ASIAN INFRASTRUCTURE INVESTMENT BANK

P000462
Nov. 30, 2021

Project Document
of the Asian Infrastructure Investment Bank

Sovereign-backed Financing

Republic of Rwanda
Digital Acceleration Project
(Digitalization for Resilience, Recovery and Connectivity)
(under the COVID-19 Crisis Recovery Facility)

Currency Equivalents
(As at Sep. 30, 2021)

Currency Unit – Euro (EUR)
EUR1.00 = USD 1.156
USD1.00 = EUR 0.865

Borrower's Fiscal Year
July 1-June 30

Abbreviations

AIIB	Asian Infrastructure Investment Bank
BNR	National Bank of Rwanda
BRD	Development Bank of Rwanda
COVID-19	coronavirus disease 2019
DA	Designated Account
ES	Environmental and Social
ESF	Environmental and Social Framework of the World Bank
ESMF	Environmental and Management Framework
ESMS	Environmental and Social Management System
ESP	Environmental and Social Policy of AIIB
ESS	Environmental and Social Standard
FM	Financial Management
GDP	gross domestic product
GOR	Government of Rwanda
GRM	Grievance Redress Mechanism
ICT	information communication technology
IDA	International Development Association
IMF	International Monetary Fund
IT	information technology
LMP	Labor Management Procedures
M&E	monitoring and evaluation
MDAs	ministries, departments and agencies
MIFOTRA	Ministry of Public Service and Labor
MINECOFIN	Ministry of Finance and Economic Planning
MINICT	Ministry of ICT and Innovation
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PSC	Project Steering Committee
PWDs	people with disabilities
RISA	Rwanda Information Society Authority
RPF	Resettlement Policy Framework
SEP	Stakeholder Engagement Plan
TA	technical assistance

Contents

1. SUMMARY SHEET 4

2. PROJECT DESCRIPTION 7

A. Background 7
B. Project Overview 8
C. Strategic Alignment 9
D. Project Objective and Expected Results 13
E. Description, Components, Cost and Financing Plan 14
F. Implementation Arrangements 17

3. PROJECT ASSESSMENT 20

A. Technical 20
B. Economic and Financial Analysis 20
C. Procurement Risks 22
D. Financial Management Risks 22
E. Governance and Anticorruption 24
F. Environmental and Social 25
G. Project Monitoring Arrangements 28
H. Residual Risks and Mitigation Measures 29

Annex 1: Results Monitoring Framework 33
Annex 2: Impact of COVID-19 on Rwanda 36
Annex 3: Project Fit under the AIIB COVID-19 Crisis Recovery Facility 39
Annex 4: Detailed Project Description 42
Annex 5: Sovereign Credit Fact Sheet 58

1. Summary Sheet

<table>
<tr><td>Project No.</td><td colspan="2">000462</td></tr>
<tr><td>Borrower</td><td colspan="2">Republic of Rwanda</td></tr>
<tr><td>Project Implementation Units</td><td colspan="2">Rwanda Information Society Authority (RISA)
Development Bank of Rwanda (BRD)</td></tr>
<tr><td>Sector/Subsector</td><td colspan="2">Economic Resilience or PBF</td></tr>
<tr><td>Project Objective</td><td colspan="2">To support Rwanda’s short-run and long-term recovery from the pandemic and resilience to future pandemics by increasing access to broadband and selected digital public services, and strengthening the digital innovation ecosystem.</td></tr>
<tr><td>Project Description</td><td colspan="2">A whole-of-government digital acceleration drive spanning (i) digital access and inclusion, (ii) digital public service delivery, (iii) digital innovation and entrepreneurship and (iv) project management.</td></tr>
<tr><td>Implementation Period</td><td colspan="2">Start Date: Q1 2022
End Date: Q4 2026</td></tr>
<tr><td>Expected Loan Closing Date</td><td colspan="2">Q4 2026</td></tr>
<tr><td rowspan="5">Cost and Financing Plan</td><td colspan="2">Total Project Cost: USD200 million equivalent</td></tr>
<tr><td>Sources</td><td>Uses</td></tr>
<tr><td rowspan="4"><u>World Bank (IDA):</u>
USD100 million
<u>AIIB:</u>
USD100 million</td><td>Digital Access and Inclusion: USD60.5 million</td></tr>
<tr><td>Digital public service delivery: USD100.0 million</td></tr>
<tr><td>Digital Innovation and Entrepreneurship: USD29.5 million</td></tr>
<tr><td>Project Management: USD10.0 million</td></tr>
<tr><td>Size and Terms of AIIB Loan</td><td colspan="2">• Loan Size: EUR86.5 million (USD100 million equivalent).
• Final maturity of 35 years, and average maturity of 19.7 years, including a grace period of five years, and 60 biannual repayments.
• Applicable sovereign-backed variable spread loans.</td></tr>
<tr><td>Cofinancing (Size and Terms)</td><td colspan="2">IDA: EUR86.5 million credit (USD100 million equivalent); 38-year tenor, five-year grace</td></tr>
<tr><td>Environmental and Social (ES) Category</td><td colspan="2">World Bank Category “Moderate” (which is equivalent to Category B if AIIB’s Environmental and Social Policy were applicable).</td></tr>
<tr><td>Risk (Low/Medium/High)</td><td colspan="2">Medium.</td></tr>
<tr><td>Conditions of Effectiveness</td><td colspan="2">• Completion of a satisfactory Project Implementation Manual (PIM) for RISA.
• Recruitment of a financial management specialist for the Single Project Implementation Unit (SPIU) at RISA.
• Signing of subsidiary agreements: Borrower with RISA; and Borrower with BRD.
• Effectiveness of the World Bank Loan Agreement with the Borrower.</td></tr>
</table>

	• Effectiveness of the Co-Lender's Agreement between the World Bank and AIIB.
Key Covenants	• Establishment and recruitment of all staff at the SPIU within RISA (within one month of effectiveness). • Establishment of the Project Steering Committee (PSC) (within 30 days from effectiveness) and thereafter maintain throughout project implementation. • The Borrower to provide a consolidated annual work plan and a proposed budget (one month after the effectiveness and January 1 of each subsequent year) for the World Bank's and AIIB's no objection.
Conditions for Disbursement	For funds flowing through the BRD, pertaining to subcomponents 1.1. and 3.1.: • Establishment of a Special PIU within BRD with adequate resources and facilitation, acceptable to the World Bank and AIIB. • Completion of a satisfactory subproject implementation manual (PIM) for BRD, in accordance with the Financial Intermediary Framework assessment (by the World Bank). • Appointment or recruitment of key staff at the Special PIU (a coordinator, a procurement specialist, a financial management [FM] specialist and two environmental and social [ES] specialists). • Compliance with its ES commitment with respect to Environment and Social Standard (ESS) 9 (Financial Intermediaries) referred to under paragraph 9.1 of the Environmental and Social Commitment Plan (ESCP). For funds pertaining to subcomponent 2.1.: • Adoption of a new ID law that (a) reflects new Data Protection and Privacy (DPP) Law requirements and (b) aligns with sustainable principles of ID development.
Retroactive Financing (Loan % and dates)	0 percent.
Policy Assurance	The Vice President, Policy and Strategy, confirms an overall assurance that AIIB is in compliance with the policies applicable to the Project.
Economic Capital (Ecap) Consumption	USD26.59 million (equivalent to Ecap ratio of 26.59 percent of investment amount).
Project Approval (Indicative) (Board/President)	Board of Directors.

President	Jin Liqun
Vice President	Konstantin Limitovskiy
Director General	Najeeb Haider
Acting Manager	Stefen Shin, Principal Investment Officer
Project Team Leader	James Wylie, Investment Officer

Team Members	Amy Chua, Environmental Specialist Shodi Nazarov, Financial Management Associate Marcin Sasin, Senior Economist Bernadette Ndeda, Procurement Specialist Liu Yang, Counsel Sara Yan, Investment Analyst (Secondee)

2. Project Description

A. Background

1. Rwanda is a low-income, landlocked country that has an emerging trade sector.[1] Rwanda "aims for a future where Rwandans are connected and integrated to regional and global markets."[2] The country sees digital connectivity as a means to overcome geographical barriers and become a knowledge-based economy and an upper middle-income country by 2035, a "Singapore of Africa."

2. Rwanda's digital acceleration ambitions are articulated in its Vision 2050 and ICT Hub Strategy (2017-2024). Rwanda's president, Paul Kagame, as co-chair of the United Nations (UN) Broadband Commission for Sustainable Development and chair of the African Union, promoted investment in digitalization for development. This thinking is articulated in the UN's "Connecting Africa Through Broadband" strategy,[3] the African Union's "Digital Transformation Agenda" and the "Digital Moonshot" strategy.[4] The National Strategy of Transformation (NST1-2017-24) identifies ICT as a crosscutting enabler for development which will accelerate growth and reduce poverty.

3. The World Bank conducted five digital assessments over 2019 and 2020.[5] These assessments identified bottlenecks that currently hinder Rwanda from achieving its digitalization ambitions. The Digital Acceleration Project (the Project) was conceived to address the issues identified in these assessments. The Project is firmly entrenched in Rwanda's international connectivity agenda and is receiving strong backing from the highest levels of government.

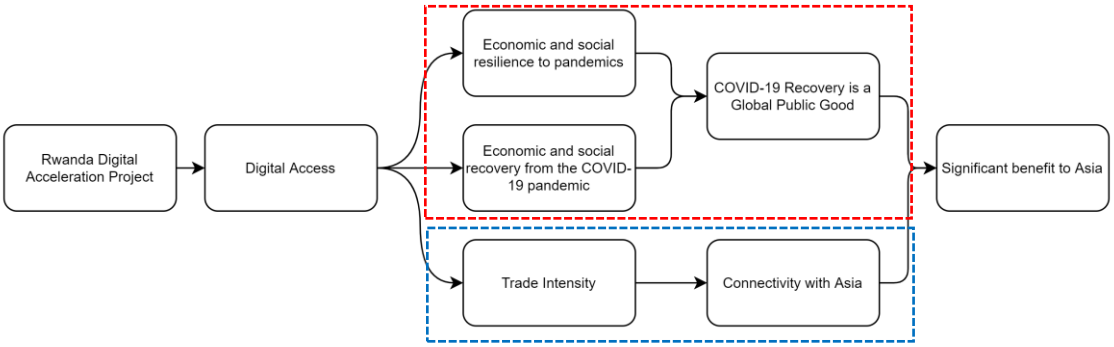
4. The coronavirus disease 2019 (COVID-19) pandemic hit Rwanda while the Project was under preparation. In February 2021, AIIB expressed its interest in joining the transaction, after which the Government of Rwanda (GOR) took the opportunity to deepen its health and education digitalization efforts—initiatives that are central to Rwanda's pandemic response. Digital access has proved to be very effective in enhancing "economic and social resilience in the face of the pandemic" but "the digital divide has been highlighted as a critical barrier to the mitigation value of digitalization."[6] The pandemic could also serve as a catalyst to accelerate Africa's digital transformation.[7] By promoting Rwanda's COVID-19 response and recovery, the Project helps address a global public good that provides significant but not exclusive benefits to Asia.

---

[1] Rwanda's trade intensity (42 percent) is less than the global and African average (69 percent and 53 percent, respectively). However, it is more trade-intensive than low-income and landlocked African countries (39 percent and 41 percent, respectively). Rwanda's Asian trade represents 50 percent of trade flows, which is well above the global (35 percent) and Africa (37 percent) trade flows.
[2] MINECOFIN. Vision 2050. Link.
[3] UN Broadband Commission for Sustainable Development. 2019. Connecting Africa Through Broadband. Link.
[4] World Bank. 2019. Achieving Africa's Digital Transformation is an Ambition that Requires Game-changing Cooperation. Link.
[5] Rwanda DE4A Digital Economy Assessment (2019); Broadband Market Development Study (2020); Single Digital Market for East Africa Flagship Report (2019); ID4D Technical Assistance to National ID Agency (end-user research); and Biometrics identity verification pilot.
[6] Global Symposium for Regulators. Link.
[7] McKinsey. 2020. Reopening and reimagining Africa. Link.

5. Therefore, for AIIB, this Project presents a dual-layered opportunity. It supports Rwanda's economic resilience to pandemics and recovery from the COVID-19 shock, as well as advancing the country's efforts to connect with Asia and the rest of the world.

Figure 1: Benefits of the Rwanda Digitalization Project



B. Project Overview

6. This Project is primarily intended to bridge Rwanda's digital divide. The standard concept of the digital divide involves a deprivation in physical infrastructure and devices needed for digital connectivity; digital usage opportunities (i.e., citizens can access digital services that they value) and digital literacy and skills.[8]

7. To address all the three dimensions of the digital divide, the Project is necessarily multifaceted, whole-of-government, involving almost 40 initiatives, and is delivered in phases over five years. Last-mile connectivity and affordable "smart" devices bridge material or physical barriers to digital connectivity. Initiatives to launch digital public services, digital innovation, and digital entrepreneurship will create meaningful opportunities for citizens to make use of digital technologies. Broad-based digital literacy and advanced training will help address the digital skills gap. These activities are jointly intended to increase national broadband penetration by 10 percent within the next five years and provide funds for institutional coordination and project management.

8. The Project is composed of four components, including Component 1, "Digital Access and Inclusion," funds broadband network expansions, smart handheld devices, digital literacy and skills development and broadband market development and regulation; Component 2, "Digital Public Service Delivery," funds enrollment of new digital identification, authentication services, public sector data management systems, capacity building, transactional e-services, cybersecurity and data protection; Component 3 "Digital Innovation and Entrepreneurship," funds early-stage financing for digital start-ups and bootcamp programs for advanced digital skills acquisition; and Component 4, "Project Management," funds program management and whole-of-government coordination capability.

[8] Van Dijk, J. and Hacker, K. 2003. The Digital Divide as a Complex and Dynamic Phenomenon. The Information Society, 19(4), 315–326. Link.

C. Strategic Alignment

9. **Digitalization builds economic resilience to pandemics and would accelerate recovery from the COVID-19-induced contraction**. To date, Rwanda has managed to contain the case rate by implementing stringent containment policies. Containing the pandemic, however, has carried a high economic and social cost. The pandemic also has long-term implications for human capital development and severely affected sectors where female employment is disproportionately high.[9] Poverty is expected to increase by 5.1 percent and learning-adjusted schooling will fall behind between 0.2 to 0.6 years (Annex 2 for details).

10. As noted by the African Development Bank: "Building resilience and accelerating economic recovery requires reducing an economy's vulnerability to shocks; increasing its capacity to absorb shocks; and improving its ability to reallocate resources and recovery from shocks." Africa can achieve this through, among other things, "accelerating structural transformation through digitalization."[10]

11. Digitalization can reduce Rwanda's vulnerability to pandemics. For instance, remote schooling and working, digital business model adoption, contact tracing and consumption switching to digital services have dampened the economic, social and health costs of the pandemic.[11] By contrast, the digital divide left schoolchildren without interactive distance learning tools, businesses without timely means of payments and governments without a channel to deliver essential services.[12] Digital investment has been, aside from medical treatment, the most important infrastructure for coping with the pandemic.[13] Adjusting for containment stringency, services share of gross domestic product (GDP) and public debt, countries with better digitalization achieved faster economic growth.[14] Digital access, therefore, is essential to pandemic resilience.

12. Digitalization can accelerate countries' recovery by building human capital and promoting growth in high-productivity sectors.[15] McKinsey & Co. recommends African economies expand the online presence of businesses, create an enabling environment for rapid digitalization, bring the public sector into the digital age, accelerate ICT infrastructure investments and scale up digital skills.[16] The International Monetary Fund (IMF) notes that in Africa, "access to digital technologies is a critical tool for socioeconomic inclusion."[17] Inclusive digital acceleration, as promoted by this Project, supports Rwanda's inclusive recovery from the pandemic.

---

[9] African Development Bank (AfDB). Africa's Growth Performance and Outlook amid the COVID-19 Pandemic. Link
[10] Ibid.
[11] Organisation for Economic Co-operation and Development (OECD). Digital Transformation in the age of COVID-19. Link
[12] Gahima, E. 2021. The Rwandan Education Sector needs Digital Innovation Policies for the Post-Pandemic Era. Southern Voice. Link.
[13] International Telecommunication Union (ITU). 2020. Economic Impact of COVID-19 on Digital Infrastructure. Link.
[14] Allianz Research. 2021. Digital-Enabling Countries Proved More Resilient to the COVID-19 Economic Shock. Link.
[15] AfDB. Africa's Growth Performance and Outlook amid the COVID-19 Pandemic. Link
[16] McKinsey. Reopening and reimagining Africa. 2020. Link.
[17] IMF. 2021. Africa Goes Digital. Link.

