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Report No: PAD4715

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED CREDIT

IN THE AMOUNT OF SDR 29.5 MILLION
(US$40.7 MILLION EQUIVALENT)
FROM THE IDA CRISIS RESPONSE WINDOW

TO

MONGOLIA

FOR A

SMART GOVERNMENT II PROJECT

May 13, 2022

Digital Development Global Practice
East Asia And Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2022)

Currency Unit =	Mongolian Tugrik (MNT)
MNT2955 =	US$1
US$1.3824 =	SDR1

FISCAL YEAR
July 1 – June 30

Regional Vice President: Manuela V. Ferro

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ABBREVIATIONS AND ACRONYMS

$	All dollars are in United States dollars unless otherwise indicated
ASA	Advisory Services and Analytics
CIRT	Cybersecurity Incidence Response Team
CGAP	Country Gender Action Plan
CITA	Communication and Information Technology Authority
CO_2	Carbon dioxide
CPF	Country Partnership Framework
CRW	Crisis Response Window
CS	Office of the Cabinet Secretariat
DRC	Disaster Recovery Center
FM	Financial Management
GASR	General Authority for State Registration
GDP	Gross domestic product
GIS	Geographic information system
GoM	Government of Mongolia
ICT	Information and communication technologies
IDA	International Development Association
IFR	Interim financial report
IT	Information technology
M&E	Monitoring and evaluation
MoF	Ministry of Finance
MDDC	Ministry of Digital Development and Communications
NCCP	National Cloud Computing Platform
NCLE	National Center for Lifelong Education
NDC	National Data Center
NSO	National Statistics Office
PDO	Project Development Objective
PIU	Project Implementation Unit
PSC	Project Steering Committee
PWD	Persons with disabilities
SME	Small and medium enterprises
WB/WBG	World Bank/World Bank Group

Contents

DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Mongolia	Smart Government II Project	
Project ID	**Financing Instrument**	**Environmental and Social Risk Classification**
P176631	Investment Project Financing	Moderate

Financing & Implementation Modalities

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

Expected Approval Date	Expected Closing Date
06-Jun-2022	30-Jul-2027

Bank/IFC Collaboration

No

Proposed Development Objective(s)

To improve the usability and efficiency of online public services to citizens and businesses, and to increase digital skills and digital-enabled jobs.

Components

Component Name	Cost (US$, millions)
Enabling Environment for Digital Transformation	1.40
Transforming Digital Government	29.55
Growing the Digital Economy	8.75
Project Management Support	2.00
Contingent Emergency Response	0.00

Organizations

Borrower:	Mongolia
Implementing Agency:	Cabinet Secretariat

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	41.70
Total Financing	41.70
of which IBRD/IDA	40.70
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	40.70
IDA Credit	40.70

Non-World Bank Group Financing

Counterpart Funding	1.00
Borrower/Recipient	1.00

IDA Resources (in US$, Millions)

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
Mongolia	40.70	0.00	0.00	40.70
Crisis Response Window (CRW)	40.70	0.00	0.00	40.70
Total	**40.70**	**0.00**	**0.00**	**40.70**

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2022	2023	2024	2025	2026	2027	2028
Annual	0.00	1.50	4.50	7.00	11.00	13.00	3.70
Cumulative	0.00	1.50	6.00	13.00	24.00	37.00	40.70

INSTITUTIONAL DATA

Practice Area (Lead)

Digital Development

Contributing Practice Areas

Education, Finance, Competitiveness and Innovation, Governance, Poverty and Equity

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Moderate
7. Environment and Social	Moderate

8. Stakeholders	Moderate
9. Other	Substantial
10. Overall	Substantial

COMPLIANCE

Policy

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

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

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

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

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

Legal Covenants

Sections and Description
Institutional Arrangements - Financing Agreement: Schedule 2, Section I.A (Recurrent, Continuous): The Recipient shall maintain, throughout the period of implementation of the Project a Project Steering Committee and a Project Implementation Unit; both with composition, functions, staffing and resources satisfactory to the Association and set out in the Project Operations Manual.

Sections and Description
Project Operations Manual - Financing Agreement: Schedule 2, Section I.B (Recurrent, Continuous): The Recipient shall prepare and adopt the Project Operations Manual and thereafter ensure that the Project is carried out in accordance with the Project Operations Manual, and not amend, waive or abrogate any provisions of the manual unless the Association agrees otherwise in writing.

Sections and Description
Annual Work Plans and Budgets - Financing Agreement: Schedule 2, Section I.C (Recurrent, By December 31 annually): The Recipient shall, prepare and furnish to the Association for its no-objection no later than December 31 of each fiscal year an annual work plan and budget (AWPB) during the implementation of the Project containing relevant Project activities and expenditures proposed to be included in the Project in the following fiscal year, including a specification of the sources of financing and the Recipient's proposed counterpart share in the cost of the AWPB.

Sections and Description
Environmental and Social Standards - Financing Agreement (Recurrent, Continuous): Schedule 2, Section I.D: The Recipient shall take all measures necessary to comply with the provisions of the Environmental and Social Commitment Plan and the Safeguards Instruments and, not amend, abrogate or waive any of their provisions unless the Association agrees otherwise, and report on their status of implementation as part of the project reports.

Sections and Description
Contingent Emergency Response - Financing Agreement: Schedule 2, Section I.E (In case of Eligible Crisis or Emergency): The Recipient shall prepare and adopt a satisfactory CERC Manual and Emergency Action Plan for Part 5 of the Project and ensure that the activities under said part are carried out in accordance with such manual and plan and all relevant safeguard requirements.

Sections and Description
Mid-term Review - Financing Agreement: Schedule 2, Section II.B (Once, 36 months after the Effective Date): The Recipient shall prepare and furnish to the Association a mid-term report in form and substance satisfactory to the Association.

Sections and Description
Adoption of a Digital Service Standard - Financing Agreement: Schedule 2, Section IV (Once, 12 months after the Effective Date): The Recipient shall, not later than twelve (12) months after the Effective Date, develop, and thereafter adopt, a digital service standard for public services provided on the E-Mongolia Portal in form and substance, and in a manner acceptable to the Association.

Sections and Description
Preparation and Implementation of a Transition Plan - Financing Agreement: Schedule 2, Section IV (Once, when the implementation responsibility is transferred): The Recipient shall not later than eighteen (18) months after the Effective Date (or such later date agreed with the Association in writing): (a) prepare and furnish to the Association a transition plan acceptable to the Association setting out the measures and actions aimed at ensuring the continued efficient carrying out of the Project in the event that the Recipient decides to transfer the implementation responsibility for the Project (or parts thereof) from the Cabinet Secretariat to MDDC (or such other government agency agreed with the Association); and (b) thereafter, incorporate said plan as accepted by the Association in the Project Operation Manual, and implement the said plan in a manner acceptable to the Association.

Conditions

Type	Financing source	Description
Effectiveness	IBRD/IDA	Financing Agreement: Article V.01: Recipient has adopted the Project Operations Manual in form and substance satisfactory to the Association.
Type	Financing source	Description
Disbursement	IBRD/IDA	Financing Agreement: Schedule 2, Section III.B: (i) the Recipient has determined that an Eligible Crisis or Emergency has occurred, and has furnished to the Association a request to withdraw Financing amounts under Category (2); and (B) the Association has agreed with such determination, accepted said request and notified the Recipient thereof; and (ii) the Recipient has adopted the CERC Manual and Emergency Action Plan, in form and substance acceptable to the Association.

