. Specific applications include enabling shock-responsive cash transfers through the 'Kwenda' Cash Transfer Project (Social Safety Nets for Resilience and Opportunities Project, P181495). The activity will improve the Government's ability to target beneficiaries and enable digital ID verification for cash transfers that require proof of vital events (following a flood or drought[80]). The issuance of digital ID credentials will include a focus on enrollment of vulnerable groups, including targeted outreach to climate-vulnerable populations into digital ID systems. The identification of at-risk populations will be based on geographic climate vulnerability data informing P181495. **(Adaptation)** Centralized procurement of all ICT equipment for the ID system (financing cost is US$20 million), including registration equipment, will be certified energy efficient that would surpass the existing energy efficiency level in the country (as described under component 1). **(Mitigation)**	25.0 20.0
2.3: Re- and Up-skilling the Public Sector	10.0
2.3a-e: Design and implementation of digital skills programs and courses for the public sector (for example, municipal offices in climate-vulnerable regions), including geospatial/GIS skills to relevant government staff including to better identify and map adaptation needs and priorities in counties and/or to identify areas vulnerable to high-climate risks in relation to public investment management. Support to enable ENAPP to transition to e-learning to allow for training of public staff in remote and difficult-to-access areas, such as during rainy seasons in the flood-prone provinces of Luanda, Cunene, Huila, Huambo, Cuanza Sul, Benguela, Malanje, and Moxico. **(Adaptation)**	10.0
3. Productive Digital Usage for Economic Opportunities	54.0
3.1: Digital Entrepreneurship Support Program	34.0
3.1b: Funding digital businesses and start-ups with priority amounts/windows for women-owned, PWD-owned, and youth-owned firms through competitions/hackathons that can also increase public knowledge of climate threats and encourage collective thinking. Priority windows would also be included for businesses adopting digital models for climate adaptation and mitigation. These will link with the Diversifica+ Project that has similar objectives. (**Adaptation**).	16.0

Democratic Republic of Congo

Climate vulnerability profile. Climate change poses a serious risk to DRC's sustainable development trajectory. DRC ranks 182 out of 185 countries in the 2020 Notre Dame Global Adaptation Index, illustrating its high vulnerability to climate change. Climate-related shocks in DRC include floods, droughts, and extreme heat, among others. Seasonally, more rainfall is expected during the wet season, increasing the incidence of flooding, with longer dry periods in between increasing the severity and frequency of droughts and heatwaves. Floods and heavy rainfall events can adversely affect digital infrastructure by damaging cables and inundating ICT equipment and communication towers, while heat stress can accelerate degradation of network equipment or cause malfunctioning. These climate risks are likely to result in network failure and service outages, disrupting connectivity and business continuity for government offices, private sector businesses, training institutions, and secondary schools located in hazard-prone regions. Ensuring that any digital infrastructure deployed can withstand climate events will thus be important. Lower-income populations tend to reside in more hazard-prone locations, with high potential for significantly increased climate change exposure to already vulnerable populations. Many of these locations are currently not adequately served by digital infrastructure, which also makes scaling digital services that can build resilience a challenge. Digital infrastructure, platforms and tools thus hold huge untapped potential in supporting DRC's national climate adaptation and mitigation goals, among others, by strengthening the climate resilience of local communities exposed to climate risks.

[80] The pipeline Social Safety Nets for Resilience and Opportunities Project (P181495) aims to introduce a shock-responsive cash transfer program prioritizing drought response in those areas that experienced more frequent and intense droughts in the last decade (that is, southern pastoralist areas of Cunene and Namibe; central highlands of Huambo, Huila, and Cuanza Sul; and the transitional maize and cassava growing regions in Benguela and Cuanza Sul).

Climate adaptation and mitigation activities under the DRC project	US$, millions IDA only
Component 1. Expanding digital access and inclusion	302.0
Adaptation and mitigation measures for Subcomponents 1.2 and 1.3 (approximately 95% for infrastructure and equipment procurement) **Adaptation** Financing for backbone, cross-border network links, and rural broadband will implement a network design with prioritized routes and zones that cover unconnected climate hot-spots (as identified under Subcomponent 1.1 through GIS mapping) to expand high-quality digital connectivity access to ICT services, allowing for access to extreme weather alerts and remote delivery of basic services for example, emergency cash transfers through mobile money and so on. The project will target areas where other World Bank projects in DRC are providing services that support resilience but that currently are unable to extend use of digital payments and other services due to weak network coverage.[81] The network design and network configuration for digital connectivity under Component 1 will be informed by site-specific climate risks. The design of digital connectivity infrastructure will consider projected increase in risk and intensity of flood events, temperatures, and other climate hazards identified in the climate risk assessments (to be conducted by the operator and built into the tender) and adequate adaptation measures will be embedded accordingly to make the infrastructure climate resilient. **Mitigation** All telecommunications network equipment to be procured under this component will have energy efficiency levels that will surpass country's current energy efficiency levels and equipment procured for similar expansion projects. These will follow the good practice energy efficiency guidelines developed in Subcomponent 1.1, guided by relevant international standards.[82] There are no mandatory minimum energy performance standards and energy labeling system in DRC for network equipment and connectivity deployment.[83] Extending fiber backbone coverage will help reduce the size of the microwave backhauling network (currently, microwaves are prevalent in DRC for backbone connectivity and last mile), which will result in a significant reduction in GHG emissions associated with the data traffic as optical fiber is two to three times more efficient than microwaves for backhauling, allowing power savings from 54 to 94 percent on the backhaul deployment in a 4G scenario.[84] The backbone and cross-border networks and last-mile infrastructure will thus have energy efficiency levels that meet best international practices such as the European Commission's Joint Research Centre report Best Environmental Management Practice in the telecommunications and ICT Services Sector[85] and Green ICT standards[86] to the extent technically and financially feasible. This includes adoption of green (low-carbon) routing, for example, using power generated by renewable energy sources, switching off routers and selective interfaces during low demand, and so on.	290.2