Figure 2: Digitalization for Resilience and Recovery

	Activities Enabled by Digitalization	Consequences for Resilience and Recovery
1) Reducing vulnerability to shocks	Monitoring, detecting and preventing COVID-19	Enables delivery of epidemic surveillance at distance, increasing the reach, reducing the cost and risk and enabling informed and timely public health responses.
	Targeted public health messaging and public announcements	Provides real-time updates and health education about the COVID-19, enabling more targeted and timely public health responses.
	Remote working	Ensures safety of employees and business continuity.
	Digital payments and e-commerce	Facilitates contactless payments, B2B and B2C purchases of goods and services online, thereby supporting money velocity.
2) Increasing capacity to absorb shocks	Transitioning to online learning and training	Continued interactive education while maintaining safe distancing.
	Telemedicine and telehealth consulting	Alleviates stressed medical systems and enable sustainable virtual care.
	Digital socialization	Counteracts isolation and loneliness enforced by lockdowns.
	Governmental services, systems, and digital identification	Ensures online public service delivery and platforms for e-commerce.
	Enhancing fiber-network infrastructure	Deepens network coverage and speeds needed for demand surge.
	Better information management system and better risk analysis	Data-driven decisions and preparedness for future shocks.
3) Improving ability to reallocate resources and recovery from shocks	Creation of digital platforms	Enables cross-border commerce, global reach for corporations and small and medium-sized enterprises (SMEs) and job and product matching.
	Analyzing data, predicting/forecasting and simulation	Creates efficient tracking and quarantine methods, improves the ability to respond amid emergencies.
	Migration to digital technologies and increasing digital solutions	Enhances firms' productivity performance and agility (from planning, management, to supply and distribution). Expands high-productivity sector.

13. **Digitalization accelerates connectivity with Asia and the rest of the world**. The exchange of ideas, materials, resources, trade, people, investment flows—within Asia and between Asia and the rest of the world—is an engine for creating long-term wealth and sustainable development in Asia. The more successful regions are connected to the global economy; the broader the reach of Asian supply chains,

innovation, mobility, and cultural networks will be, other things being equal, the larger the benefits Asia will enjoy.[18]

14. Digital technology plays an essential role in the flow of goods, services, finance and human resources.[19] Global internet traffic grew thousandfold between 2002 and 2020, reflecting the increasing importance of knowledge-intensive exchange.[20] Digitalization supports the exchange of knowledge through the production of digital goods and services; enhances physical exchanges through "digital wrappers" (e.g., tracking of physical goods) and facilitates cross-border production and exchange through digital platforms (e.g., online labor marketplaces and e-commerce platforms[21]). Digitalization lowers marginal costs for access, discovery and distribution of goods and services to nearly zero, and this removes substantial barriers to participation in global networks.

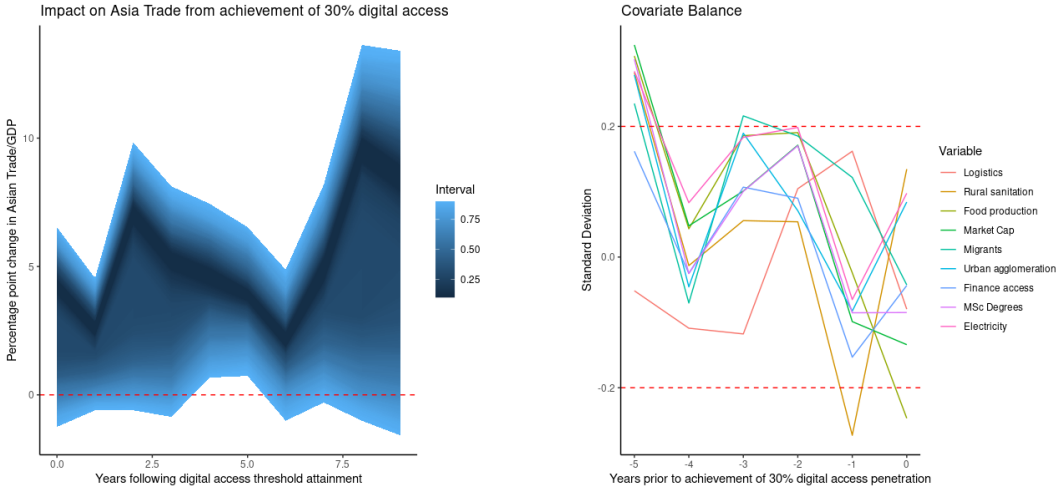
15. As flows of goods and services, people and finance are increasingly intertwined and dependent on information technology, digital access has become a prerequisite for participation in global networks.[22] The digital divide is as much a barrier to participation in global networks as geography, infrastructure bottlenecks, language and human and physical capital.

16. The digital divide cannot be bridged with investment in physical cross-border connectivity alone because the bottlenecks to digital participation lie elsewhere. Domestic digital infrastructure, opportunity and skills are needed to drive digital adoption. Digital adoption, in turn, is a prerequisite for connectivity with Asia and the rest of the world. Preliminary modeling suggests that achieving 30 percent digital access increases Asia trade activity by 10 percent over the following decade (Figure 3). This contention is also supported by state-level evidence from India. This analysis will be refined and presented as a working paper.

17. Africa should receive digital investments because that is where the digital divide is the largest.[23] Africa is the least globally connected region, substitutes for development finance are the weakest and therefore the returns from bridging the digital divide are the highest. While Rwanda is performing well on digitalization compared with neighboring countries, its digital divide is still significant, and the government's capabilities and commitment provide confidence in project delivery.

[18] McKinsey. The future of Asia. Asian flows and networks are defining the next phase of globalization. Link.
[19] McKinsey. Global flows in a digital age: How trade, finance, people, and data connect the world economy. Link.
[20] World Bank. 2021. Link.
[21] More than 90 percent of eBay commercial sellers export to other countries, compared with an average of less than 25 percent of traditional small businesses.
[22] DHL. 2018. DHL Global Connectedness Index. Link.
[23] ITU. 2019. Measuring Digital Development - Offline population. Link.

Figure 3: Digital Access Increases Trade with Asia



18. Digital infrastructure can help mitigate the geographic barriers landlocked developing countries face in participating in global value chains. Landlocked countries face higher logistics costs than those located along the coast. Cross-border connectivity infrastructure faces higher coordination costs than within-country infrastructure.[24] Digital infrastructure and airports present some of the few domestic investment opportunities to connect with Asia,[25] particularly for services trade promotion.[26] Digitalization of logistics processes also supports smooth, safe, transparent and traceable trade, lowering transaction costs.[27,28,29]

19. **Summary**. The Project is considered an Economic Resilience Project under AIIB's COVID-19 Crisis Recovery Facility (Annex 3). The Project's benefits to Asia is twofold: supporting the COVID-19 recovery is a global public good (aligned with the Board's COVID-19 Recovery Facility Decision of April 2020[30]), and bridging the digital divide promotes connectivity with Asia (investments that support trade and connectivity with Asia as per the Bank's Strategy on Financing Operations in Non-Regional Member[31]). Finally, the Project accelerates Rwanda's digital and technological transformation (supporting the Corporate Strategy Financing Infrastructure for Tomorrow's technology-enabled infrastructure thematic priority[32]).

[24] World Bank. 2010. The Cost of Being Landlocked" Logistics Costs and Supply Chain Reliability. Link.
[25] It should be noted the Strategy on Financing Operations in Non-Regional Members was approved before the Digital Infrastructure Sector Strategy was conceived. Consequently, the nexus between digital infrastructure and non-regional member's Asia connectivity was not considered.
[26] UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States. Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014-2024. Link.
[27] Economic Commission for Latin America and the Caribbean. 2021. Digitalization of trade logistics in landlocked countries in South America. Link.
[28] Internet Society. 2017. Internet crossing borders: Boosting the Internet in Landlocked Developing Countries. Link.
[29] OECD, World Trade Organization. 2017. Digital Connectivity and Trade Logistics - Getting Goods Shipped, across the Border and Delivered. Link.
[30] AIIB. Decisions to Support the AIIB COVID-19 Crisis Recovery Facility. Link, and Paper on the Decisions to Support the AIIB COVID-19 Crisis Recovery Facility April 16, 2020. Link.
[31] AIIB. Strategy on Financing Operations in Non-regional Members. Link.
[32] AIIB. 2020. Corporate Strategy Financing Infrastructure for Tomorrow. Link.

20. The 15-percent ceiling on investments in non-regional members as a share of total AIIB commitments applies to this Project but this transaction will not breach this ceiling.

21. **Value Addition by AIIB**. AIIB's participation will expand the Project's scope, reinforcing its health and education digitalization efforts, which are sectors that are key to Rwanda's pandemic resilience. AIIB's financing will also enable a significant upscale of the results indicators, materially increasing the social and economic impacts of the Project.[33] The Project, together with the "COVID-19 Economic Recovery Fund for the Private Sector," represent a sizeable and mutually reinforcing investment in Rwanda's COVID-19 recovery (4.43 percent of GDP[34]).

22. **Value Addition to AIIB**. AIIB will gain experience in whole-of -government digital transformation projects, sovereign digital access projects, and Sub-Saharan Africa operations, and build working relationships with key personnel in the Government of Rwanda (GOR). In addition, the Project also highlights the Bank's ability to deliver to its African and low-income members, and provides AIIB the opportunity to demonstrate its relevance and value to its non-regional members during a time of severe crisis.

23. **Lessons Learned**. This Project builds on a considerable number of World Bank projects. It is one of the first in a series of next-generation digital "acceleration" projects. The proposed subcomponents draw on digital investments that have been successfully implemented in Sub-Saharan Africa, notably through the Regional Communications Infrastructure Program series.

24. This series has highlighted the importance of developing a Project Implementation Unit (PIU) with strong institutional capacity; proactive supervision during implementation; strong political ownership and political stability; the value of an ecosystems approach to support impact (considering both demand and supply sides); and the importance of adaptation and flexibility for ICT projects due to its fast evolution.

D. Project Objective and Expected Results

25. **Project Objective.** To support Rwanda's short-run and long-term recovery from the pandemic, and resilience to future pandemics by increasing access to broadband and selected digital public services and strengthening the digital innovation ecosystem.

26. **Expected Results.** The Project will increase the fixed and mobile internet penetration rate by 10 percent over the five years (core outcome); increase access to selected digital public services by introducing, upgrading or enabling fully transactional government-to-person (G2P), government-to-business (G2B) and government-to-government (G2G) e-services; and accelerate and strengthen the digital innovation ecosystem supporting digital start-ups to leverage digital technology solutions (Annex 1: Results Monitoring Framework).

[33] Some upscaled results indicators include number of fully transactional G2P, G2B, and G2G e-services; number of people trained in digital literacy; percentage of population enrolled and issued a new digital ID credential and the number of start-ups supported through the Project.
[34] AIIB is contributing 43.7 percent of this amount. The stimulus is spread over five years (0.9 percent of GDP per annum)

27. **Expected Beneficiaries.** The Project will benefit a wide range of beneficiaries, including citizens, the private sector, public agencies, vulnerable and underserved communities and people with disabilities.

E. Description, Components, Cost and Financing Plan

28. **Overview.** The Project is a major countrywide, whole-of-government, multi-sector digital acceleration initiative that is designed to accelerate digital access, usage opportunities and skills development in Rwanda. It is structured as a joint cofinancing between AIIB and the World Bank. The World Bank considers the Project to be housed under its "COVID-19 Crisis Response" while AIIB considers it to be housed under its "COVID-19 Crisis Recovery Facility." The Project is multifaceted and there are multiple detailed discrete initiatives. These are grouped into four integrated and mutually reinforcing components. Figure 4 and Annex 4 provides detailed description of these components.

Figure 4: Project Description, Scope and Estimate

Item	Description	Project Cost (USD equivalent)	Percent of total (%)
Component 1: Digital Access and Inclusion		**60,500,000**	**30.3%**
1.1: Access to affordable smart devices		**15,000,000**	**7.5%**
	Study for designing the affordable device scheme	250,000	0.1%
	Outsourced services for technical assistance, verification, communication, and training for BRD/RISA staff.	900,000	0.5%
	Capitalization of a device affordability fund and operationalization of related financing schemes.	13,850,000	6.9%
1.2: Digital literacy for all		**8,000,000**	**4.0%**
	Technical assistance (TA) for evaluating digital skills programs	300,000	0.2%
	Allowance and training costs for digital ambassadors (DAs); consultant service to develop training material	6,266,500	3.1%
	Procurement of laptops and smartphones for DAs, training platform and management system	1,180,.000	0.6%
	Internet connectivity for DAs and supervisors	253,200	0.1%
1.3: Last-mile connectivity access		**33,500,000**	**16.8%**
	TA to support network planning and preparation for government connectivity purchase; to support tendering, supervise deployment and training; Miscellaneous (distribution, installation, etc.)	1,830,000	0.9%
	Study to assess school digital infrastructure needs and readiness	180,000	0.1%
	Virtual government network (GovNet), internet capacity purchase, network operations center	18,578,000	9.3%
	Enabling ICT infrastructure for target institutions: Electricity (for connected schools only); IT equipment (for connected schools only)	12,912,000	6.5%
1.4: Legal, regulatory and institutional capacity for broadband market		**4,000,000**	**2.0%**
	Studies to evaluate social impact social impact of the telecommunications services market; status readiness for migration to 5G and the impact of number portability	280,000	0.1%
	Quality of service (QOS) monitoring systems and tools for fixed and mobile networks; number of portability	2,650,000	1.3%

Item	Description	Project Cost (USD equivalent)	Percent of total (%)
development	system, upgrade of one mobile and portable spectrum monitoring system and staff training		
	Policy regulation development, guidance, and support consulting services	820,000	0.4%
	Institutional technical capacity building and training	250,000	0.1%
Component 2: Digital Public Service Delivery		**100,000,000**	**50.0%**
2.1: Digital identification and authentication		**39,300,000**	**19.7%**
	Enrollment enhancement, digitalizing data, capacity building for government personnel and consultancy services for tender docs and grievance redress mechanism portal and system	9,300,000	4.7%
	IT equipment (hardware, software, data storage), software upgrade, identity credential costs	30,000,000	15.0%
2.2: Government data management, sharing and analysis		**10,700,000**	**5.4%**
	Feasibility study for the establishment of the Rwanda Government Data Hub and Government Enterprise Service Bus	350,000	0.2%
	Supply and installation of geospatial segment of data hub, software, hosting and training	1,000,000	0.5%
	Consulting services for design, development, hosting and training for the Government Data Hub; Hardware, software, installation, deployment of Government Data Hub IT systems	5,200,000	2.6%
	Other consulting firm services such as preparation of data strategy, policy and implementation plan, development of platforms, tools, big data-driven use cases implementation, etc.	4,150,000	2.1%
2.3: E-services in key sectors		**30,500,000**	**15.3%**
	Develop and launch services in education, agriculture and local government	9,000,000	4.5%
	System development and upgrade, IT equipment (hardware, software)	12,600,000	6.3%
	TA and feasibility study to revise the project design, refinement of terms of reference and preparation of the tender documents/RFP	350,000	0.2%
	Enhancement of existing platforms, IT capacity building and change management	8,550,000	4.3%
2.4: Cybersecurity resilience and data protection		**19,500,000**	**9.8%**
	Consultancy firms' services to support the development of strategic and work plans, evaluation frameworks for the cybersecurity agency and data protection office to conduct studies to identify the baseline and gaps in cybersecurity and data protection skills and capacity, and to develop proposals to bridge the gaps.	800,000	0.4%
	Consulting firms to develop cybersecurity and data protection standards and policies, technical and operational capacity building (through tools and training programs) in cybersecurity and data protection.	7,050,000	3.5%
	Procurement of ICT equipment and software platforms for NCSA in cybersecurity and data protection and the upgrade of the national CSIRT/SOCs; establishment of Cybersecurity Innovation Centers.	11,650,000	5.8%
Component 3: Digital innovation and Entrepreneurship		**29,500,000**	**14.8%**

Item	Description	Project Cost (USD equivalent)	Percent of total (%)
3.1: Regional digital entrepreneurs hip hub		**22,000,000**	**11.0%**
	Consultancy firms' services (to deliver training and coaching programs, recruit technical advisors for internal support and administer different parts of the subcomponent such as fund management for startups and an international accelerator)	7,710,000	3.9%
	Firms' services to conduct feasibility studies to develop early-stage financing mechanisms for startups, market assessment on ESOs, develop a strategy plan for the Innovation Agency and other studies required	1,140,000	0.6%
	Performance-based grants for ESOs; financing channeled to start-ups; and design, development, deployment of digital ecosystem management tools	13,350,000	6.7%
3.2: Next generation capabilities for the digital economy		**7,500,000**	**3.8%**
	TA to develop operating model for Rwanda Coding Academy, bootcamp program and preparation of bidding documents Staffing of consultants and instructors	1,571,000	0.8%
	Procurement of lab equipment, IT equipment, renovation of classrooms, books and internet connectivity	1,629,000	0.8%
	Performance-based grants and PhD Scholarships	4,300,000	2.2%
Component 4: Project Management		**10,000,000**	**5.0%**
Staffing costs of PIUs at RISA and BRD		5,793,483.50	2.90%
Project management support (individual or firm), communication support, ES consultants, ES audits, training, hiring, per diem, transport, accommodation, communication, and financial management advertising cost		2,724,917	1.36%
ES resettlement, e-waste rollout		1,372,999.50	0.69%
IT equipment, materials, and internet access		108,600	0.05%
Total Loan Amount		**200,000,000**	**100.0%**

29. **Cost Analysis.** Overall, around 61.3 percent of the budget is allocated toward physical investments.[35] Outsourced service delivery (including consultants and training costs) will represent 31.6 percent of the budget and direct staffing cost for the PIUs at RISA and BRD is estimated to be 2.9 percent of total project cost. Technical assistance for policy and regulation represents 1.9 percent of the budget and feasibility studies account for the residual 2.3 percent. The high proportion of outsourced service delivery costs reflects the nature of digital innovation and public service transformation initiatives.