I. STRATEGIC CONTEXT

A. Country Context

1. **Mongolia is a landlocked, lower-middle-income country with a rich natural endowment, but its economic potential has been hindered by its excessive reliance on natural resources.** A traditionally agriculture-based economy has shifted to a mining-based economy during the past two decades, following the exploration of large mineral deposits and a large flow of foreign direct investments to the mining sector. The country's economy has experienced rapid yet volatile growth over the last 15 years, creating a wave of economic prosperity across the country with investments in its infrastructure and social services. However, the mining-led growth has resulted in severe macroeconomic instability and is susceptible to external shocks, concentrated and enclave development, excessive capital accumulation, and low levels of innovation.[1] Currently the population of Mongolia stands at 3.3 million, half of which live in the capital. The poverty rate[2] dropped between 2010 and 2018 from 38 percent to 28 percent but remains high and around 42 percent of the poor live in Ulaanbaatar.[3] Nearly one third of the total population is nomadic, making access to public services difficult.

2. **A more diverse, sustainable, and resilient economy, with strong job growth, has long been a development objective for the Government of Mongolia (GoM).** Successive governments have announced goals and policies focusing on supporting non-mining sectors in the country, particularly sectors with high potential for job creation. Although the mineral wealth is potentially a key asset for Mongolia's development, the mining sector has faced challenges and only generated a low level of employment (approximately only 4 percent of the workforce in the country, due to the high level of automation in the mining industry). Diversifying and creating new drivers of economic growth, increasing productivity in non-mining sectors, and creating jobs underline many of GoM's policy actions. Because of its cross-cutting nature, digital technologies can spur delivery of services and create jobs across different sectors of the economy.

3. **The COVID-19 pandemic has had a significant impact on Mongolia; and has elevated the trend of digitalization to build a more resilient economy and public service provision.** Mongolia has managed the public health impact of the pandemic relatively well thanks to robust early prevention and vaccination efforts, with support from the Bank and other partners. The economy contracted by 4.4 percent in 2020, its worst recession since the 1990s, partly due to pandemic-related border restrictions. The pandemic has accentuated the weaknesses of an economy that's reliant on exporting natural resources and imports much of its goods; and revealed the digital divide among its population. But it also presented an opportunity to leverage the application of digital technologies especially in reducing disparities, increasing access, and making information more readily available to citizens.

4. **The crisis has added further momentum to the Government's longstanding commitment to use digital/ICT as new drivers of economic growth and to develop efficient and accessible public services.** Prepared prior to COVID-19, the country's vision 2050, adopted in early 2020, recognized the trend of digitalization and included a key objective of comprehensive use of ICT for public sector reforms and to build an 'e-Mongolia.' The policy aims to use ICT to promote accountability and information transparency and eliminate corruption and bureaucracies with the support of citizen participation. Citizen participation is a trigger for better service delivery and improved accountability. The vision also includes extensive plans to develop the information and communication technologies (ICT) industry by expanding research and development, building information technology (IT) clusters, improving its investment environment,

[1] World Bank. 2019. Mongolia Growth Study: Country Economic Memorandum 2.0.

[2] As calculated using the national poverty line.
http://www.rilsp.gov.mn/upload/2018/argazui//Yduurliin_Undsen_Uzuuleltuudiig_Tootsoh_Argachlal.pdf

[3] National Statistics Office, 2020.

increasing exports, and so on. This objective under Vision 2050 was translated further into the Government's economic recovery plan, detailed in paragraph 9.

5. **Mongolia ranks 69 out of 156 countries on the global gender gap,[4] with significant room for improvement on female participation in the labor market, particularly within the ICT sector.** Several gaps remain in women's participation in the labor market. This is despite the institutional and legal environment being supportive of gender equality, and the country's notable progress on gender parity in education[5] through setting up institutional[6] and legal safeguards for women[7]. These gaps are more pronounced in the ICT sector. Broadly, at the national level across sectors—female labor force participation shows a 15-percentage point gap and female forced labor has been falling over the last decade (2006-20). The following gaps are notable in the ICT sector: (a) labor market participation gap of 36 percent[8] primarily on account of cultural barriers and lack of flexible work options,[9] (b) digital skills and wage gap; women are less likely to occupy technical or senior managerial positions and a wage gap is prevalent,[10] and (c) limited women-owned and women-run small and medium enterprises (SMEs) with only 39 percent of SME owned by women and less competitiveness in women run/owned SMEs.[11] Women cite a lack of access to adequate skills, knowledge, and community support as key barriers in running entrepreneurial ventures or businesses.

6. **Faced with vulnerability to climate change, investments in strengthening energy security and capacity building through trainings and resilient ICT infrastructure and enhanced digital capacity can also contribute to climate mitigation and adaptation efforts.** The country currently ranks 67 out of 181 in the Notre Dame Global Adaptation Index[12] (72nd on vulnerability and 70th on readiness), indicating vulnerability to climate change and scope for improving readiness. Vulnerability (as also highlighted by the World Bank climate risk profile)[13] stems from rising temperatures which is likely to significantly impact energy security (a 1 percent change in ambient temperature can result in a 0.5 to 8.5 percent change in electricity demand),[14] induce risk of droughts, flooding or *dzud*[15] damaging physical infrastructure including digital (e.g., overheating of data centers)[16] and disrupting critical government service delivery. Factors

[4] Global Gender Gap, World Economic Forum, 2021. *https://www3.weforum.org/docs/WEF_GGGR_2021.pdf*
[5] As per Human Capital Index, women score higher than men at 0.68 vs 0.59 for men and female literacy rates are also at par with men, Human Capital Index, 2020.
[6] National Council for Gender Equality (NCGE) was established in 2001 to mainstream gender policies in the national programs. The Law on Promotion of Gender Equality established in 2011 set the foundation for the first wave of gender-responsive national programs from 2002-2015 and the second wave of programs for 2017-2021.
[7] The Constitution of Mongolia (1992) guarantees gender equality, stating in Article 16: 'Men and women have equal rights in the political, economic, social, cultural life and family relations', and Article 7 in the labor law restricts any gender discrimination.
[8] According to labor market statistics by the NSO, in 2018 there were 15,176 people working in the ICT sector, of which 5,519 (36.4 percent) were female, Ministry of Labor and Social Protection, Mongolia Comprehensive National Review, May 2019. *https://asiapacificgender.org/sites/default/files/documents/Mongolia_(English).pdf*
[9] Digital Readiness Assessment, Mongolia in the Digital Age, Access Solutions Inc. 2020. *https://artnet.unescap.org/sites/default/files/file-2019-11/Digital%20Readiness%20Assessment%20Final%20Draft%20%2009.09.pdf*
[10] Digital Readiness Assessment, Mongolia in the Digital Age, Access Solutions Inc. 2020. *https://artnet.unescap.org/sites/default/files/file-2019-11/Digital%20Readiness%20Assessment%20Final%20Draft%20%2009.09.pdf*
[11] SMEs, and Women-owned SMEs in Mongolia, Market Research Study, IFC, 2021, *https://www.ifc.org/wps/wcm/connect/fa1da257-f7a3-43a7-961f-720c19eb9e25/Women+SMe-Mongolia-Final.pdf?MOD=AJPERES&CVID=kFmAtKt*
[12] ND GAIN index, The ND-GAIN Index ranks 181 countries using a score which calculates a country's vulnerability to climate change and other global challenges as well as their readiness to improve resilience. The more vulnerable a country is the lower their score, while the more ready a country is to improve its resilience the higher it will be. *https://gain-new.crc.nd.edu/country/mongolia*
[13] Climate Risk Country Profile, Mongolia, World Bank and Asian Development Bank, 2021. *https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15813-Mongolia%20Country%20Profile-WEB.pdf*
[14] Santamouris, M., Cartalis, C., Synnefa, A., & Kolokotsa, D. (2015). On the impact of urban heat island and global warming on the power demand and electricity consumption of buildings—A review. Energy and Buildings, 98, 119–124. DOI: https://doi.org/10.1016/ j.enbuild.2014.09.052
[15] A climatic phenomenon common to Mongolia that of a summer drought followed by a severe winter
16 Mongolia Climate Change and Disaster Risk Profile, UNESCAP