[81] For example, P175834 - Stabilization and Recovery in Eastern DRC; P172292 - Kananga Emergency Urban Resilience; National Agriculture Development Program - P169021 (payment to farmers); DRC Eastern Recovery Project - P145196 (social protection payments).
[82] Canfora, P., P. Gaudillat, I. Antonopoulos, and M. Dri., 2020. "Best Environmental Management Practice in the Telecommunications and ICT Services Sector." EUR 30365 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-21574-5, doi:10.2760/354984, JRC121781 and ITU-T, Green ICT Standards and Supplements (https://www.itu.int/net/ITU-T/lists/standards.aspx?Group=5&Domain=28).
[83] https://rise.esmap.org/country/congo-dem-rep.
[84] https://europacable.eu/wp-content/uploads/2022/07/Politecnico-di-Milano-for-Europacable-Energy-efficiency-of-fiber-on-mobile-networks-December-2021-2.pdf
[85] Canfora, P., P. Gaudillat, I. Antonopoulos, and M. Dri., 2020. "Best Environmental Management Practice in the Telecommunications and ICT Services Sector." EUR 30365 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-21574-5, doi:10.2760/354984, JRC121781.
[86] ITU-T, Green ICT Standards and Supplements (https://www.itu.int/net/ITU-T/lists/standards.aspx?Group=5&Domain=28).

1.1: Introducing frameworks and enablers for digital access and inclusion	11.8
A mapping atlas and geographic information system (GIS) will be purchased for the telecoms regulator, which will be used to better map existing and planned network infrastructure deployed, identify areas exposed to high-climate risks when designing the network, and prioritize network coverage to these unconnected climate hot spots under Subcomponent 1.2. This GIS would also be used to log and track network outages due to extreme climate events to reduce network downtime through rapid repairs and timely maintenance. **(Adaptation)** TA will be provided to the telecoms regulator to enable Government to push out emergency weather alerts through operators' networks. **(Adaptation)** TA will be provided to Ministry of Telecoms and other MDAs to define a Digital and Climate Strategy, with support for a dedicated interministerial committee, which will detail how the government will leverage digital to support climate adaptation and mitigation efforts. **(Adaptation/Mitigation)** TA will be provided to the telecoms regulator to develop guidelines/standards for climate-informed network deployment to ensure integration of climate adaptation measures by operators to minimize network downtime due to extreme climate events and ensure application of international best practice recommendations for energy efficiency for telecom infrastructure. **(Adaptation / Mitigation)** TA, training, and financial support will also be provided to the Government to ensure that the forthcoming e-waste policy, that integrates the principles of reuse, repair, and recycle, is implemented for Government IT equipment purchased for MDAs and so on, with plans developed for IT maintenance to prolong the life of IT equipment deployed by the project, including IT equipment purchased for the Government under Component 2. **(Mitigation)**	1.1 0.16 0.12 0.16 0.4
1.2: Extending core networks to enable inclusive coverage	149.0
Adaptation Climate resilience measures for the digital network infrastructure will include deployment of weather-resistant fiber optic cables and choosing underground or aerial electrical lines/cables (based on site-specific climate risk assessment) so that they are less likely to be affected by adverse climate events. Integration of design measures to climate-proof core networks will be included in tender documents and technical specifications (such as water blocking material and enhanced reinforcement in fiber optic cables to prevent damage from floods). Digital infrastructure to be built will be subject to quality standards for climate resilience and disaster response. These include sufficient bandwidth for peaks in demand; the ability to restore service access; good management of network congestion; contingency plans for service continuity during extreme climate events; and factoring in network redundancy by minimizing single points of failure in digital networks due to possible disruptions from extreme weather event (for example, cable ducts, and shelters for equipment). **Mitigation** For backbone deployment, preparation of specifications and tenders (design, equipment, and operational modes) will include requirements for energy efficient hardware/software (such as network standby modes, power feeding solutions, and others).	
1.3: Connecting citizens, universities and selected public institutions (mix of fiber, mobile and satellite)	141.2
(i) Extend mobile connectivity: (57.7) + (ii) Connecting MDAs: (82.3). All financing is for last-mile connectivity. Remaining financing under this subcomponent is TA, which includes supervision of infrastructure deployment to ensure that both backbone and last-mile infrastructure finance adheres to standards/specifications set, including those related to climate adaptation and mitigation. **Adaptation** • (i) and (ii) Adaptation measures will include weather-proofing the ducts, poles, switches, sockets, and appliances in the network, embedding elevation in the communication towers to withstand floods). • (i) Share of 1.3 financing dedicated to extending mobile in rural and peri-urban areas will prioritize unconnected sites in climate hotspots. Upstream TA will be provided to identify geographic zone to targeted, which will include this as a prioritization criterion.	

• (ii) Share of 1.3 financing dedicated to providing new and improved connectivity to government offices and training institutions will prioritize unconnected sites in climate hotspots, allowing for uninterrupted service delivery in case of climate events. Upstream TA will be provided to identify sites to be connected, which will include this as a prioritization criterion. By connecting training institutions, the Government can also continue to offer e-education in connection with climate events (to be detailed in bidding documents), via the DRC Girls Learning and Empowerment Project (P178684). Expanding connectivity to government MDAs and local government offices will aid deployment of emergency management services provided at the sectoral level: examples include connecting hospitals and health MDA where access to connectivity will enable digital surveillance system for transmittable diseases on the rise due to climate changes (Regional Disease Surveillance Systems Enhancement Project, P167817) and forestry directorates where greater connectivity will enable more effective use of digital surveillance and emergency response system related to forest management and forest fires on the rise due to climate change (DRC Forest and Savanna Restoration, P178642). These types of public offices currently either have limited or weak connectivity access. **Mitigation** • (i) and (ii) Similar to 1.2, the deployment of last-mile infrastructure (ii)/(ii) will have energy efficiency levels that surpass the country's current energy efficiency levels and equipment procured for similar expansion projects (see above). • (ii) Whenever possible, fiber will be used to connect MDAs, as it is the most energy efficient and best available broadband technology in DRC.[87] The deployment of over 7,000 km of fiber optic backbone throughout the country will enable MDAs located close to the new backbone to be connected via fiber optics (estimated 30 percent of financing). Outside the areas where the fiber optic backbone is deployed, MDAs will continue to be connected via microwave or satellite for the most isolated regions. • (ii) Related network investments will also require operators to power equipment at targeted MDAs as well as any cell towers and base stations deployed with solar power and battery storage, limiting the use of diesel generators to minimize the GHG emissions stemming from related network deployment, or where feasible leverage direct connections to central energy grid which minimize energy use and reliance on generators. • (ii) Any ICT equipment used for local area networks to connect government offices and training institutions will leverage the use of energy efficient technologies and measures to support energy conservation and reduce GHG emissions, where possible, such as by using equipment with automatic switch-off mechanisms and those that conserve power when not in use. Similar to 1.2, equipment procured will be energy efficiency certified, surpassing the current energy efficiency standards and following international energy efficiency standards, such as IEEE 802.3az and ITU-T Recommendation L. 1310.[88]	
2. Introducing digital foundations for service delivery	
2.1: Improving data sharing and management for integrated service delivery	18.0
• TA will be provided to develop an interoperability framework and data standards, including through an overarching government enterprise architecture and data strategy that will be the starting point for improving the Government's ability to share data between MDAs' management information system, allowing for consolidated data analysis and forecasting and better climate emergency response planning in line with the objectives in the Government's climate strategy. Support though	3.45