30. **Financing Plan.** The World Bank will provide EUR86.5 million (IDA Credit EUR 86.5 million). AIIB will provide a EUR86.5 million loan. The tenor of the World Bank facility is 38 years with five-year grace period and the AIIB is 35 years with five-year grace period. The Project will be structured as a joint cofinancing arrangement with the World Bank as the lead financer. All components will be financed jointly. The cofinancing

[35] Criteria employed for classification: **Studies**: Consulting services which conduct feasibility studies to evaluate strategy impact, identify the market situation and propose an action plan, develop strategic plans and implementation plans; **Services (TA for policy and regulation)***:* Technical assistance for regulatory, policy frameworks; **Outsourced services***:* outsourced training, IT services, platform design, project management, and project execution support; **Other physical investments***:* procurement of goods, IT equipment (hardware, software, installations of systems), internet capacity contract, electricity, etc., grants and capitalization of devices.

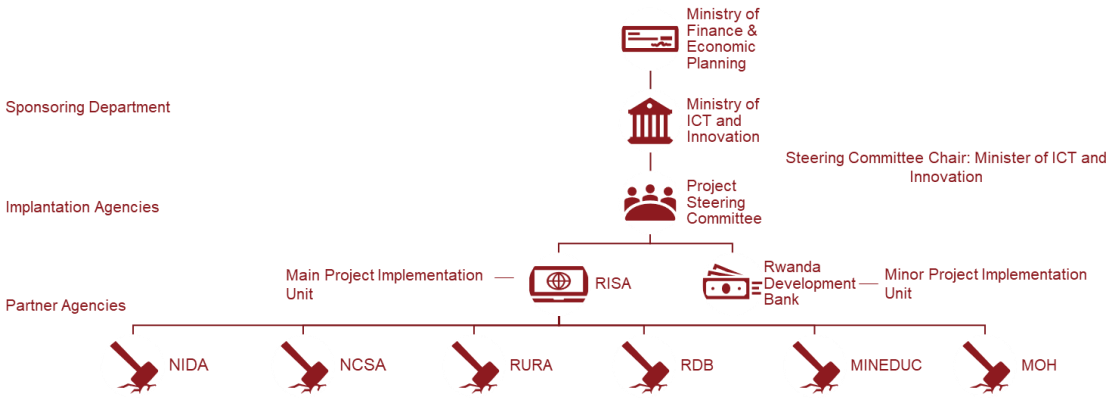
arrangements for the Project will follow the cofinancing framework agreement between AIIB and the World Bank. World Bank's policies and procedures on safeguards, procurement, financial management, project monitoring, reporting and investigative services for harmonized sanctionable practices will be used for the Project activities to be financed out of the loan proceeds (including activities to be financed by AIIB).[36] In addition, a project-specific Co-Lender's Agreement with the World Bank will also be signed and implemented.

31. **Financing Terms.** The borrower is expected to select a 35-year variable spread loan including a five-year grace period. The loan pricing will follow AIIB's standard terms for sovereign-backed variable spread loans.

F. Implementation Arrangements

32. **Implementation Governance.** A single Project Steering Committee (PSC) chaired by the minister of ICT and innovation is responsible for delivering the Project. Two PIUs will report to the steering committee. The Single Project Implementation unit (SPIU) will be set up and operationalized within the Rwanda Information Society Authority (RISA)—an affiliated institution that reports to the minister of ICT and Innovation—and will serve as the main implementing unit of the Project[37]. A Special PIU will be housed in the Development Bank of Rwanda (BRD) that will be responsible for the on-lending for the affordable devices and digital businesses financing.

Figure 5: Project Implementation Arrangements



33. The PSC will provide strategic oversight and governance. RISA will host the secretariate supporting the minister of ICT and Innovation. Both chief executive officers of RISA and BRD will be members of the PSC. The members will include the six main ministries, departments and agencies (MDAs) and the Ministry of Local Government (Figure 5). Other government agencies and representatives from the private sector and civil society will be invited as observers. The PSC's mandate includes (i) approving annual budgets and work plans; (ii) reviewing quarterly progress reports and (ii)

[36] AIIB will reserve its right to investigate any allegations on the non-harmonized sanctionable practices of theft and "misuse of resources."
[37] The World Bank uses the term "Single Project Implementation Unit (SPIU)" when referring to the team at RISA. However, as there is also a PIU housed in BRD, the project team uses the term Special PIU for the implementation unit housed in BRD.

providing strategic guidance, implementation advise and champion project restructurings. The Ministry of ICT and Innovation (MINICT) will provide dispute resolution, if needed.

34. Technical committees will be convened as needed to address any design decisions and to support RISA and the BRD. These will be represented at the PSC.

35. RISA is tasked with championing digital transformation and has a crosscutting government mandate for supporting digital initiatives. The SPIU will oversee all project-related fiduciary functions, including managing financial management, procurement and implementation of project-related ES commitments. It will be responsible for orchestrating project planning; delivery, monitoring and evaluation; and utilizing key project management tools such as annual work plans and budgets, etc.

36. The core implementation unit will be staffed with a project coordinator; procurement, financial management, ES and monitoring and evaluation (M&E) specialists; and subject matter experts on technical areas.

37. Partner MDAs are the main beneficiaries and technical counterparts for the planned investments. Partners are charged with implementation support and include:

- Rwanda Utilities Regulatory Authority (for subcomponent 1.4 – regulatory support).
- National Identification Agency (for subcomponent 2.1 – Digital IDs).
- Ministry of Education (for select activities under subcomponents 1.3 – connecting schools and 3.2 – quality assurance of advanced digital skills training).
- Ministry of Health (for select activities under subcomponents 1.3 – connecting hospitals, 2.2 – selected big data use-cases in health and 2.3 – flagship e-health initiative).
- National Cyber Security Agency (for sub-component 2.4 – cybersecurity).
- Rwanda Development Board (for subcomponent 3.1 – digital entrepreneurship).

38. The BRD houses a Special PIU responsible for subcomponents 1.1 (financial instruments associated with the affordable device scheme) and 3.1 (early-stage financing). The BRD was selected due to its mandate and track record. AIIB and World Bank previously conducted due diligence on BRD and concluded it has sufficient capacity to manage the technical and ES risks. BRD is familiar with multilateral development bank (MDB) guidelines and processes. It is currently supporting several World Bank-financed projects, including the AIIB-financed Support to COVID-19 Economic Recovery Fund for Private Sector project.

39. Delegated responsibility will be subject to a subsidiary legal agreement between the Ministry of Finance and Economic Planning (MINECOFIN) and BRD, and a memorandum of understanding between RISA and BRD. A separate Designated

Account will be set up at BRD, and flow of funds arrangement will be confirmed following a detailed Financial Intermediary assessment (a disbursement condition for BRD). A satellite PIU will be set up in BRD comprising of a coordinator, financial management, procurement and ES specialists.

40. **Delivery Capability.** The Government of Rwanda (GOR) has solid prior experience in delivering sizeable ICT projects developed over the past two decades. While RISA was formed in 2017, it inherited the experience, personnel and institutional memory from its predecessors: the Rwanda Information Technical Authority and the IT department of the Rwanda Development Board.

41. **Reporting, Monitoring and Evaluation.** The SPIU will be responsible for monitoring progress in accordance with the Results Framework detailed in Annex 1. It will appoint an M&E expert, tasked with coordinating M&E centrally, and will establish an M&E system, including systems for stakeholders that provide inputs.

42. The system will be built to analyze report results and digitalize data collection. For example, surveys will be conducted with tablets and mobile messages. Feedback from a broad selection of citizens will be solicited. In addition, vulnerable groups will be directly engaged.

43. The SPIU will submit semiannual reports including contract awards, disbursements, physical progress as per the defined key performance indicators, compliance of environmental and social safeguard requirements, key implementation issues and solutions and updated implementation and procurement plans for each component for each future 12-month periods.

44. **AIIB's Implementation Support**. The AIIB team will conduct regular joint supervision missions together with the World Bank team. The frequency of the missions will depend on implementation progress and complexity, and travel restrictions.

45. **Procurement.** The World Bank will play the leading role and cooperate with the AIIB team for procurement preparation and implementation in accordance with the cofinancing framework agreement. Procurement will be carried out in accordance with the "World Bank Procurement Regulations for Borrowers under Investment Project Financing," dated July 1, 2016, and updated November 2017, August 2018, and November 2020.

46. The Project will be subject to the World Bank's Anti-Corruption Guidelines, dated July 1, 2016, and beneficiary disclosure requirements. The Project envisages procuring a wide range of goods, ICT (including nonconsulting services like broadband services), consulting services for the design of IT/IS system and strategic advice for digital inclusion, digitally enabled public service delivery, digital innovation, entrepreneurship components, supervision of contracts and smaller works contracts. The procurement and contract management processes will be tracked through the Systematic Tracking of Exchanges in Procurement. RISA is expected to undertake most project-related procurement whereas procurement activities undertaken by the BRD will be limited in scope and feature lower-value contracts.

47. **Financial Management**. The GOR will be the Borrower, and it has assigned the Rwanda Information Society Authority (RISA) as the SPIU and the BRD as the Special PIU.

48. RISA has established an internal team as the SPIU. The established SPIU supported by the RISA's finance team would be responsible for the overall project financial management and disbursement activities. RISA follows the modified accrual basis of accounting for its ordinary activities, and the same practice would be applied for project accounting. The BRD will establish an internal team as the PIU. Project funds would be disbursed through advance and direct payment methods. RISA's finance team will maintain project accounts and have custody of supporting documents. The financial progress of the Project will be reported on a quarterly basis through interim financial reports to be submitted by 45 days from the end of each period. The audited financial statements for each year of project implementation will be submitted within six months from the fiscal year-end.

3. Project Assessment

A. Technical

49. **Project Design.** The Project is designed to bridge the digital divide by providing affordable access, meaningful usage opportunities and digital skills and knowledge. The Project is structured as three work packages: access and inclusion, public service delivery; and innovation and entrepreneurship. These work packages can be delivered independently and involve distinct partner agencies. Subcomponents falling under these work packages will be structured as distinct contracts. Nonetheless, from a results perspective, the work packages are interdependent and mutually reinforcing.

B. Economic and Financial Analysis

50. 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. However, there is an ongoing debate in the literature on the extent and circumstances to which investment in ICT promotes sustainable growth.

51. The theoretical and macroeconomic evidence suggests that digital investment supports growth.[38] There is "a large and growing literature that documents a direct link between digital technology adoption and usage to productivity growth at the firm level."[39] Such firm-level evidence is particularly persuasive.

52. Greater adoption of digital technologies also enables inclusion, as people gain access to new and improved services that were previously out of reach, enabling wider participation in an increasingly digitized economy. It can also help support efficiency, by reducing transaction and operational costs of both delivering and accessing public and commercial services. Digital innovation and adoption of technology among businesses

[38] Jorgenson, D., M. Ho and K. Stiroh. 2008. A Retrospective look at the US Productivity Growth Resurgence. Journal of Economic Perspectives, vol. 22, no.1. Link
[39] Goldfarb, A. and C. Tucker. 2019. Digital Economics. Journal of Economic Literature, 57(1): p.29. Link.

can support new business models that increase competition and trade, and yield increasing returns to scale.

53. Research suggests that a 10-percent increase in broadband penetration is associated with a 0.25 to 1.5-percent increase in GDP.[40] Industry research estimates that the number of jobs can be expected to increase by between 0.2 and 0.4 percent for every one percent increase in broadband penetration.[41] However, these effects are likely to be smaller in countries with low internet usage where "soft" and network barriers are binding.

54. Greater government digitization and investment in public services will yield cost savings and efficiency gains. Use of digital technologies will reduce transaction costs by lowering the time spent on manual processing, allowing public sector staff to focus on higher-value areas. Numerous examples of savings from the reduction of errors, fraud and corruption are also expected to apply. A 'build once, re-use always' approach will reduce the incremental costs of offering each new service, through capital investments in shared public infrastructure, platforms and services. Investments in trust services and stronger cybersecurity prevention are also expected to stem related economic losses, which were as high as USD6.6 million in 2018. Each dollar invested in cybersecurity is expected to yield an economic return of approximately 9.1 percent.[42]

55. Strengthening the entrepreneurship ecosystem will increase the performance of digital start-ups and generate employment opportunities. The top 10 countries in the Global Innovation Index also exhibit high GDP rates. Activities geared toward strengthening innovation ecosystem support services are expected to therefore translate into increased outputs (goods and services). For example, a 2017 InfoDev assessment found that start-ups supported by ESOs (Africa's mLab) have achieved much higher survival rates (84 percent) and created a substantial number of jobs. Studies confirm that early-stage capital positively affects (a) the number of firm start-ups, (b) employment and (c) aggregate income.

56. The Project-level economic and financial analysis undertaken follows a standard cost-benefit analysis approach and reveals a positive net present value (). The model relies on available secondary data and reasonable assumptions based on prior experiences, but also additional evidence sourced from consultations and interviews conducted, to run a cash flow and financial analysis that features three different scenarios: optimistic, pessimistic and neutral. Where possible, the model also ran sensitivity assessments to quantify the benefits and costs attributable to the Project against current baseline indicators.

57. Based on this cost-benefit analysis, the overall net present value for the Project in the neutral scenario is estimated at USD92.21 million at a discount rate of 16.5 percent and is expected to demonstrate an internal rate of return of 37 percent over a 10-year period. In optimistic and pessimistic scenarios, the net present value is expected

[40] Biagi, F. 2013. ICT and Productivity: A Review of the Literature. Working Paper. European Commission, Joint Research Centre. Link.
[41] ITU. 2019. Economic Contribution of Broadband, Digitization, and ICT Regulation: Econometric Modelling for Africa.
[42] Integrating cost–benefit analysis into the NIST Cybersecurity Framework via the Gordon–Loeb Model.

to be USD193.98 million and USD14.75 million, respectively, whereas the internal rate of return is expected to be 53 percent and 20 percent, respectively. It should be highlighted that financial returns are lower as not all benefits accrue to the investors and financial returns generally exclude externalities.

C. Procurement Risks

58. A procurement assessment of RISA was carried out by the World Bank. The key risks identified in relation to RISA's procurement capacity include: (a) slow staffing of the SPIU (while a dedicated procurement specialist has been hired, more support staff may be needed to ensure timely procurement processing and contract management); (b) limited familiarity with the World Bank procurement regulation and experience in implementing World Bank-financed projects; (c) potential for high staff turnover due to low salary scales and short contract duration and (d) limited competition for project-related contracts, due to the highly technical nature of items procured.

59. Potential risk mitigation measures include: (i) recruitment of further SPIU procurement staff prior to project effectiveness (ongoing); (ii) capacity building and training for the SPIU staff at RISA (ongoing); (iii) negotiation with MINECOFIN and MIFOTRA to offer competitive salary scales (successfully completed) and longer contract lengths to attract and retain high-caliber staff (in place) and (iv) sensitization workshops with potential bidders and wider publication of invitation for bids.

60. The Project procurement risk is rated "Medium" based on early implementation of recommended mitigation measures.

61. An assessment of the BRD was also undertaken to evaluate its capacity in undertaking procurement. The BRD is more experienced in managing World Bank-financed projects (including the Renewable Energy Fund, Rwanda Housing Finance Project, and Social-economic Inclusion of Refugees & Host Communities in Rwanda Project) but needs to strengthen its capacity given the additional workload. An additional procurement officer dedicated to this Project will be hired by the BRD.

62. A Project Procurement Strategy for Development, including a procurement plan, has been developed to understand the implementation context, market, identify associated risks to achieving value for money and project development objectives and set out selection methods to be followed in the procurement of goods, works and services financed under the Project. The procurement plan will be updated at least annually or as required to reflect project implementation needs.