contributing to low readiness include primarily limited use of energy efficient and resilient ICT infrastructure[17] and low capacity and awareness of disaster preparedness.[18] From 1940-2015 the recorded trend of increase in temperatures of over 2°C (higher than global average) and decreasing rainfall has amplified the existing harsh climatic conditions in Mongolia. By 2050, the country is expected to see further increase in temperature by 2°-3°C, changing rainfall patterns resulting up to 60 percent increase in extreme weather events such as droughts, heat waves, storms, and melting of permafrost and floods necessitating adequate preparedness and response. Climate change induced desertification and land degradation causes additional pressure on arable land, and pollution from industrialization and household burning of fossil fuels exacerbates air pollution, particularly in the capital in winter. The average economic loss caused by natural and human induced hazards is equivalent to 2.5 percent of gross domestic product (GDP).[19] Annex 4 provides the details on climate change risks and drivers, and what the Project will do to help address the risks.

[17] ND GAIN Index exhibits low scores for ICT Infrastructure readiness, score of 0.423. *https://gain-new.crc.nd.edu/country/mongolia*
[18] ND GAIN Index exhibits high vulnerability score on "disaster preparedness" score of 0.57. *https://gain-new.crc.nd.edu/country/mongolia*
[19] Research Report on Resilient Infrastructure in Mongolia, UNESCAP, 2020.
https://www.unescap.org/sites/default/files/Research%20report%20%20on%20resilient%20infrastructure%20in%20Mongolia.pdf

B. Sectoral and Institutional Context

7. **Digital technologies and ICTs are highly useful and proven tools for countries to transform public services and the public administration, create job opportunities, and increase private sector competitiveness.** Digital technologies have changed the way governments globally deliver public services and collaborate with citizens and businesses. These technologies also connect people and markets, providing new forms of social exchange, new services, new business models, and new jobs in the digital economy. This is especially important in the case of Mongolia, which strives to diversify the economy from reliance on mining and digital can be a catalyst for growth in other sectors. Digitized societies have benefited through adoption and integration of ICT at home, work, education, and recreation. Countries, including Mongolia, need to be prepared for the impact of disruptive technologies that are transforming economies and societies, and present new opportunities for development[20] .

8. **COVID-19 has added impetus for Mongolia's use of digital technologies to ensure recovery from the pandemic and resilience to future shocks.** The pandemic has demonstrated more than ever that resilient, safe, high-quality, accessible, and affordable digital infrastructure and services are a critical foundation for the well-being of modern societies. The lockdown imposed by the pandemic has showcased the value of digital technologies, which are key solutions to minimize disruption to work and schools and ensure business continuity in the face of social distancing. In this period, the GoM agencies endeavor to continuously offer key government functions and service delivery to its citizens and businesses, while many government officials adopted home-based work arrangements. This unique opportunity can be catalytic in deploying digital technologies in innovative ways to meet current and future challenges.

9. **GoM has set high digital ambitions and taken significant actions for Mongolia's digital transformation in the last two years.** Under Objective 5.3 of Vision 2050, GoM aims to develop an effective and efficient e-governance to promote human development. Starting in 2020, GoM launched the 'Digital Nation' initiative which acknowledged that 'the Information and Communications Technology sector is the accelerator of Mongolia.' In the same year the GoM successfully developed and launched 181 online public services through the e-Mongolia digital platform. The country has taken steps to develop e-governance policy and legal framework and is keen to align the framework, its implementation, technology, and development, with international best practices. In the Cabinet meeting of February 3, 2021, Prime Minister Oyun-Erdene Luvsannamsrai emphasized the importance of e-Mongolia, which aims to minimize bureaucracy in government services, and urged Cabinet members to intensify its implementation. The e-Mongolia platform currently has 571 services and has been used 6 million times by more than 2 million citizens and businesses, and GoM has approved plans to establish a dedicated Ministry of Digital Development and Communications (MDDC) to help focus and scale-up the government's effort to digitize the country. MDDC has started operations in February 2022.

10. **GoM is successfully implementing the Smart Government Project (P130891, 'original project') that has laid the basic technology foundations for digital transformation, proven their implementation capabilities, and achieved all its targeted results.** All of the original project's results have been achieved before its closing in August 2022 despite initial challenges and it has provided critical foundations for Mongolia's digital transformation. For example, it strengthened civic engagement by including online channels into their 11-11 call centers for timely and transparent resolution of citizen's feedback. The original project provided critical digital enablers for online service delivery by strengthening the National Data Center (NDC), developing a Disaster Recovery Center (DRC), providing a National Enterprise Architecture Framework, and a Data Exchange Center. The e-Property registration system launched in 2020 directly reduced the number of days required for property registration from 14 to 7 days. The original project's Open Data Portal (*http://opendata.gov.mn*) allowed 12 government ministries to provide and manage their open data in the portal and enabled Mongolia to be ranked 9 out of 187 countries in the Open Data Inventory's assessment for 2020.[21]

The original project's implementation arrangements have proven to be highly effective and provide a solid basis for future digital initiatives.

11. **Several key issues hinder Mongolia's digital ambitions, despite the achievements of the original project and GoM's significant actions in these recent years**. These include the need for citizens, businesses, and government officials to be able to operate in a safe and secure digital environment, disparities in access to broadband connectivity, the need for interoperability to address a fragmented approach to digital services delivery, the digital capabilities of Mongolia's workforce and private sector, and the use digital technologies for future crises or emergencies. The significant level of poverty prevents many citizens from having the resources to access even available technologies; this is exacerbated in the nomadic populations who, by virtue of their lifestyles and locations, are more difficult to reach.

12. **Enabling a safe, and secure digital environment is a fundamental requirement for the country's digital transformation, and Mongolia currently lacks the necessary legal frameworks for cybersecurity and data protection.** Technological advances continue to improve the quality and delivery of services and products and reduce costs. While expanding the use of digital solutions and data has brought many benefits and conveniences to the public and private sectors, an enabling digital environment is necessary to fully realize the anticipated benefits of digital transformation. The demands on security and privacy within the data transaction continuum have changed substantially in light of the increasing concerns of data protection and cybersecurity[22]. It is necessary to foster a new social contract that enables use of data and services to create economic and social value, while ensuring equitable access and fostering participants' trust that they will not be harmed by data misuse. As factors of digital services continue to evolve, GoM must respond with policies, laws, regulations, and other components of an enabling digital environment to improve citizens' and businesses' confidence and participation. In addition to the digital safeguards which will be instituted in the Project, GoM will benefit from deploying an extensive citizen-facing communication and education program to help build trust among citizens that they can access services in a secure, digital way.