[87] Without the World Bank's intervention and in a non-project scenario, the use of energy-intensive microwave (instead of the modern energy efficient fiber optic cables) for broadband connectivity would be far more extensive in DRC.

[88] IEEE Standard for Information technology - Local and metropolitan area networks - Specific requirements - Part 3: CSMA/CD Access Method and Physical Layer Specifications Amendment 5: Media Access Control Parameters, Physical Layers, and Management Parameters for Energy-Efficient Ethernet: https://standards.ieee.org/ieee/802.3az/4270/ & ITU Recommendation L.1310 on Energy efficiency metrics and measurement methods for telecommunication equipment: https://www.itu.int/rec/T-REC-L.1310/en?.

TA and training will also be provided to ensure implementation in several strategic sectors that produce data relevant to climate change mapping or response services such as health, social protection and jobs, and so on. These frameworks ad their implementation will also reduce duplication of facilities that would reduce energy use. (**Adaptation/ Mitigation)** • Financing for a consolidate Government data hosting solutions, which is likely to include a greenfield physical data center will be deployed in a climate-safe location, with adequate redundancy and automated backup and disaster recovery system to avoid loss of sensitive government data. Current data management and hosting practices in DRC are vulnerable to floods and other extreme climate events that could lead to large-scale data loss due to absence of adequate backup and fragmented data hosting practices. A climate-risk assessment will be conducted to identify flood-safe location for data hosting and technical and financial feasibility for embedding automated backup and disaster recovery to avoid data loss in the event of climate calamities. The new data center will meet the criteria for EDGE green building certification for green data center, requiring at least 20 percent savings in energy, water, and embodied energy in materials.[89] **(Adaptation/ Mitigation)** • Financing of the GovNet (including intranet) will feature deployment of a central network operating center, which will include climate risk considerations with the aim to identify climate risks and associated mitigation measures that will be included design. The GovNet the network equipment and other basic IT equipment deployed to allow MDAs to access and use the network will leverage energy efficient technologies and measures to support energy conservation using the standards noted above (under Component 1) **(Adaptation/Mitigation)**	5.7 6.2
2.2: Enabling trust in digital services	13.3
Mitigation • Procurement of all ICT equipment for the CSIRT, data protection office, and e-signatures will be certified by Energy Star or equivalent standards, which would surpass the energy efficiency levels of equipment existing in the country.	6.3
2.3: Enhancing service delivery in key sectors using shared platforms	
Adaptation • Financing for e-archives will support digitalization of paper-based records to reduce the risks of personal record loss in the event of flooding. Targeted sites exposed to higher climate risks will be prioritized. **Mitigation** • Procurement of all ICT equipment required to operationalize the online e-services portal (*Guichet Unique*) will be energy efficient (see description above).	2.4 4.3
3. Increasing access to industry-relevant digital skills and stimulating digital innovation	
3.1: Developing advanced digital skills capabilities in HEIs and tech hubs	25.1
Adaptation • Training of secondary school teachers in how to deliver the curricula using digital tools and platforms will include modules on how to leverage e-education solutions to be used in the event of emergencies such as extreme climate events, for example, flooding known to disrupt regular education delivery, adversely affecting schools and students.[90] • Advanced digital skills programs in data science launched via HIEs and tech hubs will include training on using GIS, using geospatial and weather/health data available in the public domains focusing how to use digital tools and data for climate preparedness, and directly applying skills to support climate analytics as part of the program, to be shared with Government and with scope of subsequent job placements with MDAs working on climate response.	3.9 4.0

[89] EDGE certification is a green building certification system for emerging markets created by the IFC that targets data centers, enabling developers to optimize design; promote sustainability; and create marketable, cost-effective projects. EDGE recognizes buildings whose design and infrastructure use at least 20 percent less water and energy than conventionally designed buildings. https://edgebuildings.com/.
[90] https://www.unicef.fr/article/la-rdc-connait-les-pires-inondations-de-ces-60-dernieres-annees/.