D. Financial Management Risks

63. The financial management (FM) assessment of the proposed arrangements was conducted via desk review of key documents and interviews of the World Bank FM specialists. RISA has established FM systems that meet essential project fiduciary requirements, can identify project expenditures and can adequately report on the end use of funds. The BRD is a suitable partner, as it is currently supporting several WB-financed projects, and is familiar with WB guidelines and processes. BRD will set up a Special PIU. FM staff can be shared among several WB projects at the BRD for efficiency considerations.

64. The residual FM risk is assessed as “Medium” and the proposed risk mitigation measures include: (i) establishment of a Special PIU at the BRD; (ii) recruitment of an FM specialist by RISA, preferably with prior experience in World Bank projects; (iii) development of detailed FM guidelines for the Project, as part of the Project Implementation Manual (PIM) and (iv) continuous training and support to FM staff at RISA and internal audit staff at MINICT, as needed, by the World Bank.

65. **Staffing.** RISA’s finance team will deal with project accounting including recording transactions and processing payments for activities managed by RISA. An additional FM specialist would be recruited for the SPIU to coordinate project FM arrangements and to provide overall assurance on the use of project funds, prepare and disseminate progress and financial reports and facilitate audits of project financial statements. The role and function of FM staff at BRD’s Special PIU will be described in the PIM.

66. **Planning and Budgeting.** The Project will follow the government’s planning and budgetary processes. RISA will prepare the project midterm expenditure framework and annual work plan, with the disbursement forecast and procurement plan, and consolidate the information from BRD. The Project-consolidated planning documents will be shared with AIIB and the World Bank for review. RISA shall ensure that estimates are realistic and objectives set are part of wider performance targets.

67. **Funds Flow**. The proceeds of the financing are envisaged to flow from AIIB and the World Bank to RISA and BRD. It is envisaged that a pooled Designated Account in EUR will be opened at the National Bank of Rwanda and managed by RISA for activities managed by RISA. A separate pooled Designated Account in USD will be opened and managed by BRD for activities managed by BRD at the National Bank of Rwanda. RISA and BRD may open separate Rwandan francs (RWF)-denominated Project accounts at the National Bank of Rwanda or any Commercial Bank acceptable to the World Bank, if necessary. Further details will be shown at the World Bank’s Disbursement and Financial Information Letter.

68. **Accounting and Internal Controls.** The Project-related financial records at RISA will comply with government accounting policies and the modified accrual basis of International Public Sector Accounting Standard, which is considered acceptable. The financial records at BRD shall be prepared in accordance with the International Financial Reporting Standards. The Project will also be enrolled into Integrated Financial Management Information System at RISA, and BRD shall enroll the Project in its financial management system. Each of the implementing entities (RISA and BRD) shall develop a PIM that will reflect the FM arrangements under the Project.

69. Project expenditures will be classified in alignment with the classification used for monthly reporting to MINECOFIN, which consists of current expenditure including employee compensation costs and payments of goods and services. Nevertheless, a reclassification per project component and disbursement category shall be provided to AIIB and the World Bank to allow for project monitoring against these line items. Upgrades to RISA’s Integrated Financial Management Information System to cater for the World Bank and AIIB classification and categorization are further recommended. All project transactions will follow the RISA’s existing internal control system. The government’s public financial management regulations and financial manuals at RISA

are acceptable and provide for a clear segregation of duties between the chief executive officer, chief financial officer, director of finance, accountants and internal auditor. The procedures applied to the budgeting, payment, accounting and reporting chain are well described and adequate. However, the funds flow and financial reporting mechanisms within the Project shall be further clarified in the PIM.

70. **Financial Reporting.** RISA and BRD will each prepare and submit quarterly interim financial reports to the World Bank within 45 days after the end of the quarter. The interim financial reports will be used to monitor project financial progress, including the rate of budget execution and level of disbursements. In the same way, the respective entities will prepare annual project financial statements, which will be submitted for external audit within three months after the financial year-end. Financial reports submitted shall at a minimum include: (a) Consolidated Sources and Uses of Funds (revenues and expenditures statement), (b) Consolidated Financial Position statement, (c) Consolidated Cash flow statement, (d) Consolidated Budget execution report, (e) Designated Account activity statement, (f) Notes on accounting policies, and (g) Appendices.

71. **External Audit.** The Office of the Auditor General of State Finances is the Supreme Audit Institution of Rwanda. The activities managed by RISA shall be subject to external audit by the Office of the Auditor General of State Finances. The activities to be managed by BRD shall be subject to external audit by a private audit firm that is regulated by the Institute of Certified Public Accountants of Rwanda. The terms of reference for the private auditors must be acceptable to the World Bank. The audit reports and management letters will be submitted to the World Bank and AIIB within six months after the financial reporting year-end. The audits are undertaken in accordance with International Standards on Auditing.

72. **Disbursements.** Considering the joint cofinancing approach, all project disbursements would be handled by the World Bank according to its disbursement procedures using the World Bank's Client Connection System. Disbursements will follow based on the Interim Financial Report method. However, the project may also use direct payments, the transaction-based Statement of Expenditure method, reimbursement and special commitments, depending on the case. AIIB will process requested funds to the pooled Designated Accounts after the World Bank receives withdrawal applications accompanied by the Interim Financial Reports and forwards the payment requests to AIIB. AIIB funds would finance part of the eligible expenditures in stipulated percentages as per project cost and financing plan. The disbursement of Loan proceeds will be made using the advance and direct payment methods. The details of this arrangement and other disbursement specifics will be finalized through the issuance of the World Bank's Disbursement and Financial Information Letter.

E. Governance and Anticorruption

73. AIIB is committed to preventing fraud and corruption in the projects it finances. For this Project, the World Bank's Anti-Corruption Guidelines, which are materially consistent with AIIB's Policy on Prohibited Practices (2016), will apply. However, the AIIB reserves the right to investigate, directly or indirectly through its agents, any alleged corrupt, fraudulent, collusive, coercive or obstructive practices, and misuse of resources

and theft or coercive practices relating to the Project, and to take necessary measures to prevent and redress any issues in a timely manner, as appropriate.

F. Environmental and Social

74. **Applicable Policy, Categorization and Instruments**. This Project will be cofinanced with the World Bank as the lead cofinancier, and its environmental and social (ES) risks and impacts have been assessed in accordance with the World Bank's Environmental and Social Framework (ESF). To ensure a harmonized approach to addressing the ES risks and impacts of the Project, and as permitted under AIIB's Environmental and Social Policy (ESP), AIIB agrees that the World Bank's ESF will apply to the Project in lieu of AIIB's ESP. AIIB has reviewed the World Bank's ESF and is satisfied that: (a) it is consistent with AIIB's Articles of Agreement and materially consistent with the provisions of AIIB's ESP and the relevant Environmental and Social Standards (ESS); and (b) the monitoring procedures that are in place are appropriate for the Project.

75. The World Bank has categorized the ES risks of this program as "Moderate" (which is equivalent to Category B if AIIB's ESP was applicable). Nine of World Bank's ESS have been applied to the Project: World Bank's ESS on Assessment and Management of ES Risks and Impacts (ESS1); Labor and Working Conditions (ESS2); Resource Efficiency and Pollution Prevention and Management (ESS3); Community Health and Safety (ESS4); Land Acquisition, Restriction on Land Use and Involuntary Resettlement (ESS5); Biodiversity Conservation and Sustainable Management of Living Natural Resource (ESS6); Cultural Heritage (ESS8); Financial Intermediaries (ESS9) and Stakeholder Engagement and Information Disclosure (ESS10). Some of the standards have been considered as relevant for precautionary reasons.

76. **Instruments**. An Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) have been developed by RISA, which have been cleared and disclosed by the World Bank. The ESMF and RPF will guide the screening and preparation of site-specific environmental and social assessments (ESA). These include the preparation of ESAs, Environmental and Social Management Plans, and Resettlement Action Plans (RAPs), as needed. The ESMF also includes provisions on pollution management, habitat protection, labor and working conditions, community health and safety, and chance find procedures. During implementation, based on screening guidance and the risk level of each specific activity, site-specific ESAs and Environmental and Social Management Plans), RAPs, labor management and gender-based violence actions plans, will be developed when required.

77. RISA will be the main implementing agency and will oversee the ES risk management of the Project. It has minimal experience in implementing World Bank-financed projects, but it has a good track record in implementing numerous donor projects and working effectively across government. Capacity building and staffing for the SPIU, including key expert consultants under RISA, will be financed under component 4. An Environmental and Social Commitment Plan and a Stakeholder Engagement Plan (SEP), together with an ESMF, a Resettlement Policy Framework and the Labor Management Plan (LMP), have been prepared and disclosed on the World

Bank website[43] and RISA's own website.[44] In total, two ES specialists will be recruited at the PIU level. The hiring of the ES specialists will be finalized within one month of the Project effectiveness.

78. As the BRD is responsible for delivering parts of subcomponents 1.1 and 3.1, World Bank's Financial Intermediary ES policies apply to these subcomponents. The BRD currently has an existing Environmental and Social Management System (ESMS) in place, which will be updated to cover this Project, and has prior experience on ESMS implementation. It is also familiar with the World Bank's ESF policies as they are also the implementation agency for other World Bank-funded projects. For this Project, the ESMS for BRD has been assessed and the key gaps include the screening of Financial Intermediary subprojects, monitoring and reporting, and staffing. Two senior ES risk management specialists have also been recruited by the BRD to strengthen its internal safeguard's capacity. The updated version of the ESMS will be disclosed on the websites of AIIB, BRD and the World Bank.

79. **Environmental and Social Aspects.** The Project activities are not expected to have large-scale, significant and/or irreversible ES impacts. The potential environmental and social risks are expected to be moderate. The potential environmental risks and impacts are mostly related to Component 1 (Digital Access and Inclusion) and Component 3 (Digital Innovation and Entrepreneurship). Most activities financed involves installation of "soft" digital infrastructure[45]. Under component 1, the last-mile connectivity is related to deployment of connectivity component, such as installing IT equipment. Under component 3, there will be minor construction and installation works which includes renovation and retrofitting works for computer labs, classrooms and offices. These will be mitigated with the measures set out in the ESMF. Other key risks identified include electronic waste (or e-waste) generation and energy consumption, and these will be mitigated through a technical assistance for implementation of e-waste provisions and specifying energy efficiency requirements in procurement packages.

80. The Project is expected to generate e-waste from replacing old IT equipment, end-of-life backup power batteries, mobile phones, damaged/obsolete solar panels that provide electricity to cell-tower base stations, etc. Disposal of e-waste in landfill poses an environmental cost. To reduce this cost, the Project will fund the establishment of e-waste collection points across the country as well as awareness campaigns on e-waste management.

81. Overall, this Project is expected to bring positive social impact to the communities. The Project is consciously addressing the issue of social inclusion, through its focus on rural and underserved areas, targeting of low-income households, as well as access requirements for women and people with disabilities (PWDs). The Project is likely to involve minimal land acquisition and impact on communities' properties. Site-specific instruments such as RAPs will be reviewed as part of ongoing project supervision during implementation.

---

[43] World Bank. Rwanda Digital Acceleration Project. Link.
[44] RISA. Environment and Social Commitment Plan, Stakeholder Engagement Plan, Environmental and Social Management Framework (ESMF), Resettlement Process Framework (RPF), and Labor Management Procedures (LMP).
[45] AIIB Digital Infrastructure Strategy. Link.

82. **Climate Change**. Rwanda is currently highly vulnerable to climate change as it is strongly reliant on rain-fed agriculture both for rural livelihoods and exports of tea and coffee. Rwanda is ranked 153rd (out 177 countries) in the Notre Dame Global Adaptation Index (13th on vulnerability and 95th on readiness), indicating high vulnerability but low readiness to combat the effects of climate change. This Project aims to incorporate high energy-efficiency requirements in all bidding documents for all the equipment. This will reduce electricity demand associated with the increased use of digital devices and systems. The Project will also encourage the use of green energy from solar panels to power cell-tower base stations and other digital equipment wherever feasible and directly funded by the Project.

83. **Social Inclusion: Gender and Disability**. The Project incorporates a strong emphasis on 'digital inclusion' with the aim to bridge the gender digital gap, empowering women, and girls, PWDs and vulnerable communities in rural and underserved areas. This Project will bring positive benefits to poor households by providing affordable devices and connectivity access. All IT equipment and software applications financed will include built-in accessibility features for PWDs. WiFi hotspots will be designed to ensure access for women and PWDs (e.g., through ramps to public offices connected, gender-appropriate locations). Gender and PWD-sensitive approaches to digital skills programs will be adopted (e.g., leveraging female trainers and access-enabled devices). Schemes for start-ups will purposely support women-led businesses. The Project indicators will record the gender and location disaggregated data on connectivity to measure progress on key parameters related to digital inclusion. The Project will also support built-in systems for tracking results and satisfaction surveys as part of supporting citizen engagement and solicit beneficiary feedback.

84. **Occupational Health and Safety and Labor Management**. The Project is likely to engage in installation and construction types of works, and the standards can be applied to project workers, community workers and primary suppliers. All these types of workers are explicitly covered in the Labor Management Procedures (LMP). As noted above, workers could be exposed to various occupational hazards (e.g., when coming in contact with live power lines) during construction, maintenance and various operational activities, particularly when supporting the deployment of last-mile connectivity solutions. Under subcomponent 1.3, risks may include (i) exposure to electromagnetic fields stemming from proximity to transmitting antennas emitting radio waves and microwaves; (ii) working at heights for overhead cables and antennae installation; (iii) working in confined spaces during trenching; (iv) risks related to handling optical fiber cables such as eye damage due to exposure to laser light during cable connection and inspection activities; (v) exposure of workers to microscopic glass fiber shards/glasses that can penetrate human skin and eyes; and (vi) general hazards of working with electrical equipment, including fire risks due to the presence of flammable materials in high-powered laser installation areas. A specific set of Occupational Safety and Health (OSH) measures based on the final project design, have been included in the ESMF and LMP documentation.

85. **Stakeholder Engagement, Consultation, and Information Disclosure.** A Stakeholder Engagement Plan (SEP) has been prepared for the Project with specific provisions for the different project components. The SEP outlines the characteristics and interests of the relevant stakeholder groups as well as the timing and methods of engagement envisioned throughout the Project lifecycle. The Project will ensure that the

needs and voices of vulnerable people (e.g., female-headed households, elderly, youth, people with disabilities, etc.) are heard through inclusive consultation and participation, to ensure that they can equally participate and benefit from the Project. The Project also includes consultations with civil society organizations and other relevant parties on how to improve access to project benefits for people with disabilities. The final ES instruments (ESMF, LMP, and RPF) have been disclosed by the Client, World Bank and AIIB[46].

86. The Project includes elements that promote gender targets and mitigate gender-based violence in digital businesses.

87. **Project Grievance Redress Mechanism and Citizen Engagement.** The Project will set up a Grievance Redress Mechanism (GRM) for people to report concerns if they feel unfairly treated or affected by the Project (including the subprojects funded through the BRD). The Project will ensure that the GRM is suitable to address more sensitive grievances such as issues related to gender-based violence or sexual exploitation and abuse. Citizens can register complaints about the implementation of various development activities, resettlement (if any), and any other perceived abuses of the Project. Grievance committees will address such complaints, including logging, tracking and resolving grievances promptly during and after the implementation of the Project. These will be established prior to commencement of any activity and maintained while the activity is ongoing. However, studies and technical assistance can be delivered prior to establishment of the GRM. It is expected the GRM will be established in Q2 2022 as funds are needed for its establishment.

88. The GRM will be digitally enabled in keeping with the intentions of the Project.

89. **Applicable Independent Accountability Mechanism.** As noted above, pursuant to AIIB's agreement with the World Bank, the World Bank's ESF will apply to this Project instead of AIIB's ESP. The World Bank's corporate Grievance Redress Service, and its Independent Accountability Mechanism, the Inspection Panel, which reviews the World Bank's compliance with its policies and procedures, will handle complaints relating to ES issues that may arise under the Project. In accordance with AIIB's Policy on the Project-affected People's Mechanism (PPM), submissions to the mechanism under this Project will not be eligible for consideration. Information on World Bank's corporate Grievance Redress Service is available at http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. Information on the World Bank's Inspection Panel is available at http://www.inspectionpanel.org.

G. Project Monitoring Arrangements

90. While RISA is experienced, the scale and complexity of the Project is considerable and therefore the World Bank will adopt a hands-on approach. The World Bank has a team in Kigali, Rwanda supporting the Project supervision composed of a senior digital specialist with previous experience as a SPIU coordinator, relevant ES, FM, and procurement specialists, and other technical specialists (some of them based in Washington, DC) who will focus on different technical parts of the Project. There will

[46] AIIB. Rwanda: Rwanda Digital Acceleration Project. Link.

be strong coordination between the World Bank and RISA in relation to the day-to-day administrative management and implementation of the Project.