13. **Disparities in urban and rural broadband connectivity and 5G technologies is contributing to a widening digital divide.** The Vision 2050 document has targets to: (a) provide high speed Internet connection for 90 percent of the population; and (b) ensure that at least 70 percent of the rural populations use broadband Internet services as its Phase 2 (2021-2025) goals. Many farmsteads (*baghs)* are still relatively underserved with 62 percent of 4G LTE subscribers in Ulaanbaatar and 38 percent in the provinces. The now closed World Bank (WB) financed FY06 Information and Communications Infrastructure Development Project (P092965) supported the expansion of 2G and 3G digital connectivity to the rural population. In creating a safe and secure digital operating environment, the GoM will need to ensure that Mongolia's citizens and businesses have access through advanced networks and applications.

14. **GoM's current approach to building online services delivery and developing digital government infrastructure and services is fragmented.** Various agencies, such as the General Authority for State Registration (GASR) and former Communication and Information Technology Authority (CITA), provide digital public services in GoM. Except for a shared data center for hosting and a few cross-agency services, GoM agencies generally pursue their own investments in public sector IT infrastructure, applications, and services. This results in information silos, duplication of IT assets, increased cybersecurity vulnerabilities, and weakened resilience to pandemics and climate-

[20] World Bank. Disruptive Technologies for Development (DT4D): Unleashing Innovation in Developing Countries. https://olc.worldbank.org/content/disruptive-technologies-development-dt4d-unleashing-innovation-developing-countries

[21] Mongolia ranked 11 out of 178 in the 2018 Open Data Inventory assessment.

[22] The inadequacies in Mongolia's data protection cybersecurity laws appear technical rather than rights based. These laws are generally broad and could benefit from greater clarity as they are missing key provisions such as for international transfer of personal data and conditions for notifying the cyber authorities and victims.

related emergencies. The e-Mongolia site achieved initial success in providing online service delivery to citizens, but further investments to enhance the government's backend systems and service delivery is required. Because of this fragmented development, there are legacy systems which will need to be retrofitted or replaced to enable systems and data interoperability. Going forward, GoM will need to take an integrated, whole-of-government approach to realize its digital ambitions for public service delivery and public sector transformation in a faster, and more efficient and effective manner.

15. **Mongolia needs to grow its digital economy for the country's development priorities on resilient and inclusive economic diversification and competitiveness.** The digital economy is not restricted to Mongolia's ICT sector but rather encompasses the adoption of digital technology in all sectors to drive economic growth, innovation, job creation, human capital development, and other means of diversifying and transforming the economy. The digital economy remains at a nascent stage in Mongolia and its growth is hindered by the population's poor digital capabilities and the private sector's low level of technology adoption. Mongolia will need to increase the overall digital skills of its civil service, citizens, and workforce; and create digital-enabled jobs, with special attention to enhancing female participation in the ICT profession to reduce the gender digital divide.[23] Local firms will need to adopt digital technologies to improve their productivity and compete in the digitized global economy.

[23] More in-depth analysis related to differences between women and men in ICT access, usage and jobs, digital skills and women's participation in the digital sector will be conducted during the Project's appraisal.

C. Relevance to Higher Level Objectives

16. **The proposed Smart Government II Project (the Project) is fully aligned with IDA19's overarching and special themes and its cross-cutting issues.** It supports IDA19's overarching themes of growth by building Mongolia's digital economy, focuses on people through user-centric public services for citizens, and increases the government's and businesses' resilience through an integrated digital government approach and the private sector's digitalization. The Project supports IDA19's special themes on 'Jobs and Economy Transformation' (JET), Climate Change, Gender and Development and Governance and Institutions; by generating digital-enabled jobs for youths, increasing the use of online public services by citizens and businesses, investing in energy-efficient digital infrastructure, increasing women's participation in the digital economy at the firm-level, and taking a cyber-secured and integrated approach for the government's digital transformation. The Project is aligned with IDA19's cross-cutting issues on technology and people, particularly those with disabilities. It will assist Mongolian citizens, businesses, and its government in adopting transformation technologies that integrates and improves public services for women, persons with disabilities (PWD), and rural/remote inhabitants, enables online citizens engagement, supports use of disruptive technologies by the private sector, and builds national-level cybersecurity and cloud-based service delivery platforms.

17. **The Project is part of the World Bank Group's (WBG) support for resilient recovery and inclusive and sustainable growth as laid out in the Mongolia's Country Partnership Framework (CPF, Report No. 132141-MN) for FY21–25[24], and the shift of WBG engagements towards real economy sectors.** It will contribute directly to, and serve as a cross-sector enabler for, achieving the CPF's objectives and its digital-related results targets. The Project will be a digital enabler for the CPF's three focus areas to: (a) strengthen economic governance, (b) boost competitiveness, and (c) improve the quality of life for Mongolians, by providing the technology platform and service enablers for various sectors to develop, operate, and maintain digital services more effectively and efficiently. The Project makes direct contributions to the following CPF's objectives and results targets:

(a) **Objective 1.3: Strengthening government efficiency and accountability for better service delivery.** The proposed Project will further enhance Mongolia's legal environment for digital transformation, narrow the digital divide, provide online public services for citizens and businesses, and promote active citizenry online. It contributes to this CPF objective's target of providing public services for citizens and businesses that are based on usability standards through digital channels from 0 (2020 baseline) to 100 in 2025.

(b) **Objective 2.3: Increasing productivity in non-mining sectors.** The Project will catalyze the growth of Mongolia's digital economy by creating digital-enabled jobs for youths[25] (including women) and digitize SMEs for their increased productivity and competitiveness. It will contribute directly to this CPF objective's target of adopting a national digital economy strategy for economic competitiveness and diversification.

(c) **Cross-cutting theme on jobs.** The Project will create new jobs in Mongolia's digital economy, as described in Box 4 of the CPF. It will contribute directly to this CPF objective's target of increasing the number of digital-enabled jobs created from non (2020 baseline) to 3,000 in 2025.

(d) **Cross-cutting theme on climate change.** Mongolia has a strong dependence on coal in terms of domestic consumption, and data centers can consume significant amounts of energy. The Project's activities are in line with the CPF objectives and support both climate change adaptation and mitigation efforts (see below), and indirectly help Mongolia to lessen its reliance on coal.

18. **The Project fully supports the IDA Crisis Response Window's (CRW) main objective and the WBG's 2021 East Asia and Pacific Regional Update on 'Seizing New Opportunities for a Resilient Recovery'.[26]** It fulfils the CRW's

objective of providing additional and predictable financing to Mongolia as an IDA-eligible country hit by COVID-19 as a public health emergency. The Project's digital government investments are fully aligned with the regional update's imperative to catalyze technology, innovation, and digital transformation to improve education, service delivery, productivity and efficiency; and its digital economy investments support the regional update's recognition of the need for digital skills to support a resilient, inclusive, and sustainable economic recovery.

19. **The overall investments supported by this proposed Project are aligned with the Green, Resilient and Inclusive Development (GRID) agenda.** Investments to expand coverage of online public services, including digital connectivity is a key aspect of the agenda. This use of online services will reduce the need for citizens to travel for public services provided on a physical/face-to-face basis. This will reduce the travel-related CO_2 and green-house gas emissions. The Project supports green development by upgrading and converting GoM's two national-level data centers to a cloud computing platform to enhance energy efficiency. The platform will increase the overall resilience of GoM's IT systems as it reduces the risk of a single point of failure using dedicated server hardware and operating software. The cloud computing approach will enable GoM's systems to have increased resilience to pandemics and/or climate-related/natural disasters as their IT systems and services can switch between and use the available data center in case either one is affected by these emergency events. It will enable rapid sharing of critical data (such as pandemic-related data) across ministries and agencies for improved capacity and coordination. Women are at the center of the GRID agenda as powerful agents of change. The contribution of this Project to the WBG's Gender Strategy (FY16-23),[27] to the Country Gender Action Plan (CGAP) for Mongolia (FY19-23),[28] and to women's increased participation in digital spaces is detailed further in the paragraph below.