Adaptation/Mitigation • Advanced digital skills programs for network engineering will include modules on how to design climate-resilient networks to withstand climate change risks and raise awareness around best practices in energy conservation and energy efficiency measures for network infrastructure.	4.0
3.2: Supporting local content creation and innovation system	
Adaptation • At least one innovation challenge/hackathon will be focused on supporting digital climate adaptation solutions, such as emergency apps.	0.4
4. Institutional Coordination and Project Management	
Adaptation • TA will be provided to conduct site-specific environmental assessments/plans, notably for large-scale network deployment under Subcomponents 1.2 and 1.3 and data hosting investments under Subcomponent 2.1 to identify climate risk mitigation measures to be implemented. **Mitigation** • TA to develop an e-waste management plan for equipment purchased under the project will be provided, with related awareness raising.	2.0 0.08

Malawi

Climate vulnerability profile. Malawi is considered highly vulnerable to climate change, ranking 161 out of 185 countries included for 2021 on the ND-GAIN Index. Climate-related disasters are already increasing in frequency and severity, with devastating consequences exacerbating Malawi's development challenges. This was recently highlighted by the President's declaration of a state of disaster on March 23, 2024, since in 23 out of the country's 28 districts were affected by erratic rainfall, floods, and extended periods of drought. Based on vulnerability assessment of telecommunication infrastructure from climate hazards in the Malawi CCDR digital background note, Malawi's network infrastructure is most vulnerable to riverine flooding, landslides, wildfires, and strong winds.[91] Among these risks, flooding is a recurring natural hazard throughout Malawi, particularly in the low-lying areas in the southern part of Malawi. This region also suffers from poor coverage, and hence, limited network infrastructure. While damage may be localized, the impact can be at the level of entire networks. Flooding can damage critical infrastructure, including disrupting the country's connectivity/broadband internet network for extended periods of time. Malawi's economic diversification and development is inextricably linked to climate resilience.

Climate Adaptation and Mitigation Activities under the Malawi Project	**US$, millions**
Component 1: Affordable broadband and secure data hosting	**80.0**
1.1: Rural Connectivity	20.0
Adaptation • Financing for expanded broadband coverage in rural areas will be based on a network design aimed at achieving universal coverage of mobile broadband with focus on rural, traditionally marginalized and climate-vulnerable communities/climate hotspots currently unserved or underserved by affordable and quality internet services. Communities, especially in climate hotspots of the Lower Shire Valley (Chikwawa and Nsanje), which are often subject to flooding,[92] have limited access to digital connectivity and digital services, hampering the Government's response to climate-related emergencies. Expanded connectivity would allow these beneficiaries (notably schools, local government offices that host land management registries and responsible for social protection administration) in the Lower Shire Valley to remain	10.0

[91] World Bank Group. 2022. *Malawi Country Climate and Development Report - Digital Sector Background Note. CCDR Series*. Washington, DC: World Bank.

[92] World Bank. 2022. *Malawi CCDR*: Severe droughts also affect water levels in Lake Malawi, with implications not only for fisheries, but also for port assets. Recurring floods, which increase the risks of subsidence, corrosion, and reduced stability of foundations and tower structures, also adversely affect digital infrastructure. Floods, especially as seen in Lake Malawi, increase the risk of network infrastructure failure in the region, which would in turn affect other critical infrastructure and services, such as power grids, railways, banking, and retail. Such a failure would exacerbate the impacts of climate disasters. The Malawi Government announced a state of disaster for climate-related causes on March 23, 2024.

connected during the time of crisis; have access to extreme weather alerts; and ensure digitally enabled delivery of basic services, for example, emergency cash transfers through mobile money. • Additional free Wifi hotspots planned under the project will be critical to ensuring that residents have continued access to critical services. Being connected ensures business continuity and facilitates response and recovery efforts after climate emergency. For example, under the Digital Malawi (P160533), an emergency program of over 100 public WiFi hotspots was rolled out in schools, post offices, markets, community centers, and airports, which was key during recent natural disasters such as cyclone Freddy. • The final network design will be informed by site-specific climate risks identified in the climate risk assessments (to be conducted by the operator and built into the tender). Adequate adaptation measures will be embedded to make the new connectivity infrastructure is climate resilient.[93] • Under the prepurchase of international internet capacity under long-term supply agreements to 500 government institutions using last-mile fiber or satellite, one of prioritization criteria will be to connect sites that are in climate hotspots, to ensure uninterrupted service delivery in case of climate events. **Mitigation** • This investment will be used to roll out mobile broadband coverage in uncommercial rural areas, out of which expectedly half (50 percent) will consist of new 4G/5G sites, while the remaining half (50 percent) will be an upgrade of 2G cell sites to more energy efficient 4G/5G cellular technologies.[94] • For last-mile connectivity to institutions, expectations are that around half (50 percent) will be deployed through energy efficient fiber optic cables,[95] while the remaining will likely be a mix of LEO satellite and 4G cellular, depending on the results of a competitive process. • All connectivity-related activities financed will leverage the use of energy efficiency technologies and measures to support energy conservation and GHG emissions that will surpass country's current energy efficiency levels and equipment procured for similar expansion projects and meet the best international practices for environmental management[96] and green ICT standards[97] to the extent technically and financially feasible. This includes adopting green (low-carbon) routing, using renewable (solar) energy sources to power base transceiver stations or other equipment to the extent possible in rural and peri-urban with limited or no access to grid electricity, and switching off routers and selective interfaces during low demand.	10.0
a. Connecting schools and Higher Education Institutions	45.0
Adaptation • Financing for broadband connectivity to 2,000 plus schools, will allow the Government to continue to offer e-education, in case schools need to close in connection with climate events (to be detailed in bidding documents). Under the Digital Malawi Project, for instance, connecting over 80 HEIs and over 100 public	45.0

[93] Climate resilience measures for the broadband connectivity infrastructure will follow recommendations from ITU-T on adaptation (Recommendation ITU L.1502) to determine the choice of technology, such as between underground and aerial fiber optic cables, and deploy weather-resistant fiber optic, weather-proofing the ducts, poles, switches, sockets and appliances in the network, embedding elevation in the communication towers to prevent damage from floods and heavy precipitation.

[94] GSMA and World Bank report that energy efficiency improves severalfold from 2G/3G to 4G/5G, thus encouraging investments in and migration from 2G/3G to 4G/5G to improve efficiency and reduce both energy consumption and carbon emissions per unit of data. GSMA. 2023. *Going Green: Benchmarking the Energy Efficiency of Mobile Networks* (second edition) and World Bank. 2024. *Green Digital Transformation: How to Sustainably Close the Digital Divide and Harness Digital Tools for Climate Action. Climate Change and Development Series*.