91. Formal implementation support missions and field visits will be carried out, jointly with the government, every three to six months. Initially, these missions will focus on strengthening project management and fiduciary capacity at RISA, development of operational guidelines and preparation of the first phase of planned activities. Later, missions will focus on reviewing implementation progress, achievement of results and sustainability.

92. A midterm review will be carried out 18 months after project effectiveness to take stock of progress and make any needed adjustments to project design. Targeted technical, FM, and procurement-related review missions will also be undertaken. Ongoing dialogue with the SPIU and Client, including through venture capital conferences and e-mail, will ensure continuous support and monitoring. The implementation support plan will be reviewed on an annual basis to ensure that it is adequately aligned with support needs.

93. AIIB will join these monitoring exercises.

H. Residual Risks and Mitigation Measures

Figure 6: Summary of Residual Risks and Mitigating Measures

Risk Description	Assessment Ratings (High, Medium, Low)	Mitigation Measures
Macroeconomic COVID-19 will reduce low household incomes and therefore reduce demand for digital infrastructure and services.	Probability: H Impact: M Rating: M	Factored into feasibility studies that are due to be commissioned and will shape the type of instrument selected and level of financing support needed for device financing to actively mitigate this risk. The income reduction will reduce over time and demand for digital services is booming due to the pandemic.
Sectoral and policy Inherent risks related to data protection, privacy, and cybersecurity are low. The 4G wholesale monopoly may provide poor value, limiting uptake.	Probability: L Impact: M Rating: M	The World Bank's legal team's feedback on the draft law was shared with the MINICT to address the issues. The Government of Rwanda (GOR) has gazetted an effective Data Protection and Privacy Law, whose development leveraged comprehensive local and international stakeholder consultations as well as benchmarking and learning from

		best-in-class regional and international data protection frameworks and guidelines. Additional mechanisms (legal covenants or disbursement conditions) may be considered to ensure alignment with best practice. Targeted technical assistance (TA) is envisioned to help the GOR bridge legal gaps identified. Joint World Bank-International Finance Corporation TA to update Rwanda's Broadband Policy is due to be launched shortly, which is expected to begin addressing the 4G competition issue, at the request of the MINICT.
Technical design The Project is large, and the components touch upon multiple distinct technical areas spanning telecommunications, digital government, e-services delivery, digital skills and entrepreneurship.	Probability: H Impact: M Rating: M	While the GOR and the World Bank have a track record of implementing most activities included in the Project, either in country or in similar context, some novel large-scale activities introduce higher technical design risk, including (i) the device access program and (ii) the expansion of national ID authentication, where Rwanda is also among the first to benefit from related support from the World Bank. Feasibility studies due to be commissioned under the Project Preparation Advance, with technical consultancies hired to both support design and help RISA manage activities, will also serve to address technical risks identified and boost capacity.
Institutional capacity While the GOR does have prior experience of implementing other AIIB-financed projects in this sector, the Project size is now considerably larger and being implemented	Probability: M Impact: H Rating: H	Ongoing set-up of the SPIU, leveraging the approved Project Preparation Advance, is seen as critical to active risk mitigation and ensure adequate capacity. Training and capacity building for management and for core partner agencies infused across

under a new institutional set-up, with more ministries, departments and agencies (MDAs) involved.		subcomponents will help to mitigate this risk, but the number of MDAs involved still induct higher risk for implementation capacity.
Procurement While RISA does have a successful track record of implementing donor-funded and complex digital projects, it has weak familiarity with the World Bank procurement regulation and procedures, and competition may be limited due to the highly technical nature of items procured	Probability: H Impact: M Rating: H	Further staffing of procurement staff at the SPIU prior to project effectiveness; capacity building and trainings for the SPIU on World Bank procurement regulation and procedures. Discussions are ongoing with MINECOFIN and MIFOTRA to offer competitive salaries to attract and retain high-caliber personnel to staff the SPIU, which should help mitigate this risk. Workshops with potential bidders and advertisements of bid invitations at national and regional level.
Financial Management The absence of a PIU at the BRD at the time of the Project document preparation; staffing gaps in FM at RISA to absorb the additional workload generated by the Project; the absence of detailed FM guidance for the Project.	Probability: M Impact: H Rating: H	Establishment of a Special PIU at BRD; FM staff will be shared from BRD's implemented projects funded by the World Bank; development of detailed FM guidelines for the Project in the PIM, and continuous support to FM and internal audit staff at RISA by the World Bank.
Environmental and Social Implementation of activities covering national level. Construction activities will be temporary, reversible and site-specific under component 1. Lead implementing agency has limited experience in implementing World Bank's ESF procedures and policies.	Probability: H Impact: M Rating: M	An Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) have been prepared and disclosed on their respective websites. These will guide the screening and preparation of site specific environmental and social assessment (ESA). An Environmental and Social Commitment Plan and a Stakeholder Engagement Plan (SEP) have been prepared and disclosed in their respective websites. This will ensure smooth implementation including

		establishing a functional ES risk management system including recruitment of two qualified ES staff.
Stakeholders Crosscutting nature of the Project and whole-of-government approach makes for complex stakeholder relations	Probability: H Impact: M Rating: M	RISA is a relatively strong lead agency, and its recent introduction of sectoral chief digital officers will be instrumental to supporting cross-sector digitization and strong coordination with line ministries. A well-represented Project Steering Committee (PSC), supported by TCs as needed, and a strong SPIU will also help mitigate this risk, leaving stakeholder risk as moderate.
COVID-19 External experts may have difficulties accessing Rwanda and large-scale meetings may be prohibited. Certain project activities such as those involving interaction with citizens are more prone to disruption (e.g., physical delivery of digital skills and training programs) Certain project equipment costs may escalate due to COVID-19-induced supply-chain constraints.	Probability: H Impact: M-H Rating: M-H	Rwanda is making rapid progress and more than 10 percent of the population has been fully vaccinated. Where feasible and applicable, mitigation measures recommended by health authorities will be applied, and virtual meetings will be used. Field work will need to be conducted in small groups, limiting engagement with citizens. Mitigation measures adopting e-learning platforms or technologies (e.g., WebEx, Zoom, Microsoft Teams, etc.) would be deployed. Digital communication platforms such as television, radio, social media platforms and others will be leveraged for communication. Competitive selection will ensure market prices are realized.
Project Phasing Technical assistance and optimization studies are funded within the Project. Consequently, the scope and cost estimates will continue to be refined before the head contracts are awarded. There is a risk of scope change, cost escalation and delay.	Probability: L Impact: M Rating: L	The World Bank will not approve funds for head contracts until the requisite studies and assistance is in place. The Project has the strong backing from the president of Rwanda, which creates strong incentives to manage the cost and schedule.

Annex 1: Results Monitoring Framework

Project Objective:	To support Rwanda's short-run and long-term recovery from the pandemic, and resilience to future pandemics, through investment in digital acceleration.									
Indicator Name	**Unit of measure**	**Baseline Data 2021**	**Cumulative Target Values**					**End Target**	**Frequency**	**Responsibility**
			YR1	**YR2**	**YR3**	**YR4**	**YR5**			
Project Objective Indicators										
Increase access to broadband										
1. Broadband penetration rate (mobile + fixed)	%	19.34						31.00	Quarterly	RISA
- Mobile broadband penetration rate	%	19.20						30.00	Quarterly	RISA
- Fixed broadband penetration rate	%	0.14						1.00	Quarterly	RISA
- Of which percentage are female	%	0.00						40.00	Quarterly	RISA
Increase access to selected digital public services										
2. Fully transactional G2P, G2B and G2G e-services that are introduced, upgraded or enabled	#	0.00						30.00	Biannual	RISA
Strengthen the digital innovation ecosystem										
3. Digital start-ups supported creating and/or leveraging a digital technology solution	#	0.00						140.00	Biannual	RISA
- Of which percentage are female owned	%	0.00						30.00	Biannual	RISA

Indicator Name	Unit of measure	Baseline Data 2021	Cumulative Target Values					End Target	Frequency	Responsibility
			YR1	YR2	YR3	YR4	YR5			
Intermediate Results Indicators										
Component 1: Digital Access and Inclusion										
4. Beneficiaries that receive support under the smart device financing scheme	#	0.00						250,000.00	Biannual	RISA and BRD
- Of which percentage are female beneficiaries	%	0.00						50.00	Biannual	RISA and BRD
- Of which percentage are beneficiaries in rural areas	%	0.00						30.00	Biannual	RISA and BRD
5. People trained in digital literacy	#	0.00						3,000,000.00	Quarterly	RISA
- Of which percentage are female	%	0.00						40.00	Quarterly	RISA
6. Additional internet access points established (connected government offices, schools, hospital, and marketplaces etc.)	#	0.00						2,500.00	Biannual	RISA
- Of which percentage are in rural areas	%	0.00						75.00	Biannual	RISA
Component 2: Digital Public Service Delivery										
7. Population enrolled and issued a new digital ID credential (either a physical card or a virtual equivalent)	%	0.00						75.00	Annual	RISA
- Of which percentage are female	%	0.00						40.00	Annual	RISA
- Of which are children (up to 16 years)	%	0.00						50.00	Annual	RISA

8. Cybersecurity standards, compliance and audit framework published	Yes/No	No						Yes	Annual	RISA
9. Public sector officials trained in digital skills	#	0.00						600.00	Biannual	RISA
Component 3: Digital Innovation and Entrepreneurship										
10. Start-ups supported through the Project	#	0.00						300.00	Biannual	RISA
11. Graduates from specialized digital skills training employed or in education within 12 months after completion	%	0.00						75.00	Annual	RISA
- Of which percentage are female	%	0.00						35.00	Annual	RISA

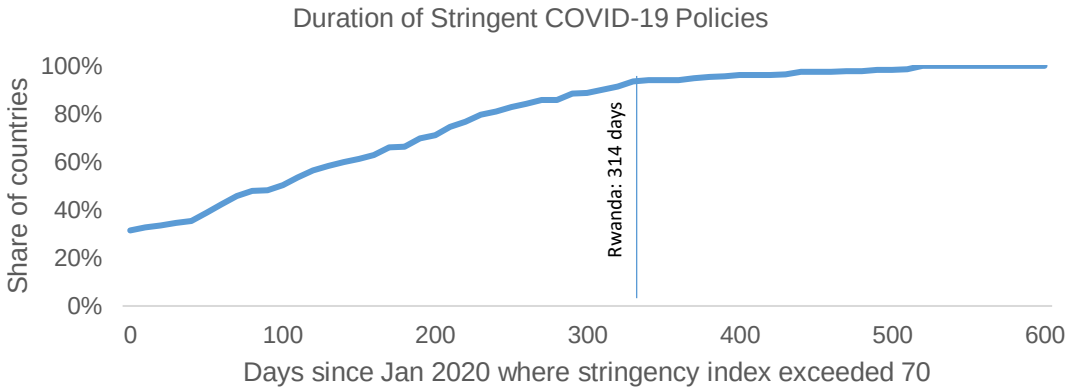
Annex 2: Impact of COVID-19 on Rwanda

Pandemic Impacts

As of August 2021, Rwanda had 6,714 confirmed COVID-19 cases per million, compared with 5,467 in Africa, 14,340 in Asia and 71,996 in Europe, respectively. There were 75 attributed deaths per million in Rwanda versus 138 in Africa, 211 in Asia and 1,544 in Europe respectively. The direct health costs of the pandemic have therefore been comparatively light.

Containing the pandemic, however, has carried a high economic and social cost. According to the World Bank's Rwanda Economic Update, Rwanda's economy contracted by 3.4 percent year-on-year (YoY) in real terms in 2020, the first recession since 1994.[47] Rwanda also experienced one of the largest reductions in growth relative to trend in Sub-Saharan Africa (Annex Figure 1). The unemployment rate increased from 13 percent to 22 percent over 2020, and 60 percent of workers experienced salary cuts.[48] The contraction of global trade and collapse of international tourism led to a severe contraction in Rwanda's exports and imports, which contracted by 24.4 percent and 18.3 percent YoY, respectively. Poverty is expected to increase by 5.1 percentage points over 2021 compared to a without COVID-19 scenario.[49] Learning-adjusted schooling will fall behind by 0.2 to 0.6 years, with children from poor households experiencing the largest declines.

Figure 1: Duration of COVID-19 Policies in Rwanda

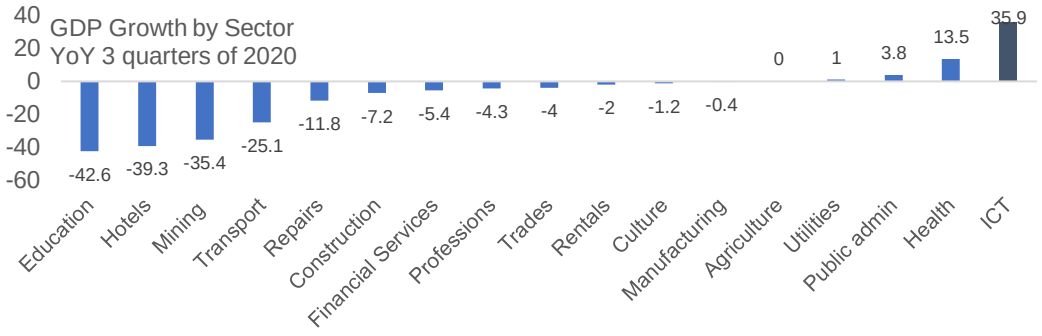


The pandemic's effects have been broad-based (Annex Figure 2). Education, mining, hotels and restaurants, transport and automotive maintenance and repair experienced severe contractions, and industrial and construction output experienced a significant fall. Exports and investments were most severely affected, though all components of GDP contracted. While agriculture was less effected than other industries, rural households

[47] World Bank. Rwanda Economic Update, January 2021: Protect and Promote Human Capital in a Post-COVID-19 World. Link.
[48] Ibid.
[49] Ibid.

were poorer than urban households prior to the pandemic, and therefore more sensitive to the pandemic-induced shocks.[50]

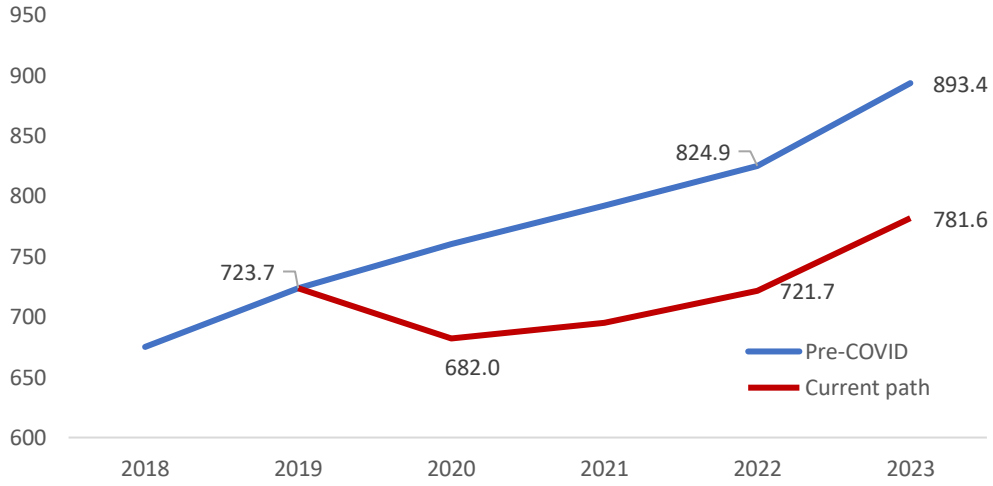
Figure 2: Economic Damage of the COVID-19 Pandemic



Geographically, the pandemic was felt across the country, as all provinces were affected by lockdowns. As a landlocked country bordered by Congo, Uganda, Tanzania and Burundi, the efforts of preventing and containing the pandemic in Rwanda will also benefit the neighboring countries.

The impact of the pandemic will be felt for over the next decade. World Bank modeling shows that output in the absence of robust government intervention would be 22 percent lower than in a scenario without COVID-19 (Annex Figure 3).[51] IMF modelling shows a return to trend growth by 2023 (the absence of a catch-up period implies a permanent output loss).[52]

Figure 3. GDP per Capita in RWF, Pre- versus Post-COVID-19 Scenario



[50] Ibid. Link. p 40.
[51] World Bank. Rwanda Economic Update, January 2021: Protect and Promote Human Capital in a Post-COVID-19 World.p.3. Link.
[52] IMF. Rwanda: Fourth Review of the Policy Coordination Instrument and Request of an Extension of the Policy Coordination Instrument. Press Release. 2021. p.2. Link.