20. **The Project will directly contribute to priorities set by the National Council for Gender Equality and the WB's Country Gender Action Plan (CGAP) for FY19-23**. Enhancing women's access to economic opportunities and growing women led businesses is one of CGAP's key priorities. Low participation of women in starting and owning enterprises, including in non-mining sector SMEs, and gender barriers to women's labor market participation are identified by CGAP as some of the primary causes hindering women's economic empowerment. The CGAP priorities have been identified in close alignment with the WBG Gender Strategy. Removing constraints for more and better jobs for women and removing barriers to women's ownership of and control over assets are two of the Gender Strategy's four primary objectives. *(See Annex 3 for details of a gender analysis identifying key gaps and highlighting how they will be addressed through the Project).* The Project activities are aligned to support improving women's participation in the workforce, specifically in ICT, primarily through the provision of digital skills training, direct access to digital jobs, and support for growing women-owned and women-run SMEs in the ICT sector. These efforts are also expected to have a spillover effect on the role of women in the broader economy. Key initiatives include the following:

[24] World Bank Group. 2021. *Country Partnership Framework for Mongolia for the Period FY21-FY25: Report No. 132141-MN*. *https://documents.worldbank.org/en/publication/documents-reports/documentdetail/820241621966528091/mongolia-country-partnership-framework-for-the-period-fy21-fy25*

[25] Defined as persons between the ages of 15 to 24 years by the United Nations. Refer to United Nations. Global Issues – Youth. https://www.un.org/en/global-issues/youth

[26] World Bank Group. 2021. East Asia and Pacific Regional Update. https://worldbankgroup.sharepoint.com/sites/EAP/Documents/EAP%20Regional%20Updates%202021%20FINAL.pdf

[27] World Bank Group. 2015. World Bank Group Gender Strategy (FY16-23): Gender Equality, Poverty Reduction and Inclusive Growth. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/23425 License: CC BY 3.0 IGO."

[28] World Bank Group. 2019. Country Gender Action Plan for Mongolia (FY19-23). World Bank, Washington, DC. https://operationsportalws.worldbank.org/Pages/WorkingDocuments.aspx?projectid=P169119

(a) Addressing the identified digital literacy gap through targeted digital skills training for both female government civil servants and citizens customized to needs of women and held at locations and through modalities accessible to women across the country (subcomponent 3.1).
(b) Addressing the identified gender employment gap in the digital/ICT industry through offering access to digitally enabled jobs; including more flexible and preferred by women such as -online freelancing jobs, supporting a 'hire and train' program for women (subcomponent 2.3), and maintaining gender parity within staff in the new ICT institutions established through the Project (subcomponent 2.3).

(c) Addressing the identified gap of limited competitiveness of women-owned/run SMEs in ICT by providing training on managerial skills and leadership, business expansion, and building competitiveness by leveraging digital technologies for expansion, and assisting on accessing capital (subcomponent 3.3).

21. **The Project will contribute to Mongolia's targets set out in the National Adaptation Plan (2018-21),[29] Mongolia's Green Development Policy (2014-2030)[30] and Nationally Determined Contributions for 2030,**[31] through its activities that support climate change adaptation and mitigation. (Refer to annex 4 for more details). The Project supports climate change adaptation efforts through: (a) building resiliency in critical infrastructure (data centers) allowing continuity of operations in events of floods, droughts, *dzuds* or other climatic events through establishing green data center standards and the National Cloud Computing Platform (NCCP) which will reduce single point of failure, allow data recovery and continuity of operations (subcomponent 2.2); (b) providing digital training for civil servants and ministries to build capacity and raise awareness on climate change adaptation (subcomponent 3.1); and (c) facilitating weather and disaster monitoring and emergency response through setting up the geographic information system (GIS) (subcomponent 2.2) and providing real time emergency response, and share information on preparedness and warnings regarding climatic events (floods, *dzuds*, droughts) (subcomponent 1.3). The Project contributes to Mongolia climate change mitigation by providing: (a) technical assistance on energy efficiency standards in policies (subcomponent 1.1); (b) establishing NCCP replacing energy consuming data centers and technical assistance on green data centers (subcomponent 2.2); (c) providing 100 additional digital services resulting in reducing emissions from travel for face to face transactions contributing to 0.2 percent of Mongolia's 2030 mitigation targets (subcomponent 2.2); and (d) capacity building for new ministry and civil servants through training on climate change mitigation measures, awareness on energy efficiency and recycling for citizens through targeted trainings (subcomponent 3.1).

[29] The National Adaptation Plan 2018-21 sets goals for building resilience to natural disasters, first submission to NDC, UNFCC. *https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Mongolia%20First/First%20Submission%20of%20Mongolia%27s%20NDC.pdf*
[30] See: *https://www.oneplanetnetwork.org/sites/default/files/mongolia_national_green_development_policy_2014_-_2030.pdf*
[31] Mongolia has set a NDC target of mitigation equivalent to 22.7% reduction in total national green-house gas emissions by 2030 compared to the projected emissions under a business-as-usual scenario for 2010. First submission to NDC, UNFCC, See here: *https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Mongolia%20First/First%20Submission%20of%20Mongolia%27s%20NDC.pdf*

II. PROJECT DESCRIPTION

A. Project Development Objective (PDO)

22. **PDO Statement:** To improve the usability and efficiency of online public services to citizens and businesses, and to increase digital skills and digital-enabled jobs.

23. **PDO-level indicators.**[32] Progress toward the achievement of the PDO would be assessed using the following PDO-level results indicators:

(a) Share of Project's online public services compliant with standards on human-centric design, presentation, and navigation for improved usability (Percentage)[33],

(b) Cost-efficiency savings from use of the shared cloud computing platform by GoM agencies[34](Amount in US$ millions),

(c) Increased digital skills of beneficiaries trained by the Project[35], of which the beneficiaries are women (Number), and

(d) Digital-enabled jobs created by the Project, of which taken by women (Number).

[32] Refer to section VII on 'Results Framework and Monitoring' for additional definition and description of these indicators

[33] The Project's public services will be evaluated for their compliance to a set of standards for improved usability as compared to the existing online public services provided by GoM. These standards will be developed by the Project based on studies that identify the usability issues with GoM's existing services, and recommendations to improve the usability of these services. The purposes of these standards are to provide definitions, guidelines, and rules to help ensure that GoM's public services are simple, clear, consistent, and easy to use for citizens and businesses. The standards will include (a) human-centric processes for service design , (b) a style guide to establish visual, writing and formatting of content and services, and navigation controls and menus to improve usability by ensuring consistency across digital services, (c) a business process improvement guide to identify opportunities to improve accuracy, effectiveness and/or efficiency of the service's processes and compliance information on cybersecurity, user privacy, and use of common service enablers provided by the Project.

[34] The cost-efficiency savings will be calculated for each new public sector digital systems or services adopting the cloud computing platform. It will compare the cost to develop, host and operate the new digital system and/or service using the cloud computing platform, and the cost to develop, host and operate the system or service without using the platform (whereby the relevant government agency will have to procure additional hardware, software and/or enablers). The savings from each of these adopters will be added to calculate the total savings over the project's duration.