[95] Without the World Bank's intervention and in a non-project scenario, the use of energy-intensive microwave (instead of the modern energy efficient fiber optic cables) for broadband connectivity would be far more extensive in Malawi.

[96] Canfora, P., P. Gaudillat, I. Antonopoulos, and M. Dri., 2020. "Best Environmental Management Practice in the Telecommunications and ICT Services Sector." EUR 30365 EN, Publications Office of the European Union, Luxembourg

[97] For instance, ITU-T, Green ICT Standards and Supplements (https://www.itu.int/net/ITU-T/lists/standards.aspx?Group=5&Domain=28).

WiFi hotspots helped ensure business continuity during the COVID-19 pandemic as well as during recent natural hazard events when students could not get to school.[98] • As noted above, the network design and network configuration for digital connectivity will be informed by site-specific climate risks identified in the climate risk assessments. **Mitigation** • Similar to Subcomponent 1.1., expectations are that around half (50 percent) of last-mile connectivity financed under Subcomponent 1.2. will be energy efficient fiber optic cables, and the remaining a mix of LEO satellite and 4G cellular, depending on the result of a competitive process. All connectivity deployed under this subcomponent will leverage the use of energy efficiency technologies and measures to support energy conservation and GHG emissions that meet the best international practices for environmental management[99] and green ICT standards[100] to the extent technically and financially feasible. This includes adoption of green (low-carbon) routing, for example, using renewable (solar) energy sources to power base transceiver stations or other equipment to the extent possible in rural and peri-urban with limited or no access to grid electricity and switching off routers and selective interfaces during low demand periods.	
1.3 Regional connectivity and climate resilience	10.0
Adaptation • TA at the regional level will include development of regionally harmonized standards and guidelines for climate-resilient infrastructure, for example, the network design and network configuration for digital connectivity will be informed by site-specific climate risks (to be conducted by the operator and built into the tender) and will require that adequate adaptation measures be embedded accordingly to make the infrastructure financed under 1.1 and 2.1 climate resilient. • Demand aggregation for internet capacity at the regional level will contribute to reduced cost of internet in schools, health centers, and government departments that are located in climate hotspots and where business continuity, facilitated by internet availability, in the aftermath of climate-related emergencies is most essential.	5.0 5.0
1.4 Enhancing data hosting capacity and transition to cloud computing	5.0
Adaptation • Current data hosting arrangements and infrastructure in Malawi (and the old server rooms) are vulnerable to floods and other extreme climate events that could lead to large-scale data loss in the absence of adequate backup and disaster recovery sites.[101] The project will provide support to migrate government data from the old server equipment located in multiple government agencies to the national data center financed under previous Digital Malawi Phase 1 project, with the aim of preventing the loss of government data, including due to heavy rain and cyclones. This will allow proper data hosting for strategic government systems such as dynamic social registry and lands management (see 3.3. below). The project will also support migration to enable cloud-based services at the national and regional levels, as well as backup options to prevent data loss in the event of climate-related emergency, such as flooding. This will lead to improved climate change resilience in digital government and data infrastructure, enabling improved government business continuity and climate disaster response.	5.0

[98] In 2023, tropical cyclone Freddy caused damage to 624 schools, 6 universities, and 3 colleges in Southern districts of Malawi. Over 700,000 learners were unable to attend school, and many were unable to access education for extended periods since schools were either destroyed or being used as camps for displaced people. Tropical Cyclone Freddy, Emergency Response plan, Office of The President and Cabinet Departement of Disaster Management Affairs March 2023, Malawi.

[99] Canfora, P., P. Gaudillat, I. Antonopoulos, and M. Dri., 2020. "Best Environmental Management Practice in the Telecommunications and ICT Services Sector." EUR 30365 EN, Publications Office of the European Union, Luxembourg.

[100] For instance, ITU-T, Green ICT Standards and Supplements (https://www.itu.int/net/ITU-T/lists/standards.aspx?Group=5&Domain=28).

[101] The problem of water entering and causing damage to electrical parts in older server rooms during heavy rain events is already an issue. This poses a significant and pressing risk of losing important data

Component 2: Interoperable and secure data platforms	35.0
2.1 Next Generation Digital ID and ID verification capability	25.0
Mitigation • Procurement of all ICT equipment for the upgraded digital ID system, including registration kits, laptops, and printers will leverage high energy efficient technologies and measures to support energy conservation and reduce GHG emissions using standards noted above, including Energy Star-certified ICT equipment and solar-powered ID registration kits, which would surpass the energy efficiency levels of equipment existing in the country. • Older registration kits will be properly recycled in line with the e-waste initiative and strategy financed under 3.2. • Physical and mobile ID enrollment sites will be powered with renewable energy solutions, to the degree possible, reducing reliance on diesel-powered generators. • Digital ID would allow for many services to be delivered digitally, thus eliminating the need to travel, including by car, leading to significant reduction of CO_2 emissions. **Adaptation** • In addition, investment in identity verification services will streamline the delivery of social protection packages to more citizens, including response to climate change. The activity will improve the Government's ability to target beneficiaries and enable digital ID verification for cash transfer that requires proof of vital events including in cases following floods or drought, for instance. • The project also plans to support eKYC[102], which will support governments in making social safety net payments and banks in processing mobile money transfers, both of which will help build resilience in the event of climate-related emergencies. • Component 2.1 will support climate related use cases in 3.3.	15.0 10.0
2.2 Extending the *Bomalathu* data exchange platform for Government and Financial Institutions	5.0
Adaptation • Expansion of the data exchange platform *Bomalathu* by onboarding more MDAs, including government agencies in charge of disaster risk management. This will facilitate identity verification for beneficiaries of emergency payments, as well as timely exchange of data and quick development of e-services, including those that support climate adaptation measures that are critical during natural disaster recovery, such as emergency cash transfers. • Investing in eKYC would lead to more people with bank accounts, which is key for beneficiaries of compensation payments after extreme weather events. • Expansion of e-services offered through the e-services portal being developed on the top of *Bomalathu* is expected to improve business continuity and uninterrupted services delivery for government, citizens and firms, when a natural disaster strikes. • Component 2.2 will support climate related use cases in 3.3.	5.0
2.3 Enhancing policy and regulatory frameworks, and operationalizing the DPA	5.0
Adaptation • Support to MACRA in developing guidelines for deployment of climate-resilient infrastructure and requiring operators and broadcasters to provide capacity for emergency weather alerts, for example, by setting up SMS capable of sending alerts to mobile users in the vicinity of mobile towers located in hazard exposure areas. **Mitigation**	5.0

[102] The use of manual Know Your Customer (KYC) processes by financial service providers and customers use of different forms of identification makes it difficult and time-consuming to identify customers. To address these challenges and improve access to financial products and services, electronic-KYC (e-KYC) and digital identity have been identified as potential solutions.