Public Investment Aligned with Development Strategy Will Stimulate Recovery

Rwanda launched an Economic Recovery Plan in response to the pandemic in April 2020. The fiscal, monetary and social assistance injection, sized at 4.4 percent of GDP, will be completed by December 2021. In June 2020, the GOR also launched the Economic Recovery Fund (supported by the World Bank and AIIB) to support affected businesses through subsidized loans and credit guarantees from commercial banks and microfinance institutions.[53] Extension of the stimulus beyond the end of 2021 is under consideration.

Digital acceleration is a central tenant of Rwanda's efforts to "build back better,"[54] of its longer-term National Strategy of Transformation[55] and efforts to reverse slowing factor productivity.

[53] IMF. Policy Responses to COVID-19. July 2021. Link.
[54] Ibid. throughout. Link.
[55] NST1-2017-24

Annex 3: Project Fit under the AIIB COVID-19 Crisis Recovery Facility

The AIIB Crisis Recovery Facility allows three types of financings: immediate health sector needs (extended in May 2021 to vaccine financings), liquidity constraints and economic resilience projects. Economic resilience encompasses projects that:

- Support a country's social and economic response and recovery.
- Prevent long-term damage to the productive capacity of the economy.
- Protect and restore productive capital, including human capital.[56]

Financings to add to ongoing operations are an instrument for:[57]

- Facilitate[ing] faster disbursement of funds and scale[ing]-up activities that respond to the COVID-19 challenges through expanded retroactive financing, increased share of AIIB financing for a given project, and project scope expansion.
- Making use of the client relationships and project structures supported by trusted peer institutions.

Finally, CRF projects "will, whenever feasible, cofinance Facility operations with partner MDBs, in particular when those operations lie outside the areas of AIIB's own core capabilities."[58]

The Project satisfies the above conditions as summarized in Annex Figure 4.

Figure 7: Project Fit with CRF Conditions

Economic Resilience	
Social and economic response and recovery	Response activities: • Digital access facilitates social distancing. • Digital identification enables contact tracing. • Expenditures are front-loaded with three-quarters of disbursements scheduled within the first four years, supporting fiscal stimulus. Recovery activities are benefits resulting from: • Digital innovation and entrepreneurship.

[56] AIIB. Paper on the Decisions to Support the AIIB COVID-19 Crisis Recovery Facility. Paragraph 14.2. Link
[57] Ibid. para.15.2 Link.
[58] Ibid. para.16. Link.

	• Digital public service delivery. • Digital inclusion.
Prevent long-term damage to the productive capacity of the economy	• Investment will offset hysteresis (i.e., persistent underutilization of labor following recessions) effects of recession. • Expansion of high-productivity sectors and adoption of productivity-enabling technology in all sectors will offset the growth drag in disrupted industries, and thereby preserve the long-term productive capacity of the economy.
Protect and restore productive capital, including human capital	• Digital education combined with digital access enables home schooling, protecting human capital formation during periods of social distancing. • Digital public service delivery maintains the flow of essential services during pandemics and economic and social activity dependent on these services. • Electronic payment capabilities facilities the flow of payments during pandemics. Digital IDs is an enabling work for digital payments. • Digitalization enables much B2B and B2C trade to take place at a distance, reducing the cost of social distancing. • Reducing climate-related risks protects natural productive capital. • Gender initiatives will promote human capital formation in women.
Additional Financing	
Scale up activities that respond to the COVID-19 challenges through expanded retroactive financing, increased share of AIIB financing for a given project, and project scope expansion.	• AIIB participation expanded the scope to encompass digital health and education elements. • AIIB participation upsized the affordable devices by 50 percent, last-mile connectivity by 86 percent, digital entrepreneurship by 57 percent, and cybersecurity resilience by 6.6 times.

Making use of the client relationships and project structures supported by trusted peer institutions. Cofinance facility operations with partner MDBs, in particular when those operations lie outside the areas of AIIB's own core capabilities.	• Structured as a cofinancing to leverage the World Bank's local presence, safeguards, preparatory works and project management. • Implementing agencies, RISA and BRD, enjoy a good track record of implementing World Bank-funded projects. • While digital infrastructure is a core capability of AIIB, the cofinancing structure materially reduces the operational risks arising from conducting operations in new markets with new clients without the ability to undertake site visits.

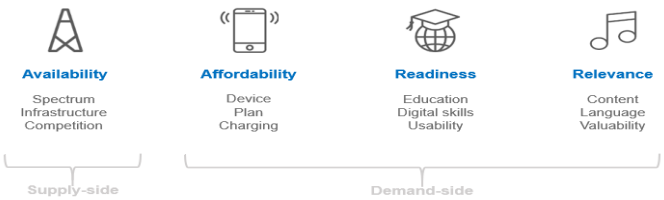
Annex 4: Detailed Project Description

Component 1: Digital Access and Inclusion

(US$60.5million: of which US$30.25 million from IDA and US$30.25 million from AIIB)

1. **This component will increase digital access and inclusion through investment in digital access enablers, focusing on under-served areas and groups.** A series of interventions that address identified demand-side barriers hampering access to high-speed internet service will be financed. This includes support for smart device affordability financing schemes, an umbrella digital literacy initiative, as well as a local connectivity access scheme targeting unconnected government offices, schools, hospitals, and marketplaces. Activities supported will help connect more users to broadband, and subsequently enable wider access to and demand for data-driven public and commercial e-services (financed under Components 2 and 3). Financing provided will support wider local readiness for Covid-19 response and recovery, as digital tools and systems have proved critical to an agile response, where digital access is viewed as a basic pre-requisite. By providing catalytic funding to stimulate demand by key user-groups and in low-income market segments, the project hopes to crowd in more private sector investment on the supply-side. Upstream support for an enabling legal, regulatory and policy environment for competitive broadband market development will also be provided, with a view of stimulating wider access, quality, affordability, and sustainability, resulting in a more vibrant broadband market that can support wider access and service expansion.

Figure 2A: Barriers to digital access and inclusion in Rwanda



Sub-component 1.1: Access to affordable smart devices

(US$15million: of which US$7.5 million from IDA and US$7.5 million from AIIB)

2. **This sub-component will provide financing support to facilitate wider device access, featuring the establishment of a smart device access scheme and dedicated fund.** The scheme will target potential users currently facing barriers to smart device access and ownership, such as securing credit for device purchase. The scheme will be implemented jointly by RISA and BRD. Various financial instruments will be considered and deployed through the device fund. The project will finance an in-depth market assessment and feasibility study to refine key design elements of the scheme, based on local context and anticipated demand, including targeting, the selection of

financing instruments to be deployed, and how to best sustain the fund beyond the life of the project. Key financing instruments considered include grant-based subsidies for Rwanda's lowest income-earning households, featuring performance-based financing for device retailers, with targeting, eligibility and subsidy levels based on the stratified household income classification system, *Ubudehe,* existing device ownership[59], and other GoR social assistance. Targeting of different *Ubudehe* household categories will consider level of financial need, scope for productive use, and perceived value of the device, with the aim of maximizing the coverage, inclusion, and impact of the scheme. Other instruments that will be considered include credit guarantees, insurance, and line of credit to manage the challenges associated with access to finance for devices and high credit risk. All financial instruments leveraged under the scheme will adhere to the World Bank's policies and guidelines for financial intermediaries (FIs). The approach will leverage lessons learnt from related schemes in-country and elsewhere, including a global ASA on Affordable Devices (P173751). The scheme launched would complement parallel initiatives to extend digital public services to those at the base of the pyramid and various social benefit schemes anchored at household level, including ongoing effort to digitize social transfers (also supported under sub-component 2.3) that form a critical part of the Covid-19 response. Financing instruments leveraged will seek to maximize uptake among under-served groups, for example, targeting female-headed households to bridge the gender gap in respect to device access. The scheme developed will also leverage synergies with concurrent initiatives in place and due to be launched, including financing for solar home systems also administered by BRD, and basic digital literacy training (supported under sub-component 1.2) to ensure that critical complements (ability to charge and use devices) maximize the impact and sustainability of device financing provided. Market sounding conducted suggest that device retailers, SACCOs and off-grid energy providers welcome the scheme, and synergies noted above. Key activities to be financed include:

(a) **Capacity building for RISA and BRD, and other key scheme players**, to support the development and operationalization of the affordable device access scheme, and related fund**.** A detailed feasibility study and a scheme-specific PIM will be developed, detailing financial instruments implemented, beneficiary disbursement mechanisms, eligibility criteria and scheme administration requirements. This PIM will also detail the role that other MDAs are expected to play in supporting successful deployment of the scheme, which inter alia could include the Ministry of Local Government (MINLOC), Local Administrative Entities Development Agency (LODA) and the Rwanda Cooperatives Agency (RCA). Upstream and downstream capacity building may also be needed for demand- and supply-side players in the device value chain to increase their readiness and ability to support investment made through the device affordability fund.

[59] An inventory of device ownership among low-income household was recently conducted by RISA.

(b) **Capitalization of the device affordability fund and operationalization of related financing instruments**, which will be implemented by the BRD in its capacity as an FI, and where the project will cover the costs of the financial instruments deployed, and any other relevant operational costs and fees, over the duration of the project period.

(c) **Independent verification,** whereby the project would finance a third-party verification agent to verify compliance for the financing schemes. A similar mechanism is already being leveraged under the Renewable Energy Fund (P160699) financed by the World Bank, which is also managed by the BRD. This activity will be led by RISA.

(d) **Communication and outreach** through campaigns, sharing success stories and lessons learned to publicize the device affordability scheme to key stakeholders and targeted beneficiaries. This activity will be led by the RISA, in close cooperation with BRD.

Sub-component 1.2: Digital literacy for all
(US$8million: of which US$4 million from IDA and US$4 million from AIIB)

3. **This sub-component will help tackle Rwanda's lingering digital literacy gap through a national digital literacy scheme that will enable end-users to access and use basic digital devices and data-driven services safely and effectively.** This activity will help expand the national coverage of Rwanda's existing flagship Digital Ambassador's Program (DAP), with the aim of training more people in digital literacy across all 2,148 cells. A revamped iteration of the existing pilot scheme (version 2.0) will be scaled, and run by RISA, building in more sustainability, inclusion, and performance-based management, including tailored and task-based training approaches sensitive to different user-groups, as well as gender and persons with disabilities, based on lessons learnt from past evaluations of the DAP.[60] The new program will seek to enhance incentives for female participation, and consider access requirements for persons with disabilities, including teaching devices and material leveraged. The scheme will also be broadened to enable the participation of more non-profit and for-profit digital skills providers, and more focus will be placed on outreach and engaging content. The initiative will be anchored in an overarching digital skills assessment and new national digital skills framework, developed in close collaboration with the MINICT, Ministry of

[60] Digital Opportunities Trust (2019), DAP Proof of Concept and Final Evaluation. See: https://www.dotrust.org/media/2019/06/2019-01-04-DAP-Proof-of-Concept-Final-Evaluation-Executive-Summary.pdf An evaluation of the pilot stage of the DAP highlighted a number of lessons that will be considered in the re-design and launch of DAP 2.0, including but not limited to the need to (i) enhance public promotion and community outreach; (ii) consider use of and support local content; (iii) employ differentiated instruction and personalization of delivery; (iv) encourage linkages between the DAP and other ecosystem support services, factoring in the broadband and device access challenges (all tackled by other sub-components of the proposed project); and (v) consider cultural norms that could impact delivery and uptake. A study will be undertaken to design the DAP 2.0, based on these lessons and other key considerations such as sustainability, inclusion and crowding in other key actors from the private sector and civil society.

Education (MINEDUC) and digital skills providers. Key activities to be financed include:

(a) **Development of a new national digital skills and M&E framework,** aligned with global best practices to enable quality assurance and consistent tracking and benchmarking of digital skills training delivery and learning outcomes over time. Support for an upfront digital skills assessment and continued evaluation of the DAP and other digital skills programs launched over the course of the project will also be financed.

(b) **Development and operationalization of the new DAP 2.0. model,** covering the incremental operating costs, content creation, training and equipment needed to deliver the new scheme over the course of the project period, as well as communication and outreach to expand uptake. The revamped design will feature the set-up a shared digitals skills training platform, both programmatically and through a new DAP web-based portal and e-learning platform, which will allow partner agencies to contribute to national digital literacy targets, leverage shared training materials and M&E tools, thereby crowding in more players and increasing sustainability. E-learning modules and online project administration via the proposed portal will also complement in-person training.

Sub-component 1.3: Last mile connectivity access
(US$33.5 million: of which US$16.75 million from IDA and US$16.75 million from AIIB)

4. This sub-component will expand access to high-speed broadband among select public institutions, as well as targeted public spaces to enable wider digital service provision. Financing will connect selected public sector organizations at central-, district-, sector- and cell-level that currently lack broadband access, including local government offices, schools, hospitals and citizen service access points, and support movement toward a more resilient, secure, and centrally managed dedicated government network (GovNet). The GoR is also looking to connect key commercial centers with public Wi-Fi that can stimulate greater commercial digital service usage. Demand aggregation and pre-purchase of capacity will be leveraged to catalyze infrastructure investment and low-cost services provision. Upfront purchase of internet bandwidth from private sector operators, under indefeasible right of use (IRU) OpEx contracts, spanning 5-15 years[61], will serve as the investment guarantee needed to incentivize private sector CapEx investment in the roll-out of last-mile access networks that connect targeted locations, but also benefit the wider consumer base in the vicinity of connected locations, with GoR serving as the anchor tenant required for enhanced service provision. A market study will support a comprehensive needs assessment, site-mapping and refine the operational plans for implementation. Key activities to be financed include:

[61] Although any lease of capacity would be expected to extend for a 5-15 year period, any operations and maintenance costs that go beyond the closing date of the project, as well as additional bandwidth purchased after the closing date, would fall under the responsibility of the GoR.

(a) **Support for network planning and deployment of enhanced network management solutions:** RISA will receive targeted TA to support network planning, development of technical specifications and detailed capacity requirements to enable capacity purchase, development of a closed virtual private network (VPN), and central Network Operations Center (NOC) to expand and enhance its management of GovNet. Related TA will support the identification of sites location to be connected and include climate risks screening, formulation of adaptive strategies and development of specifications that promote energy efficiency and climate resilience. Financing will cover related services and infrastructure for VPN and NOC establishment and roll-out, as well as related capacity building and training.

(b) **Connectivity capacity purchase for select public institutions and priority locations.** The connectivity access scheme financed will be centrally managed by RISA, which will be implementing progressive cost recovery and hand-over to MDA at sectoral level to ensure sustainability,[65] but where demand-aggregation is also expected to bring down the incremental operating costs for MDAs. Bandwidth contracts will be awarded on a competitive basis, with bidding open to all licensed operators and internet services providers (ISP), covering the provision of international and domestic internet bandwidth and various sectoral and geographic lots, featuring minimum capacity and technical requirements for targeted institutions and locations that will also be gender accessible, in a given catchment area. Priority locations will include local government offices, schools, hospitals, marketplaces, taxi stands and other public access points. Given how connectivity infrastructure in use is mostly high energy-consuming coaxial cables[66], contracts will favor use of energy efficient[67] fiber-optic cables, wherever possible, particularly for sector government offices, but will otherwise be technology-agnostic to encourage the development of least-cost models for last-mile connectivity to maximize affordability and coverage[68]. Potential bidders will need to comply with applicable regulatory standards, including new guidelines that will be supported for climate smart and resilient telecoms infrastructure, infrastructure sharing and quality of service (supported under sub-component 1.4).

(c) **Enabling infrastructure and equipment for target institutions**, particularly schools, to facilitate internet access and use in connected locations. Underserved public schools prioritized for connectivity access will be supported with sustainable energy solutions and basic IT equipment for teaching and learning, drawing on lessons learnt from the smart classrooms model spearheaded by MINEDUC. Financing will complement other school connectivity and digital education initiatives, including the WB-financed Quality Basic Education Project (P168551). Whereas, GoR's on-going school connectivity initiatives are targeting schools that already have some basic electricity and IT access, WB financing will target school that currently have no supporting infrastructure to ensure equity in access and support movement toward universal coverage, enabling education reform that will rely on wider digital adoption. Similarly, interventions financed will complement and build

on the Smart Classroom Program, equipment schools with IT labs, the roll-out of a Smart Education Network[62] that will connect higher education and a handful of school to fiber that are within the vicinity of related networks, but also other flagship programs such as the UN GIGA initiative where the WB is also a key partner and where WB financing will leverage the school connectivity mapping undertaken.