[35] The indicator will reflect the increased digital skills of the trainees before and after the training. The indicator consists of a composite of two skills tests for Subcomponent 3.1's (a) practical digital skills training for 3,000 civil servants, and (b) digital literacy training for 10,000 citizens. The tests will be developed based on existing skills testing methodologies, such as the European Commission's DigComp Framework and Minnesota's use of the Northstar Digital literacy test described in Annex B. These skills tests will be administered by the training firm before and after the training.

B. Project Components

24. **The total Project cost is $41.7 million and will have five components that collectively contribute to building a whole-of-government approach for public services and public sector transformation, and the development of Mongolia's digital economy.** The Project will be financed through an IDA credit from the CRW of $40.7 million and a $1 million government in-kind contribution to support operating costs, including expenditures that are not eligible for WB financing under the current financing parameters. It will be an enabler for digital initiatives across government agencies by increasing the usability of online public services and efficiency digital government investments. It will catalyze the growth of Mongolia's digital economy for digital-enabled jobs and for economic competitiveness, diversification, and resilience. A contingent emergency response component has been added to the Project's design to allow for greater flexibility in responding to any emergency crises during implementation. The Project is anticipated to include minor civil works for improving the energy-efficiency of the existing data centers, and spaces in existing buildings may be rehabilitated for office seating, electrical retrofitting, cable routing, and so on. The components and subcomponents are as follows, and the detailed project description is in Annex 2.

25. **Component 1. Enabling Environment for Digital Transformation ($1.4 million)**

a. *Subcomponent 1.1. Strengthen Policies and Regulations for Digital Transformation.* Carrying out gap analysis on and providing technical assistance to strengthen digital-related legal, regulatory, policy and institutional frameworks.

b. *Subcomponent 1.2. Change and Stakeholder Management for the Project's Digital Government Investments.* (a) Carrying out a change management assessment and developing an action plan to mitigate the identified challenges in adopting and using digital government investments; and (b) providing capacity building support to relevant government officials and stakeholders on leading and communicating change.

c. *Subcomponent 1.3. Promote Online Engagement/Participation of Citizens.* (a) Implementing and using an online platform and tools to engage with communities and social groups.

26. **Component 2. Transforming Digital Government ($29.55 million)**

a. *Subcomponent 2.1. Improve Usability and Efficiency of Digital Public Services and Provide Strategic Services.*

(i) Digitizing selected public services on the E-Mongolia Portal and developing a digital service standard for the public services; and

(ii) Implementing strategic integrated digital services through: (i) expanding the functionalities of the existing electronic procurement system, (ii) developing a single window for online business licensing and permits, (iii) implementing the second phase of the system for conflict of interest, income and asset declaration, (iv) developing an electronic codification database, electronic decision making, archiving, performance management and digital cabinet system, (v) upgrading and sustaining the national tourism integrated platform, (vi) developing an online system for registration of forestation, afforestation and reforestation, and (vii) developing an online system to provide citizens with access to digitalized laws and regulations and recordings of parliament meetings.

b. *Subcomponent 2.2. Upgrade the National and Disaster Recovery Data Centers.* Carrying out a program

of activities to enhance the existing National Data Center and Disaster Recovery Center including: (a) upgrading the hardware capacity of the centers and transforming them into a national cloud computing platform; (b) adding common service enablers for shared use by relevant government agencies; (c) assessing the possibility of using commercial cloud computing services and adopting an edge computing model with decentralized infrastructure; and (d) improving energy efficiency of the cooling and power systems of the data centers.

c. *Subcomponent 2.3. Strengthen the Cybersecurity Incidence Response Team (CIRT) and Security of State Registration Data*. (a) Supporting the establishment and operation of a national-level cybersecurity incidence response team; and (b) strengthening the security of the recovery center system of GASR by providing hardware, and database- and security- related licenses.

27. ***Component 3*: Growing the Digital Economy ($8.75 million)**

a. *Subcomponent 3.1. Digital Skills Training for Civil Servants and Citizens.* (a) Providing training on practical digital skills to civil servants and public administration officials; (b) developing a strategy on public sector digital skill training and enhancing the government's online training portal; (c) providing capacity building support to improve digital capacity of relevant government agencies; (d) implementing a catalytic digital literacy program to provide basic and needed digital skills for targeted groups of citizens; and (e) developing a citizen digital literacy platform to document training curriculum and content, trainee assessments, training statistics, and e-certificate issuance.

b. *Subcomponent 3.2. Digital-enabled Jobs for 3,000 Youths.* Implementing a job creation program for the youths through: (a) developing a curriculum for training on fundamental digital skills and supporting its integration in training programs of educational institutions; (b) providing trainings to targeted information communication technology (ICT) students on digital skills required for ICT professionals and basic cognitive and socioemotional skills; and (c) providing training support to selected local information technology companies.

c. *Subcomponent 3.3. Support Small and Medium Enterprises to Adopt Digital Solutions.* (a) Developing a digital transformation road map for small and medium enterprises (SMEs) with business continuity considerations; (b) providing technical assistance to SMEs interested in digitalization; (c) carrying out job-matching activities for SMEs' hiring of youths for digital-enabled jobs; and (d) curating common/horizontal enterprise applications available in the market for use by SMEs.

28. **Component 4. Project Management Support ($2 million, including counterpart financing of $1 million)**

a. Providing technical and operational support for project management and coordination, including financial management and disbursement, procurement, environmental and social risk and impact management, grievance redress mechanisms, and monitoring, reporting and evaluation.

29. **Component 5. Contingent Emergency Response ($0)**

a. Provision of immediate response to an Eligible Crisis or Emergency, as needed[36].

[36] This component will allow the Project to provide urgent digital-based responses during emergencies, such as providing additional remote work systems and support for government officials and/or Internet bandwidth for remote health facilities and educational institutions.

C. Project Beneficiaries

30. The Project will have four direct beneficiaries and they include:

(a) **Government agencies and officials** will have strengthened capabilities to provide public goods more efficiently and effectively. Government agencies will be able to bring public services online, and ensure that these services are citizen-centric, fast, and secure. The Project will support the GoM to enhance the legal, regulatory, policy and institutional frameworks for data protection, cybersecurity, cybercrime, electronic transactions, e-commerce, and cloud computing. Civil servants will be able to exercise adaptive and agile leadership in facilitating digital transformation of the public sector and raise their level of digital proficiency in workplace productivity, and cybersecurity protection. The Project will furnish government agencies with strategies to reduce the digital connectivity gap through the promotion of private investment and reduce the usage gap by using human-centered design in the re-engineering of digital public services.