• Procurement of all ICT equipment for data protection offices will be certified by Energy Star or equivalent standards, which would surpass the energy efficiency levels of equipment existing in the country.[103]	
Component 3: High impact digital services and productive digital usage	25.0
3.1 Support to Tech Hubs and Matching Grants for Digital Start-ups	10.0
Adaptation and mitigation: • Seed funding to tech hubs across the country providing training to youth in digital literacy, advanced digital skills, and digital entrepreneurship and sub-grants to digital entrepreneurs. One of prioritization criteria to select the grantees, will be the focus of their work on climate resilience. The grants require that the recipients focus on developing innovative solutions for climate change and the respective skills needed to address climate related challenges. • In addition, the grants will be awarded to deliver basic digital skills and training in the use of drones, AI, and GIS for collection and use of geospatial and weather/health data available in the public domains, including with the focus on how to use digital tools and data for climate change preparedness.	10.0
3.2 Participation in regional program on device affordability	5.0
Mitigation • The device affordability program will be complemented by an e-waste initiative for recycling, repair, reuse and resale, or safe disposal of laptops, phones, and solar panels that may be a product of this project and other economic activities in the country. • This activity will also include development of a national e-waste strategy (focusing on repair, recycle, and reuse), capacity building, and TA to support drafting of the necessary regulations. **Adaptation** • This will be carried out in conjunction with the tech hubs, with a focus on skills development and jobs creation for young people and PWDs, providing them with a better chance to earn income and reducing their overall climate vulnerability.	5.0
3.3 Sectoral deep dives, including social protection, disaster and emergency response, financial inclusion, and land management	10.0
Adaptation and mitigation In line with national priorities, and in coordination with other projects in the World Bank portfolio in Malawi[104], seed funding provided under DMAP will complement the financing made available to Malawi in sectors, namely social protection, climate and disaster management, financial inclusion, and land management that all contribute to climate resilience in Malawi. This will include financial support for streamlining safety nets and climate related emergency payments, digitization of these payments, establishing early warning systems, as well as financial support for land management. In the latter case, support will be provided to improve connectivity for land registries, identity verification, capacity building for full use of new LIMS capabilities related to the use of GIS for planning and disaster response, the use of LIMS dashboard for performance and efficiency tracking, development of technical capability to estimate climate and hazard risks, and trainings focused on the use of geo-spatial data for forest preservation. The project will also support integration of LIMS with e-Payment gateway, digitization of paper records and certain aspects of rolling out the existing lands information management system launched by Government in 2024. Improved management will also contribute to better management of flood related risks.	10.0
Component 4: Project Management	10.0
Mitigation	

[103] There are currently no national energy efficiency performance standards or energy labeling systems in Malawi. Source: https://rise.esmap.org/country/malawi.

[104] Sectoral projects that will benefit from support from DMAP include: Financial Inclusion and Entrepreneurship scaling project (P168577), Social Support for Resilient livelihoods project (P169168), Social support for resilient livelihoods project second additional financing (P180152), and three projects that are financing various aspects of land management, such as Food Systems Resilience Program for Eastern and Southern Africa (Phase 3) FSRP - (P177816) and Shire Valley Transformation Program – Phase 1 (P158805) and Phase 2 (P176575).

Procurement of all ICT equipment for MITA and other government agencies such as the Ministry of Information and Digitalization will be certified by Energy Star or equivalent standards, which would surpass the energy efficiency levels of equipment existing in the country and follow international energy efficiency standards, such as IEEE 802.3az and ITU-T Recommendation L. 1310.[105]	

[105] IEEE Standard for Information technology – local and metropolitan area networks – specific requirements - Part 3: CSMA/CD Access Method and Physical Layer Specifications Amendment 5: Media Access Control Parameters, Physical Layers, and Management Parameters for Energy-Efficient Ethernet: https://standards.ieee.org/ieee/802.3az/4270/ & ITU Recommendation L.1310 on Energy efficiency metrics and measurement methods for telecommunication equipment: https://www.itu.int/rec/T-REC-L.1310/en?.

ANNEX 7: Gender Equality

1. **The IDEA project conforms to the World Bank's upcoming Strategy to Accelerate Gender Equality for a Sustainable, Resilient and Inclusive Future, 2024–2030, specifically its Pillar 2 that aims to expand and enable economic opportunities for women.** It adopts an integrated approach toward advancing women's economic empowerment by targeting systemic challenges and gender-specific barriers. For example, women face a gender gap in both internet access and usage, as they not only have fewer opportunities to connect but also tend to use the internet less than their male counterparts. Data from GSMA reveal that, in Sub-Saharan Africa,[106] women are 37 percent less likely than men to use mobile internet. Additionally, the significance of DPI in service delivery presents a specific challenge for women, creating gender disparities in ID and access to services such as opening a bank account, or receiving social assistance payments. In Kenya, 88.9 percent of women and 93.9 percent of men hold an ID, while in Zambia, the gender gap is more pronounced, with 87.2 percent of women and 90.9 percent of men possessing IDs.[107] Achieving meaningful participation of women in these services requires ID verification and the possession of a bank or mobile money account. Third, women encounter more pronounced obstacles in accessing enhanced employment opportunities, primarily stemming from significant gender gaps in acquiring digital skills, among other contributing factors. As an example, in DRC, only 4 percent of females and 13 percent of men ages 15–24 have digital skills.[108] Additionally, while gender-disaggregated data on digital literacy are limited at the national level, reports show that the region still displays low gender parity scores for digital skills.[109] Several studies[110] indicate that the internet, digital platforms, mobiles phones, and DFS provide opportunities to advance and can contribute to reducing the gender divide by enabling women to earn supplementary income, broaden employment options, and access knowledge and general information.