Sub-component 1.4: Legal, regulatory, and institutional capacity for broadband market development

(US$4million: of which US$2 million from IDA and US$2 million from AIIB)

5. **This sub-component will provide upstream enabling legal, regulatory support, as well as capacity building to stimulate broadband market development.** It will support the modernization of legal, regulatory, and institutional frameworks governing the telecoms sector, with financing for TA, training, systems, and equipment acquisition needed to support regulatory reform in selected areas, with the aim of boosting competition, access, inclusion through service expansion, innovation, and adoption of emerging technology. Areas for support identified include: (a) quality of service (QoS) monitoring, and related systems deployment; (b) number portability, and related systems deployment; (c) emerging technologies, including an 5G readiness assessment and roadmap, and Internet of Things (IOT) regulation; (d) spectrum management policy; (e) infrastructure sharing costing-models and regulation (building on bank-executed IFC-led TA); (f) digital content regulation and promotion; (h) climate smart and resilient digital infrastructure- policy and regulatory guidelines; and (h) gender-disaggregated telecoms industry data collection. Additional TA on legal and regulatory matters pertaining to secure data management may also be included, as needed. The industry regulator, RURA, and MINICT are expected to be the main beneficiaries of activities financed under this sub-component.

Component 2: Digital public service delivery

(US$100million: of which US$50 million from IDA and US$50 million from AIIB)

6. **This component will strengthen the GoR's ability to securely deliver more digital services, allowing for increased resilience and adaptability to health, climate, and other shocks.** Activities financed aim to respond to the Covid-19 crisis by 'building back better' through investments that strengthen GoR's ability to deliver services that are secure, data-driven, paperless, and cashless, and that improve both the front-end user-experience of digital public services as well as back-end government efficiency. This will be achieved by developing shared frameworks on issues such as interoperability, and by leveraging re-usable and shared digital infrastructure and platforms such as digital identification and other trust services, as well as data management that form the basis of Government's technology stack to (a) enable expansion of sectoral digitization and e-service initiatives; (b) allow the GoR to scale the provision of just-in-time critical G2G, G2B and G2P e-services; and (c) support big

[62] See: https://ubuntunet.net/members/nren/rwednet/

data analytics that inform policy making, planning and e-service development. An enabling environment for securely scaling e-services will also be supported through investments that strengthen GoR's technical and operational capacity for managing risks related to cybersecurity and data protection.

Sub-component 2.1: Digital identification and authentication (US$39.3million: of which US$19.65 million from IDA and US$19.65 million from AIIB)

7. **This sub-component will strengthen Rwanda's ID ecosystem in support of improved online and offline service delivery and access.** NIDA will be supported to upgrade the existing ID card system, introducing a Single Digital ID system (SDID) as an inclusive and trusted digital identification and authentication framework, featuring the development of a new data and digital authentication layer that leverages the existing NPR, CRVS and foreigner registration systems and other authoritative data sources (See figure 2B). By providing related ID-services as a shared platform and public good, investments made will help to catalyze both public and private sector service innovation, enabling expansion of fully transactional e-services, including those that require higher levels of identity assurance, accelerating the transition to an inclusive and resilient digital economy in Rwanda. Linking digital ID to digital payments and trusted data sharing will allow the GoR to develop its own re-usable 'technology stack' for scaled e-service delivery, by enabling presence-less, cashless, and paperless transactions. The appropriate adoption of emerging and decentralized approaches to digital ID will empower citizens and residents with opportunities to control their personal data and position Rwanda to be a global leader in the area of identification. The envisioned SDID system will comply with the ten *Principles on Identification for Sustainable Development* and align with other international best practices to maximize the socio-economic benefits and development impacts that stem from trusted and inclusive ID systems, while mitigating key risks. During implementation, special attention will be paid to ensuring: (a) inclusion, removing any barriers to ID access and usage, by ensuring that all persons in Rwanda can easily obtain an identity credential (including ensuring that cost is not an obstacle for the poor) and having exception handling processes in place for identity verification so that no person entitled to a certain service is denied access; (b) application of robust personal data protection practices, in compliance with the recently adopted Personal Data Protection and Privacy law (2021), including data minimization, purpose specification, lawful processing, strict limits on data retention, data accuracy, accountability, transparency, consent and user-empowerment, and use of privacy- and security-by-design approaches, among others; (c) Adherence to open standards and, where appropriate, the use of open application programming interfaces (API), to promote interoperability, scalability, flexibility and country ownership; and (d) consultative and human-centered design approaches to inform the implementation and use of the SDID. The design of this sub-component is informed by considerable due diligence, including an Identification for Development (ID4D) Diagnostic for Rwanda

completed in 2016,[63] qualitative end-user research carried out in 2020[64], a 'Single digital ID' feasibility study supported by the African Development Bank in 2021, and a review of the enabling legal environment, including the newly adopted Personal Data Protection and Privacy law (2021). Activities to be financed include:

(a) **Upstream stakeholder engagement and advisory services**, which will feature: (i) engagement with citizens, residents, relying parties and other key stakeholders and (ii) advisory services for the preparation of bidding documents, legal and regulatory support, as needed, to inform the implementation of SDID.

(b) **Digitization and indexing of civil registration records,** converting paper-based birth and death certificates, marriage registration forms and other civil registration documents into digital formats and indexing them, with the aim of facilitating SDID pre-registration and improving the customer experience when accessing e-services that require proof of vital events, but also safeguarding important paper archives from climate related events (such as flood and fires). Interoperability with and digitalization of other paper records from authoritative sources, where required, will support enrolment into the SDID and help drive uptake of related e-services that require proof of vital events. The modality for records digitization, as well as scope and scale of records prioritized will be refined through dedicated technical assistance.

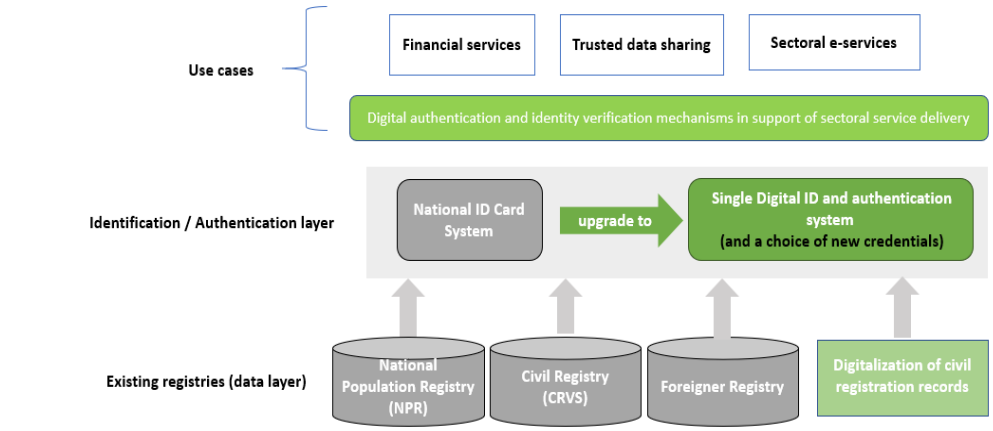
(c) **Establishment of a new *Single Digital ID* system (SDID)** that will include the deployment of: (i) upgrades to public key infrastructure (PKI) and central back-end IT infrastructure, featuring network equipment and data storage, to create a solid basis for greater performance, functionality, security, data protection, and scalability ahead of the deployment of the new SDID system; (ii) hardware and software development for the new SDID, which is expected to enable increased biometric capabilities for up to ten fingerprints and two irises to promote accessibility and to enable the establishment of uniqueness for use cases that require higher levels of assurance [65]; (iii) new digital identity credentials; (iv) new identity verification mechanisms, in support of both online and in-person transactions in Rwanda, with possible cross-border application[66], employing proven and emerging technologies such as a new ID card,[67] a mobile ID, verifiable credentials, decentralized IDs and digital wallets, as well as support for the adoption of these new ways to verify identities by various relying parties, in the public and private sector, and (v) registration operations, including pre-registration activities for the SDID that re-use

[63] See: https://pubdocs.worldbank.org/en/573111524689463285/Rwanda-ID4D-Diagnostic-Web040318.pdf
[64] See: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/279741611941779893/peoples-perspectives-on-the-national-id-birth-registration-and-birth-certificates-in-rwanda
[65] This will, to the extent possible, leverage Rwanda's existing national public key infrastructure (PKI) and will finance the required upgrades.
[66] This, for example, includes the work of the African Union Commission to develop a continental framework for interoperability and mutual recognition of digital IDs in Africa.
[67] The specifications of the new card will be based on a comprehensive cost-benefit analysis.

existing data sources, that extends registration in remote areas to improve access and extends ID coverage to children under the age of 16 (with the consent of their parents or guardians, while adhering to other child protection norms) to facilitate enhanced education, health and social protection service delivery. This will include support for pre-requisite process re-engineering, change management, related software development and hardware upgrades.

(d) **Strengthening of the ID ecosystem,** which will feature support for: (i) deployment of effective channels for grievance redress, creating accessible mechanisms and processes to enable citizens and residents, who face challenges with registration or using their credentials (including in cases of verification failure), to seek timely recourse, inter alia through a new online complaints portal, call center, and a grievance tracking management platform; and (ii) communications and community outreach to drive SDID adoption and effective usage.

Figure 2B: Rwanda's 'to-be' ID ecosystem and Project investments planned



Sub-component 2.2: Government data management, sharing and analytics
(US$10.7million: of which US$5.35 million from IDA and US$5.35 million from AIIB)

8. This sub-component will improve the GoR's ability to securely manage, share, analyze and harness data for improved service delivery, policy development and planning, on the back of shared data frameworks, platforms, infrastructure, and big data analytic capabilities. Stronger capacity for managing, sharing, and analyzing government data will play an integral role in enhancing GoR's ability to expand and improve its e-service offering. Activities financed are designed to fully capture the opportunity presented by big data and lay the foundation for the introduction of more advanced use cases in big data analytics, including leveraging predictive capabilities to support forecasting. Support provided will primarily be anchored at RISA, and include the development of shared data governance frameworks,

shared government data infrastructure, whole-of-government data interoperability structures, pooled data analytics capacity, featuring the creation of a central 'Government Data Hub' envisioned as a collaborative platform for better use of digital data by government. Activities financed will support the operationalization of the 2017 Rwanda National Data Revolution Policy and build on the 2013 Open Data Readiness Assessment. Key activities to be financed include:

(a) **Development of National and big data governance and management frameworks**, including technical assistance through feasibility studies, data sharing guidelines, templates, standards, and protocols as well as related training to support the development of enabling legal, strategic and policy frameworks for improved interoperability, data management, sharing and processing, including geospatial data, big data, and AI, which will benefit all of government and policy makers across sectors. In developing related frameworks, RISA will need to work closely with the MINICT, RURA and National Institute of Statistics (NISR).

(b) **Operationalization of the Government Data Hub**, including related software, hardware, hosting, and TA for deploying and operationalizing the hub at RISA, in close collaboration with sectoral MDAs that produce large amounts of data.[65] This activity will include support for cataloguing and tagging, including with standardized geospatial tags, cleaning and formatting government data for upload, and anonymizing data for release, including related training. This activity will also make government data sets available to the public in machine-readable and anonymized formats and engage citizens and businesses in the prioritization, curation, and expansion of available open data to catalyze demand as well as commercial use as part of private sector innovation.

(c) **Upgrading of the Government Enterprise Service Bus (GESB),** operated by RISA, to focus on the functionality of the Government Data Hub and enable seamless data exchange between key government registries managed by various MDAs, allowing them to securely share their data and support efficiency gains that save energy. Support will also be provided for system upgrades, training on the GESB's maintenance and operation, as well as any technical assistance required to support systems integration at MDA-level.

(d) **Implementation of strategically selected big data use cases** to demonstrate the value of big data analytics in priority sectors (e.g., Health, Education, Social Protection and Agriculture), with some use cases also employing machine learning and AI methods, and directly supporting climate change adaptation and Covid-19 response through analysis of climate data.

Sub-component 2.3: e-Services in key sectors

(US$30.5million: of which US$15.25 million from IDA and US$15.25 million from AIIB)

9. This sub-component will expand the availability of high-quality transactional e-services in key sectors. Priority sectors identified for development of e-services include health, social protection, agriculture, local government, as well as

trade and industry. Financing will cover both (a) just-in-time support for the roll-out of demand-driven G2G, G2B and G2P e-services primed for full digitization that leverage and demonstrate the value of using reusable and shared infrastructure and solutions or the so-called 'technology stack' financed by the project; as well as support for (b) a comprehensive and in-depth flagship sectoral digitization initiative in the health sector, selected based on its high-level contribution to Covid-19 response and recovery. To address the dynamic nature of the needs and priorities likely to emerge during the lifespan of the project, funding related to category (a) e-services will be allocated on an annual basis, following a structured e-services prioritization exercise with sectoral MDAs, and due consideration to both readiness and expected impact. Meanwhile, the flagship digitization initiative in the health sector, will support the development of sector-specific back-end systems and business process re-engineering, which build on shared frameworks and infrastructure, and showcase how sector-wide digitization can facilitate cross-cutting transformation of service delivery. RISA will be spearheading all e-services financed, working closely with respective MDAs, through its sectoral Chief Digital Officers and dedicated technical committees established. Cybersecurity, data privacy, and secure data-sharing principles, informed consent and user-centric design will be mainstreamed for all e-services financed under this sub-component, with special attention given to ensuring access by vulnerable groups (e.g., persons with disabilities, women and/or the elderly) to ensure universal access and a high uptake. To ensure adequate technical capacity at RISA, MINICT and within sectoral MDAs to launch, maintain and upgrade respective e-services and back-end systems financed, this sub-component will also cover an extensive digital skills training program for the civil service staff as well as end users. Key activities to be financed include:

(a) Support for strategic planning and design of e-services that are primed for digitization and prioritized for financing through a rigorous annual selection process. TA will be provided to refine prioritization, and development of "as-is" and "to-be" models for selected priority e-services to support related process re-engineering and development of the needed functional requirements and technical specifications. This will also cover support for end-user consultations, including dedicated focus groups with vulnerable user-groups to inform design.

(b) Development of select priority e-services in key sectors. Support provided will be anchored in the recent public e-services inventory conducted by RISA, which has already identified a handful of services that are primed for end-to-end digitization, based on expected social and economic impact. However, as noted above, priority e-services to be financed will be selected in close collaboration with sectoral MDA, with due consideration to readiness (including technical capabilities at the MDA-level, ability to leverage shared platforms funded under the project and solutions introduced under sub-components 2.1, 2.2, and 2.4, as well as cost) and the expected overall impact (including, but not limited to, estimated no. of end users, frequency of use, efficiency gains expected, scope for supporting Covid-19 response and recovery). Financing provided will cover aspects such as software development, systems integration, hardware and IT equipment, and data hosting

requirements. Some priority e-services have already been identified for implementation starting in year one, including: (i) a new e-Parliament system to increase transparency and citizen's participation in the legislative processes; (ii) a centralized electronic archiving system to support efficient records management within Government; (iii) a unified business registry system for the Office of the Registrar General of Rwanda to lower the administrative barriers to starting a business, increase legally compliance and access to finance; (iv) an upgraded building permit management information system to address the exponential increase in housing demand, buildings and family dwellings, and create an attractive environment of business and investments. To enable streamlined and digital G2P payments for social transfers, the project will also finance the digitization of existing paper-based records and information systems managed by SACCOs. This activity will build on work initiated under the Strengthening Social Protection Project (P162646) to digitize social cash transfers that target low-income households, designed to expand government's use of digital G2P payments and stimulate uptake of digital financial services (DFS). This activity is also viewed as auxiliary to investments made under sub-component 1.1. that will boost access to smart devices among Rwanda's low-income households, thereby equipping them with the means to receive direct digital payments supported by this activity.

(d) **Flagship sectoral digitization initiative: Health Sector.** This activity will help transform service delivery in the health sector by enabling the full digitization and integration of the existing digital health systems introduced[68] across multiple points of care that will improve the quality of services provided to patients and facilitate the work of health care providers. Support provided will tackle gaps highlighted by the Covid-19 pandemic, but also aid in climate change adaptation by tackling projected rise of health infections by 10-30 percent[68] due to extreme weather events. Support provided will be anchored in Rwanda's new Healthcare Digital Transformation Blueprint, informed by data management, interoperability standards and sectoral enterprise architecture already developed by the MoH and RISA, as well as forthcoming feasibility studies for the Electronic Medical Records (EMR) and Hospital Information Management System (HIMS). Key elements to be support include: (a) TA for enabling frameworks for secure health data handling, including classification of patient data and health records; (b) scaled roll-out of a new Health Information Exchange (HIE) platform that will connect disparate systems in place and new systems introduced; (c) further development of the existing Electronic Medical Records (EMR) system, making it more comprehensive, standardized and fully automated, and supporting its set-up and use at more health facilities; (d) improved data hosing for key systems deployed using a hybrid cloud-based

[68] A number of information systems have been put in place including the integrated routine reporting Health Management Information System (HMIS), Electronic Medical Records (EMR), Logistics Management Information System (eLMIS), Mobile Community based information System (RapidSMS), Health Resource Tracking Tool (HRTT), Laboratory Information System (LIS), Blood Bank Information System (eProgesa), Product Regulatory Information Management System (PRIMS) and Telemedicine Network.

solutions; and (h) basic IT and network equipment purchase and installation at health care facilities. Support provided will be closely aligned with activities financed under sub-components 2.1, 2.2 and 2.4, in respect to application of digital ID and trust services, integration with the GESB, use of the Government Data Hub and shared hosting solutions, as well as data and security standards established. It will also be enabled by connecting select hospital and health posts to broadband connectivity (financed under sub-component 1.3).