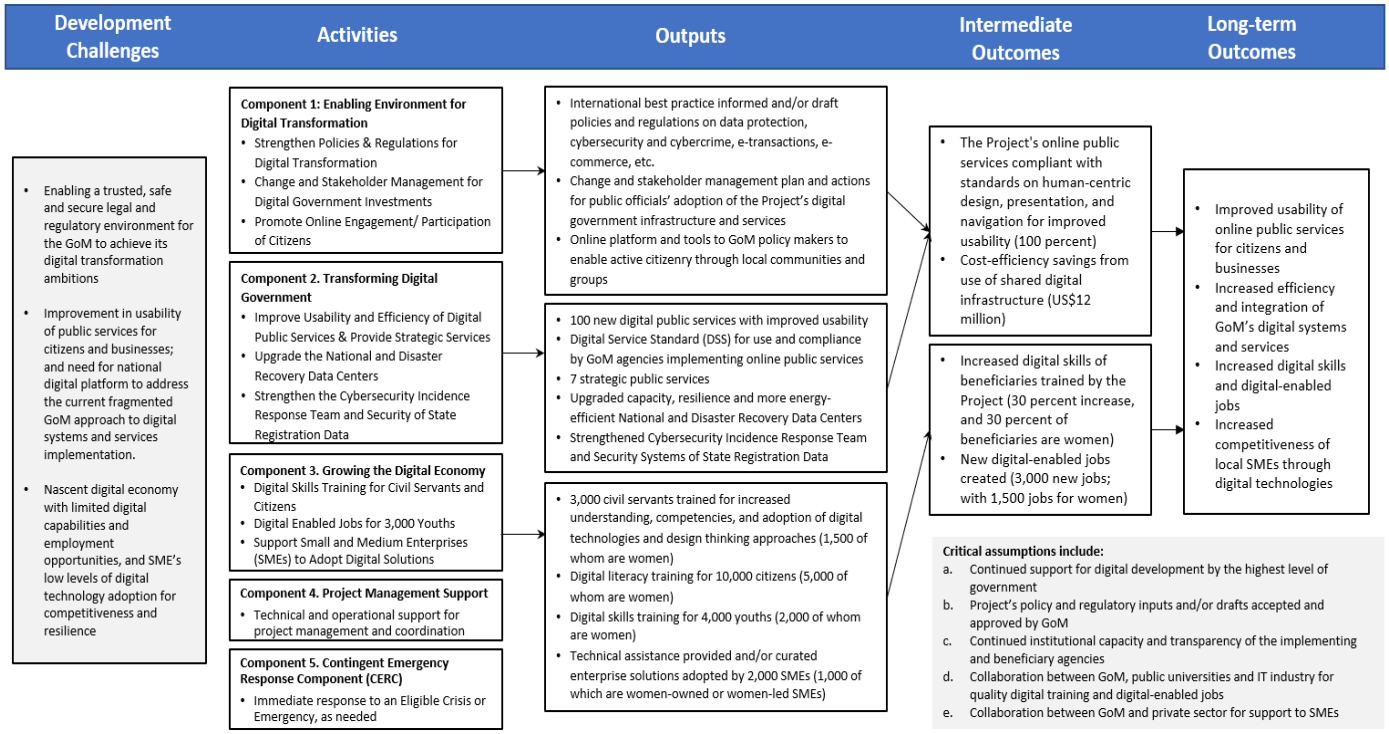
(b) **Citizens** will have better access to and improved customer experience in government services and will also have increased opportunities to have their voices heard and to participate in the decision-making process of GoM, thereby shaping policies that impact their lives. Moreover, the Project will improve the digital literacy of citizens through training. Especially for youth and young women, the Project will offer specialized training in mainstream technologies (e.g., coding, apps development, UI/UX, agile methodology) that can enhance their candidacy in IT sector jobs. The digitally divided, especially disadvantaged women, PWD, ethnic minorities, and rural inhabitants will benefit from tailored training programs to raise their knowledge on basic digital proficiency to be digital connected, have access to digitalized knowledge and services from the public and private sector, to be better informed of country and global developments, and participate and contribute to Mongolia's digital transformation and economy.

(c) **Businesses** will benefit from increased competitiveness through the adoption of digital solutions, increased operational resiliency, increased SMEs' digital competencies, and job-matching programs to aid SMEs to increase the quantity and quality of hiring youths for digital-enabled jobs. SMEs will have opportunities to embark on digitizing their operations through guidance from the SME digital transformation roadmap, obtain advice on top and middle-management training options to increase their digital leadership skills, gain hands-on technical advice and guidance for the adoption of the curated open-source enterprise applications, and obtain assistance in assessing and applying for SME grants to digitalize their businesses.

(d) **Civil society**, including communities, grassroots organizations, and special interest groups, will be better equipped with online platforms and tools to actively engage with the government. Civil society will be able to use the online citizen engagement tools to provide feedback and participate in public deliberation and budgeting/planning.

D. Results Chain

Figure 1. Results Chain



E. Rationale for Bank Involvement and Role of Partners

31. **The WB is particularly well positioned to support this Project due to its global investments and deep expertise and successful experiences in digital development.** Among multilateral development banks and bilateral development agencies, the WB is the largest financer of digital-related projects and possesses the deepest digital development expertise and expertise for designing and delivering similar operations around the world. The WB has supported the digital agenda across six global regions for the past several decades (telecommunications agenda since the 1980s and digital government agenda since the 2000s). Lessons learned from recent operations worldwide (for example, in Afghanistan, Bangladesh, Georgia, Ghana, and Kenya) can be brought to ensure a robust and pragmatic project design, especially in terms of fostering the enabling environment and bringing in global expertise for the Project's digital government and digital economy investments. The WB can leverage leading-edge knowledge and expertise of its private sector partners, such as Google, Facebook, and Microsoft and the Global System for Mobile Communications Association.

32. **The Project builds on the digital achievements of the WB-financed original project.** The original project is the largest donor-funded digital initiative in Mongolia and has achieved notable deliverables and successes at the national level, such as the citizen feedback system, public services for citizens, e-Mongolia platform, open data portal, DRC, and so on. The proposed Project will scale up these achievements and enable GoM to adapt a whole-of-government approach for public sector transformation and expand the World Bank's support to catalyze growth of Mongolia's digital economy as a strategic initiative for the country's development.

33. **The WB will leverage the TA work done by other donors for Mongolia's digital sector, as their findings and recommendations are highly useful for this Project.** Donors such as Japan and South Korea have focused their efforts on TA services for the sector. The Project will leverage these useful outputs for its design and implementation. For example, the Project's support to the CIRT under Component 2 will be designed and implemented based on the detailed technical studies that the ITU and South Korea conducted for GoM. Component 3 will leverage Japan International Cooperation Agency's findings and recommendations on digital skill training for potential employees in the IT industry.

F. Lessons Learned and Reflected in the Project Design

34. **This Project's design has been guided by a Project Working Group that includes members and government agencies from the original Smart Government Project; and is headed by the CS and supported by the Project Implementation Unit (PIU) of the original project.** The Project's design considers invaluable lessons learned from the original project, and the most significant lessons learned are the following:

(a) **Implementation structure.** This Project's implementation structure model is based on the proven approach used for the original Smart Government Project. It adopts centralized planning by the CS that has broad and cross-cutting mandate across the government, and decentralized implementation by the beneficiary agencies. The CS's PIU takes a significant role in implementation by being responsible for fiduciary, and environmental and social safeguards, and project oversight and management over the beneficiary agencies. The implementation arrangement places emphasis on project management tracking, transparent and frequent communications between all parties, and close supervision to mitigate implementation risks.

(b) **Optimizing beneficiary agencies**. It is critical to understand the span of control in the effective and efficient management of beneficiary agencies. The original project helped CS understand the optimal number of beneficiary agencies that maximizes impact is five. The number of beneficiaries in the original project has been rightsized accordingly.

(c) **Strengthening the digital ecosystem.** The success of digital transformation of the public sector also depends on ubiquitous and high-quality connectivity in both rural and urban areas and digital skills in the workforce. Therefore, the components in the Project address both digital exclusion of people living in rural and remote areas as well as enhancing the digital capabilities of civil servants, citizens, and the private sector. The Project integrates findings from the International Telecommunications Union and South Korea in establishing a CIRT to safeguard Mongolia's digital assets and national critical infrastructure.