2. **IDEA seeks to encourage the promotion of economic opportunities for women and foster gender equality in the digital landscape.** Hence it will be leveraged to narrow identified gender gaps in multiple ways. Through initiatives aiming to provide additional connectivity support, affordable smart devices, and training for women and female-headed households, the project will encourage women to participate in the digital economy. Inclusive enrollment strategies for ID, including the simplification of application and registration procedures, awareness campaigns about the importance of ID, and support for ID enrollment campaigns targeting women will contribute to an increased number of women and girls possessing IDs. Moreover, to encourage productive digital usage, the project will support customized ICT and online safety training dedicated to women, taking into consideration any constraints they may encounter.

3. **Given the project's strategic focus and targeted interventions to address the gender gaps identified, the proposed project will include specific indicators to capture the impact of these interventions and a reduction in the observed gender gaps.** These measures will include a specific indicator tracking women's access to and productive usage of the internet as well as an indicator tracking the number of women who have received a digital ID. The collection of gender-disaggregated data will be key to ensuring DPI is inclusive. Further, the Results Framework will include monitoring of outcomes for female participants in digital skills training.

[106] GSMA. 2021. *The Mobile Gender Gap Report*. https://www.gsma.com/r/wp-content/uploads/2021/06/The-Mobile-Gender-Gap-Report-2021.pdf.
[107] World Bank. 2021. ID4D Global Dataset. https://documents1.worldbank.org/curated/en/099705012232226786/pdf/P176341132c1ef0b21adf11abad304425ef.pdf.
[108] UNICEF. 2023. *Bridging the Gender Digital Divide, Challenges and an Urgent Call for Action for Equitable Digital Skills Development*.
[109] ITU. 2022. *Measuring Digital Development Facts and Figures*.
[110] OECD (Organisation for Economic Co-operation and Development). 2018. *Bridging the Digital Gender Divide*. https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf.

Summary Table

Analysis (identified gaps)	**Actions** (Proposed intervention to address gaps)	**Indicators** (measures of progress in closing gaps)
Women face a gender gap in both internet access and usage: they not only have fewer opportunities to connect but also tend to use the internet less frequently than their male counterparts. ***Why it matters:*** *Lack of access to the internet can severely limit opportunities for women. Without these technologies, they are unable to reach crucial services and information necessary to meet their basic life needs.*[111] • In Angola, for every 9 women using the internet, there are 10 men. • In DRC, the ratio is 7.7 women for every 10 men when it comes to internet usage across all devices. • In Malawi, for every 3 women using the internet, there are 10 men. ***Root causes:*** *Sociodemographic, economic, and cultural factors as well as lack of basic skills have been shown to be associated with gender gaps in internet access and use.*[112]	Under Pillar 1, the project encourages women to participate in the digital economy through several initiatives, including • The provision of affordable devices for women and • The provision of affordable pricing models for devices and smart devices for working women and mothers Under Pillar 3, the project will develop training programs that target women and female-headed households.	**People using broadband internet.** • *Of which female* *Target: to be adjusted per country* *Angola:* • *Baseline: 47%* • *Target: 2 million (40%)* *DRC:* • *Baseline: 44%* • *Target: 15 million (50%)* *Malawi:* • *Baseline: 23%* • *Target: 1.5 million (50%)*
Women are less likely than men to own IDs, which reduces their ability to take advantage of digital services. ***Why it matters:*** *Not having an ID can negatively affect women's access to services and fulfillment of rights, such as obtaining a SIM card, benefiting from mobile phone services, using financial services, receiving financial support from the government, and so on.*[113] • In Angola, while gender-disaggregated data on ID possession are not available, reports indicate that a birth certificate or a copy of a birth registry is required to apply for an ID card. Moreover, additional data show that a smaller proportion of women than men are registered (56.3 % of men versus 50.8 % of women). Except for the 2–14 age group, more men than women are registered in all age groups.[114] • In Malawi, 86.6 % of women and 83.3 % of men hold an ID,[115] but the difference is not statistically significant.	Under Pillar 2, the project contributes to an increased number of women and girls possessing IDs by • Developing tailored awareness campaigns about the importance of ID; • Providing support to ID enrollment campaigns targeting women; and • Designing inclusive enrollment strategies for ID, including the simplification of application and registration procedures.	**People with digitally verifiable identification.** • *Of which female* *Target: to be adjusted per country* *Angola:* • *Baseline: 0* • *Target: 5 million (50%)* *Malawi:* • *Baseline: 0* • *Target: 1.5 million (75%)* *Notes:* • *Baseline is 0 for Malawi too, as the indicator refers to digital ID.* • *DRC is not considered for this results chain*

[111] GSMA. 2021. *The Mobile Gender Gap Report*.
[112] Kashyap, R., M. Fatehkia, R. A. Tamime, and I. Weber. 2020. "Monitoring Global Digital Gender Inequality Using the Online Populations of Facebook and Google." *Demographic Research* 43: 779–816. https://www.jstor.org/stable/26967824.
[113] https://id4d.worldbank.org/global-dataset#highlights.
[114] Data from 2024 ID4D Diagnostic of ID Systems in Angola, the World Bank. Data from 2014 was used for lack of more recent data.
[115] Data from 2021 show that the difference found in the survey results is within the expected margin of error for the sample size, so there is not a gender gap favoring men either–ownership is statistically equal.