(e) **Comprehensive capacity building and change management** to create a cadre of digitally savvy government leaders, IT professionals and service users, strengthening the GoR's digital workforce and facilitating the successful development, deployment, maintenance, and uptake of e-services financed. The activity will include support for (i) a training needs assessment and digital skills development plan for the public sector; (ii) specialized training for high-level Government officials; (iii) training of government IT professionals in charge of developing and maintaining Government's core IT systems and e-service delivery at central and sectoral level (including RISA's Chief Digital Officers and their support teams); and (iv) TA for change management, related communication and awareness to ensure the effective uptake of e-services developed, including any technical and targeted end-user training.[69]

Sub-component 2.4: Cybersecurity resilience and data protection
(US$19.5million: of which US$9.75 million from IDA and US$9.75 million from AIIB)

10. This sub-component will strengthen the GoR's capacity to mitigate risks associated with the expansion of digital public services by enhancing its capabilities to detect, prevent, respond, mitigate, and recover from cybersecurity attacks as well as manage data protection. It will support the development of a robust enabling environment through strengthened cybersecurity institutional and policy frameworks, technical and operational capabilities, as well as cyber skills development for a trusted online transactions environment and the security and resilience of digital infrastructure and systems. It will also lay the foundations for safeguarding data protection in compliance with adopted legislation, by supporting the establishment and operationalization of a Data Protection Office (DPO)[67]. Key activities to be financed include:

(a) **Strengthened cybersecurity operational capacity**, which will feature support for (i) the development of institutional and policy frameworks for the newly established NCSA and existing Rwanda Computer Security Incident Response Team (Rw-CSIRT), including the development of strategies, work and action plans, as well as standard operating procedures (SOPs); (ii) technical and operational capabilities, featuring hardware, software, platforms, and systems for the NCSA and technical upgrades for the national CSIRT and the Security Operations Center (SOC) to

[69] That would be complementary or build on the DAP (under sub-component 1.2), which seeks to boost the digital skills of the general public to use e-services.

support the management of key operational and technical functions; (iii) capacity building and awareness raising programs**,** including training for key stakeholders and facilitation of cybersecurity professional certifications, and (iv) support for international partnerships and collaboration with other cybersecurity agencies, CSIRTs or relevant associations, including support for staff exchanges.

(b) **Foundations for data protection operationalization** that will finance (i) the development of policy and institutional frameworks that support the establishment of a new DPO and its operationalization in line with the principles laid out in the adopted Personal Data Protection and Privacy law (2021); (ii) the DPO's technical and operational capacity, including the equipment, software applications and IT platforms needed to, for example, establish a registry of data controllers and data processors, and dedicated complaints mechanism; and (iii) capacity building and awareness raising programs, including substantive training for data protection officers and awareness raising campaigns for the public at large on the handling of personal data (also supported under sub-component 2.1).

Component 3: Digital Innovation and Entrepreneurship
(US$29.5million: of which US$14.75 million from IDA and US$14.75 million from AIIB)

11. This component will strengthen the local digital entrepreneurship ecosystem and talent base. Activities financed will support better innovation ecosystem coordination, better service provision by entrepreneurship support organizations (ESOs), expand access to early-stage financing, and promote advanced digital innovation capabilities. By strengthen the local entrepreneurial and innovation ecosystem this component will contribute Covid-19 pandemic response and related recovery by supporting startups that can aid the development of data-driven, digital products and services relevant to the response. Activities financed will leverage and complement the interventions proposed under Component 2 by also encouraging the use of new public dataset made available and public goods introduced. A stronger local entrepreneurship ecosystem will also aide in developing locally relevant content and services that can help stimulate digital adoption and uptake of digital services, auxiliary to interventions under Component 1.

Sub-component 3.1: Regional digital entrepreneurship hub
(US$22million: of which US$11 million from IDA and US$11 million from AIIB)

12. This sub-component will improve the survival and growth rates of technology-enabled startups in Rwanda and strengthen Rwanda's position as a regional 'test bed' for innovation. Support will be provided to create an enabling strategic, policy, regulatory and institutional environment that is conducive to stimulating growth of digital innovation, businesses and startups, positioning Rwanda as a regional digital entrepreneurship hub. Mechanisms to strengthen the quality, sustainability, and range of ESOs and related services available will be financed, including support for acceleration services that can strengthen international market linkages. All support provided will consider the challenges that startups and young firms have been facing

due to the Covid-19 pandemic. Interventions made will help create a more robust and attractive pipeline of viable startups that are poised for scale-up and strengthen Rwanda's innovation capacity, contributing to wider job creation and productivity gains critical to Covid-19 recovery. Key activities to be financed include:

(a) **Support for enabling strategies, policies and institutions for digital innovation** that will, inter alia, include support for the introduction of a new 2021-2026 Smart Rwanda Master Plan, a new National Innovation Strategy, and other relevant innovation policy and legal instruments. Support will also be provided to agencies mandated to enable the development of Rwanda's innovation and entrepreneurial ecosystem, with financing for training, TA, operating costs associated with industry consultation etc. Support will be provided to key institutions that support the innovation agenda, including the MINICT, RISA, the Rwanda Development Board (RDB) and Kigali Innovation City (KIC)

(b) **Performance-based grants for ESOs that serve digital startups,** which aim to encourage quality-based and self-sustaining ESO models that offer better services, and entrepreneurship support programs. Competitively selected ESOs will have to demonstrate their ability to contribute toward the achievement of their performance contracts to reduce the risk of funding non-viable or non-performing entities, as well as reliance on donor funding. Through the innovation window under the performance contract for ESOs, innovation challenges to catalyze new public sector services using newly available data sets could be introduced and/or solutions to other digital access challenges identified. In addition, beneficiary start-ups could be engaged to help improve the government data hub's data sets as appropriate. This intervention will also support the creation of new programs based on priorities informed by the strategies developed (under activity (a)), including in areas such as cybersecurity, fintech among others. There will be a performance-based grant agreement between RISA and each beneficiary.

(c) **Launch of an international accelerator that serves digital startups**, with financing support provided to attract a high-quality international player to the local market, allowing local startups to benefit from their existing expertise, curricula, networks, and brand power.

(d) **Early-stage finance mobilization for digital innovation,** including support for investment events to attract external investors and regional entrepreneurs, training programs for angel investors and fund managers. Options will also be explored on appropriate mechanisms for providing financing to catalyze early-stage investments, including through the establishment of an early-stage financing window to be managed by a suitable FI such as the BRD. The project will finance a feasibility study to determine the design of the mechanism and selection of financial instruments, identify capacity gaps for implementation as well as advise on relevant capacity building for the BRD, other funds and investors. Instruments selected could

potentially serve as a fund-of-funds to catalyze private sector investment, whereby the project would contribute financing to capitalize the fund as well as overhead fees. By enhancing technical support and access to early-stage finance focused on high-growth potential startups, the interventions under Component 3 will also complement the Access to Finance for Recovery and Resilience project, which aims to increase access to finance and support recovery of MSMEs, focusing on the provision of credit through microfinance institutions (MFIs) and banks.

Sub-component 3.2: Next generation capabilities for the digital economy

(US$7.5million: of which US$3.75 million from IDA and US$3.75 million from AIIB)

13. This sub-component will equip young Rwandans with advanced 21st-century digital skills, boosting local capacity to contribute to digital entrepreneurship and innovation. A two-pronged approach will be adopted; on the one hand supporting wider access to digital skills within traditional TVET and tertiary education and supporting business-models for advanced digital skills provision on the other. By building the local digital talent pipeline and equipping Rwandans with advanced digital skills for jobs of the future, this sub-component will actively help stem the rise in unemployment expected on account of Covid-19. Key activities to be financed include:

(a) **Further development of the Rwanda Coding Academy (RCA)** managed by the MINICT (in collaboration with MINEDUC), with TA and financing support allowing the RCA to: (i) scale to at least one additional campus, (ii) develop a more effective operating and training model (based on a demand-driven curriculum and in close collaboration with the private sector), covering CapEx and OpEx costs for the project duration. CapEx cost will include works to retrofit new locations and equip new sites with requisite tools and equipment, whereas OpEx will be tapered out over time to ensure sustainability, covering the costs such as the recruitment of specialized trainers and industry workshops etc. Support will also be provided for tracer surveys to track digitstudents' transition to further education and/or employment, and employer satisfaction with graduates, where appropriate.

(b) **Performance-based grants for technology bootcamps** and other innovative digital technology skills training models that support their expansion and operations. These will be disbursed in tranches against different milestones, such as employment rates. There will be a performance-based grant agreement between RISA and each beneficiary.

(c) **Ph.D. scholarships for highly specialized digital training**, such as AI, robotics, blockchain, supporting a total of approximately 14 scholarships. Scholarships will be awarded on a competitive basis, managed by the Higher Education Council (HEC), in collaboration with MINICT and MINEDUC. Supported scholars will be required to support Government's digital development initiatives during their PhD training and for at least two years following graduation. Related financing will be subject to an agreement between RISA and the beneficiaries.

Annex 5: Sovereign Credit Fact Sheet

Background. Rwanda is a small, landlocked, low-income country in Eastern Africa, with a population of around 12.5 million and income per capita of around USD800. Since 1994, Rwanda has made a decisive turnaround. Underpinning the good performance was an uninterrupted period of political stability, the government's strong focus on its home-grown development agenda, investment in infrastructure and human capital as well as support from development partners. Rwanda has put in place a relatively strong institutional framework and reformed its private sector business environment. Macroeconomic stability has been maintained, and the country has embraced regional integration through*, inter alia,* the East African Community. To overcome infrastructure constraints, the government has been promoting a service-oriented development strategy, with a focus on international business hospitality and mid- to high-end tourism.

As a result, economic growth has been robust for the past two decades, at 7.5 percent per year on average. Access to basic services has improved, infant mortality fell by a half, and poverty declined from 77 percent in 2001 to 55 percent in 2017, according to official statistics. Hailed as a success story, Rwanda has become an exemplar of development among the donor community.

Still, viewed in absolute terms, Rwanda's development challenges are formidable. Half of the population live in extreme poverty. Pervasive infrastructure shortages result in high transportation costs and render many businesses uncompetitive. Human capital is still low. Export base is very small (around 10 percent of GDP) and narrow (agriculture, limited mining products). Agriculture accounts for a third of the economy (much of it subsistence farming) and 60 percent of employment. There is a large informal sector.

Table: Selected Economic Indicators in Rwanda

Selected Indicators[1]	2017	2018	2019	2020	2021	2022
GDP growth[2]	4.0	8.6	9.4	-3.4	5.1	7.0
Inflation[2]	4.8	1.4	2.4	7.7	2.4	4.9
Fiscal balance[3]	-4.9	-4.7	-6.3	-9.1	-9.2	-8.6
Public debt[4]	48.7	52.4	58.1	71.3	79.1	81.3
Current account balance	-9.5	-10.4	-12.4	-12.2	-13.4	-12.2
External debt	45.8	49.4	53.6	63.8	71.9	76.2
FX reserves (USD billion)	1.26	1.32	1.44	1.78	1.71	1.68
Exchange rate (RWF/USD)[5]	845.0	879.1	922.5	972.5	991.3	..

Notes: 1: 2021-2022 are projections, in percent of GDP—unless indicated otherwise. 2. Percent change y-o-y, average. 3. Fiscal year basis, fiscal year runs from July previous year to June current year. 4. Including guarantees. 5. Data from Rwanda's central bank, RWF = Rwandan franc, end-of-period, for 2021: as of August 13.
Source: IMF Country report 21/164, IMF World Economic Outlook April 2021.

Macroeconomic situation has been stable. Amid high growth, inflation has been contained but volatile, reflecting volatility of agricultural output. The central bank is transitioning toward an inflation-targeting regime. The structurally high current account deficit reflects Rwanda's high investment needs that are generally financed with official donor support. The exchange rate has been managed along a moderately depreciating

path, but with inflation targeting, there is a need for more flexibility. International reserves, at around five to six months of imports, are adequate, according to the IMF. The banking sector is small, but well capitalized; nonperforming loans are relatively low. Rwanda has had six programs with the IMF in the past two decades and, since 2019, is under a non-disbursing Policy Coordination Instrument, with good performance.

Recent Developments. The COVID-19 outbreak in Rwanda has been initially less intense than in other countries due to relatively good preparedness and swift public health and social distancing measures. The reopening of the economy was interrupted by a second wave in January 2021 and a more severe third one in July 2021, with localized lockdowns reinstated, including in the capital. As of August 2021, there has been around 80,000 COVID-19 cases in total, with some 960 deaths. As of October 2021, Rwanda has fully vaccinated over 10 percent of its population against COVID-19 and administrated 40 doses per 100 people, one of the highest in sub-Saharan Africa.

The economy has been badly impacted by a combination of depressed domestic consumption; weaker foreign direct investments; and a collapse of tourism, which accounts for 13 percent of GDP, 11 percent of employment and 30 percent of exports. Thus, the service orientation has unexpectedly become a disadvantage. The poor and vulnerable groups are particularly affected through loss of employment and livelihoods, limited access to health services and erosion of human capital due to school closures. According to the World Bank, the impact will be lasting, and poverty may increase by as much as five percentage points as a result, reversing years of progress.

The government responded with a relatively large and well-designed package of measures, worth around six percent of GDP over 2020-2021, including support to vulnerable households, loan subsidies and guarantees. An on-lending scheme has been set up to help refinance struggling hotels and provide working capital to businesses. The central bank has reduced interest rates.

Overall, the economy contracted in 2020 by an estimated 3.4 percent, against pre-pandemic projections of an eight percent growth. Inflation peaked at nine percent in mid-2020, as floods affected agriculture output, but has since come down to zero. Trade in services declined by a half, but exports and imports of goods increased. The slight deterioration in the trade balance was offset by better income and transfer flows, so the impact on the current account was muted. Foreign exchange reserves increased in line with strong inflows of official development assistance. The exchange rate has depreciated slightly and gradually since early-2020, by around seven percent cumulatively, not out of line with the multiyear trend. Due to pandemic spending, and despite resilient revenues and higher grants, the fiscal deficit increased substantially to over nine percent of GDP in fiscal year 2020. The IMF recalibrated Rwanda's Policy Coordination Instrument program to fit new realities, relaxing some near-term fiscal targets. The third and fourth reviews were successfully completed in 2021, and the program was extended until mid-2023 to allow more time for the reforms delayed by the pandemic.

Outlook and Risks. Given the weak global economic conditions, a fragile recovery is projected to start from 2021. Overall, Rwanda's supply potential remains in place, with tourism to continue playing an important role in the medium term, despite several setbacks. It is expected that the economy will ultimately revert to its pre-pandemic growth trend, of around six to eight percent, supported by a robust public investment program. Budget deficits will remain elevated in the near term. Main risks include recurrent virus outbreaks amid lagging vaccine rollout, prolonged weakness of the external demand or adverse structural changes in global travel and tourism patterns.

Despite the pandemic, Rwanda's public debt remains sustainable, according to the IMF. Debt increased by over 30 percentage points since 2012, to 58 percent of GDP in 2019 (including some four percent of GDP in guarantees), to finance large public investments. Due to lower growth and deficits higher for longer, debt is expected to increase further, by over 20 percentage points, to 79 percent of GDP in 2021. Bringing debt down to the 65 percent target is no longer expected before 2030. Reflecting increased risks, IMF changed Rwanda debt distress risk rating from low to moderate. Rwanda's sovereign risk rating is B+ (Fitch, S&P) and B2 (Moody's). Through the pandemic, all agencies changed the rating outlook to 'negative,' citing the longer-than-expected impact of the crisis on debt and fiscal accounts (S&P, Fitch), and a risk that the pandemic might durably impair certain sectors of the economy, such as tourism (Moody's). There are several mitigating factors, including a large share of financing from official sources on concessional terms with long maturities (which makes public debt affordable), good relations with development partners, adequate foreign exchange reserves, continued access to markets (tested in August 2021 with a new Eurobond) and the country's otherwise robust growth potential. According to the IMF, the Rwandan authorities remain committed to starting the necessary fiscal consolidation before the program expires in 2023, to arrest the debt dynamics and bring down debt levels to below the thresholds prescribed by the IMF and the EAC.

Add: Tower A, Asia Financial Center, Chaoyang District, Beijing, China 100101
Tel: +86-10-8358-0000 Fax: +86-10-8358-0000 http://www.aiib.org