Analysis (identified gaps)	**Actions** (Proposed intervention to address gaps)	**Indicators** (measures of progress in closing gaps)
Root causes: *In addition to constrained mobility, and financial hardships, limited literacy and burdensome processes pose a significant challenge for women.*[116]		

Women frequently find themselves with less proficiency in digital skills compared to men, resulting in limited access to improved job prospects and economic opportunities.
Why it matters: *Without digital skills, women face significant barriers in advancing themselves, including earning additional income, getting new employment opportunities, and acquiring knowledge.*[117]
• While gender-disaggregated data on digital literacy are limited at the national level, reports show that the region still displays low gender parity scores for digital skills.[118]
• As an example, the proportion of females and males who made or received a digital payment during the survey year is as follows 138:
  ○ Angola: 18 percent versus 32 percent
  ○ DRC: 19 percent versus 32 percent
  ○ Malawi: 36 percent versus 45 percent
• In DRC, alternative data from UN Women indicate that while 6.7 percent of males can send email with attached files, this proportion is as low as 1.6 percent for females. Regarding advanced digital skills, while 0.5 percent of women can write a computer program using a specialized programming language, this proportion is 1.0 percent for men.[119]
• In Angola and Malawi, although specific data on advanced digital skills are limited, there is clear evidence indicating a gender gap in basic digital competencies. About 58 percent of Angolan women are literate—a low percentage compared to men (83 percent).[120]
• In Angola, during the survey year, only 15 percent of women and 23 percent of men were recorded making digital payments. In Malawi, during the survey year, 6 percent of females and 9 percent of males ages 15 and above made a digital in-store
	Under Pillar 3, the project encourages productive digital usage by women and girls and economic empowerment via digital skills training by
	• Providing customized and certified digital skills and online safety training dedicated to women, taking into consideration any constraints they may encounter and
	• Developing certified training courses, including for women, and tailored to the private sector needs in HEIs and tech hubs.
		Graduates of advanced digital skills training programs
		• *Of which female*
		
		Target: to be adjusted per country
		
		Angola:
		• *Baseline: 0*
		• *Target: 2,000 (50%)*
		
		DRC:
		• *Baseline: 0*
		• *Target: 1,000 (33%)*
		
		People enrolled in digital skills training program supported by the project
		
		DRC:
		• *Baseline: 0*
		• *Target: 2,000 (33%)*
		
		Malawi:
		• *Baseline: 0*
		• *Target: 5,000 (50%)*

[116] Global ID Coverage, Barriers, and Use by the Numbers: Insights from the ID4D-Findex Survey, ID4D, the World Bankhttps://documents1.worldbank.org/curated/en/953621531854471275/Global-ID-Coverage-Barriers-and-Use-by-the-Numbers-Insights-from-the-ID4D-Findex-Survey.pdf; Achieving Universal Access to ID: Gender-based Legal Barriers Against Women and Good Practice Reforms, ID4D, the World Bank https://documents1.worldbank.org/curated/en/606011569301719515/pdf/Achieving-Universal-Access-to-ID-Gender-based-Legal-Barriers-Against-Women-and-Good-Practice-Reforms.pdf.

[117] OECD. 2018. *Bridging the Digital Gender Divide*. https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf.

[118] ITU. 2022. *Measuring Digital Development Facts and Figures*.

[119] UN Women Data https://data.unwomen.org/.

[120] GoA 2017.

Analysis (identified gaps)	**Actions** (Proposed intervention to address gaps)	**Indicators** (measures of progress in closing gaps)
merchant payment, using a mobile phone. Additional data reveal that 1 percent of females and 2 percent of males have used a cell phone or the internet to make online purchases.[121] These statistics hint at the possibility of a continued gender disparity extending into more complex digital proficiencies. ***Root causes:*** *Among other factors, lack of education as well as inherent biases and sociocultural norms curtail women and girls' ability to benefit from the opportunities offered by the digital transformation.*		
Women are underrepresented among small and medium enterprise (SME) owners and leaders, especially in the digital field. ***Why it matters:*** *This adversely impacts female economic empowerment but also the development of services and solutions that are attuned to women's needs.* • In Angola, while women play an active role in Angola's labor force, this segment is more likely to be employed by the informal sector and in low-skilled jobs. Though not quantified, a gender gap in skills (noted above) is noticeable in the entrepreneurship ecosystem, where the tech start-ups are predominantly founded by men. Women have weaker access to finance: 14 percentage points less likely than men to be financially included: 41% of women have access to an account, compared to 55% of men (Findex). In DRC, out of a sample of more than 2,000 MSMEs, 28% of them were owned by women. This rate plummets to 16% for MSMEs in technology[122]. Women are less involved in the labor market, with female participation at 60.7% (compared to 66.3% for men). Women are also less likely to have skilled jobs, accounting for only 24.4% of professional and technical workers (75.6% are men). ***Root causes:*** *Among other factors, sociocultural norms curtail women and girls' ability to benefit from the opportunities offered and weaker education attainment has ripple effects on women's participation in the entrepreneurship ecosystem. Available support services for start-ups and firms are often not tailored to women. Weaker credit history and access to collateral also mean that women tend to have weaker access to finance.*	Under Pillar 3, the project will encourage productive digital usage by women and girls and economic empowerment via support for female-led businesses, including by • Supporting accelerators, incubators, business development service providers, and innovation centers to strengthen their ability to offer services for digital start-ups and MSMEs (including female-owned ones); • Scaling up financing for women-led and women-centered innovative solutions and pilot projects, including through grant financing and voucher schemes; • Networking and learning events and mentoring for female entrepreneurs; • Soft skills training for female entrepreneurs via tech hubs and business incubators. • Awareness raising campaigns to ensure female participation in innovation support programs.	**Firms and digital start-ups that receive project support (including from BDS/incubators, grant finance schemes)** • *Of which are female-owned and -managed.* *Target: to be adjusted per country* *Angola:* • *Baseline: 0* • *Target: 100 (25%)* *DRC:* • *Baseline: 0* • *Target: 30 (30%)* **Survival rate of firms supported** • *Of which are female-owned and -managed.* *Angola:* • *Baseline: 0* • *Target: 7.5 (25%)*

[121] The Global Findex Database 2021.
[122] Agapitova, N., Amah, M., and Tinsley, E. 2020. *Social Entrepreneurship and inclusive growth in the DRC*. World Bank.