(d) **Instituting a cloud-based, whole-of-government approach using the original project's foundations.** Even though the Project is backed by senior-level leadership, previous efforts have made it clear that siloed investments in public sector IT infrastructure and functions create inefficiencies and systems less resilient to national emergencies. Component 2 addresses this issue by enhancing the shared investment and use of common IT infrastructure, platforms, and digital public service enablers across government agencies to enable a coordinated and integrated approach in the government's digital investments and leverages these shared digital foundations to enable digital transformation of the public sector.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

35. **The Project will use the same and successful implementation structure as the original Smart Government Project.** The original project relied on the Office of the Cabinet Secretariat (CS) as the implementing agency and

leveraged multiple agencies for technical support in activity design and implementation. These agencies include MDDC, MoF, and GASR. They will continue to assist CS in technical implementation by providing technical inputs into relevant activities, manage the Project's activities and vendors relevant to their agency for quality and timely delivery, and will be accountable and report to CS. CS will continue to bear overall responsibility for the Project's implementation, including overall project management, FM and procurement, inclusive of contracting with the Project's vendors. This continued arrangement will help the Project leverage a proven implementation structure and mitigate implementation risks. The Project is currently undergoing GoM's approval process and CS plans to start implementation after the original project closes on August 31, 2022. This will enable the Project to leverage fully on the original project's proven implementation arrangement.

36. **CS will be the implementing agency for this Project, although this arrangement may need to be adjusted subsequently.** CS reports directly to the Cabinet and is under the leadership of the Prime Minister. The cross-government nature of the Project, together with the intra-government coordination requirements and the demonstrated experience and knowledge gained by the CS in its role as implementing agency of the original project - support CS as the appropriate choice to implement this follow-on Project at this stage. GoM has recently set up the new MDDC that is currently building up its capacity and it has initial staffing from the recently dissolved CITA, which was a beneficiary agency of the original project. This development will be closely monitored and its potential impact on project implementation arrangements reassessed as needed, while various contingency/risk mitigation measures have been included (see 'Key Risks' section below).

37. **A PIU will be established by continuing and expanding the original project's structure and it will report to CS' Project Director.** The PIU will be responsible for the day-to-day implementation oversight of the Project - including project management and coordination; procurement and contract management of goods, works, and services; undertaking of financial management (FM), including disbursement processing and project audit; public relations; implementation of environmental and social (E&S) safeguards measures in compliance with the WB's requirements; preparation of periodical reports; monitoring and evaluation (M&E) and the submission of results to the WB; and implementation of the Grievance Redress Mechanism. The current PIU under the original project consists of individual consultants for the roles of Project Coordinator, Finance Specialist, Procurement Specialist, Monitoring and Evaluation Specialist, and Communications Specialist. A Project Management Specialist and a Technical Expert will be added to the Project's PIU as these capacities need to be strengthen based on the original project's implementation experiences.

38. **A Project Steering Committee (PSC) will be established under the leadership of CS.** The PSC's set up is based on the existing PSC under the original project, and it will provide overall strategic direction and policy guidance and support interagency coordination for the Project. It will be headed by the First Deputy Chief of CS and will be made up of the heads of relevant technical agencies; including State Secretaries and Directors of ministries, Chairs of authorities, and/or their designees from Ministry of Digital Development and Communications, Ministry of Environment and Tourism, GASR, etc. It will also include planning and finance representatives from the Ministry of Economic Development and MoF. The Director General of the IT Department in CS will continue to be the Project Director and will be a member of the PSC and act as its Member Secretary. The PSC and will meet at least quarterly and the PIU will provide technical and administrative support for its functioning.

B. Results Monitoring and Evaluation Arrangements

39. **The progress and achievement of the Project development objectives will be monitored and assessed through three types of M&E activities: regular/routine monitoring; midterm review; and completion review.** A set of results monitoring indicators has been developed to measure Project outputs, intermediate outcomes, and final development outcomes. To the extent possible, the M&E arrangements for the Project will be integrated into the existing data collection and use mechanism of the implementation agency and beneficiary agencies.

40. **The PIU's M&E specialist will be responsible for developing a new evaluation framework for the entire program.** The specialist will design reporting format and reporting frequency, collect, consolidate, and disseminate lessons learned with relevant stakeholders, and ensure stakeholder feedback is captured in project implementation and in the development of a results framework.

41. **Regular monitoring will focus on the extent to which the proposed Project activities are being implemented as planned, and on direct outputs.** A midterm review will be conducted during the third year of project implementation to assess initial impacts of Project activities.

42. **The PIU will prepare progress reports every six months, in accordance with a format agreed with the WB.** The PIU will cover: (a) physical and financial progress achieved against agreed implementation and disbursement indicators; (b) issues and problem areas, including comments on actions to address identified problems; and (c) work programs and cost estimates for the coming year, including revised estimates for the former period.

C. Sustainability

43. **Activities financing TA and capacity development have been applied in other countries with improved accountability and efficiency of public services and national competitiveness.** While digital infrastructure and assets produced in this Project will require public financing to cover operational expenses and maintenance costs that go beyond the Project's duration, planned activities under each of the Project's components maximize the use of existing infrastructure. Component 2 will use the most current technology in cooling, insulation and power systems to improve the energy efficiency of GoM's 2 national and disaster recovery data centers that can reduce operating expenses and transition them towards greenfield data centers. Capacity development under Component 3 will add digital skills curriculum on top of existing training programs. Component 3 will create a partnership with the National Academy for Governance, the private sector, and education institutions as partners that can carry out the activities beyond the Project's duration. Overall, the PIU for the original Smart Government Project will be retained to preserve institutional knowledge and know-how. Specific sustainability measures are outlined in the below.

Table 2. Sustainability Mechanism for Each Component

Component	Sustainability Mechanisms
1. Enabling Environment for Digital Transformation	• Technical assistance will strengthen the legal, regulatory, policy and institutional frameworks for secure and reliable provisioning of public services online and trust and cybersecurity of the growth of the digital economy. • Targeted training and change management assessments will assist civil servants in adapting to and managing digital transformation.
2. Transforming Digital Government	• Upgrading of national data centers will increase the resilience to pandemics, national crises, climate change and emergency events. • The national CIRT strengthen in this component will safeguard the government's investments in digital infrastructure and digital assets; and the increased security of the State Register Data will safeguard this critical data asset and increase data privacy and protection for citizens.
3. Growing the Digital Economy	• The e-Mongolia Academy will be used to conduct training of civil servants and the Project's digital skill curriculum will be integrated to its programs. • Digital literacy program will be carried out by leveraging the National Lifelong Learning Centers' beneficiaries, facilities and programs across the country, and the Project's curriculum will be promoted for integration into their programs. • Local IT companies will have to guarantee employment for their new hires for at least six months under the 'hire-and-train' activity, and these hires will be trained in digital skills requested by the companies. The approach will serve as a model for future programs between education institutions and local companies.
4. Project Management Support	• The PIU for the original Smart Government Project will continue under this Project, thereby retaining institutional knowledge and skills.
5. Contingent Emergency Response	• Will allow additional financing and flexibility to achieve the outcomes of the Project in case of eligible crisis or emergency.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

44. **The Project is expected to deliver significant development impacts in the short- to medium-term and have strategic development impact in the longer term.** In the short- to medium-term, the Project is expected to greatly improve public services by significantly increasing their availability and accessibility to Mongolian citizens and businesses both in the urban and rural areas. Mongolians' use of these services will be increased by the technical assistance and private capital mobilization efforts to promote 5G and rural telecommunication networks and digital literacy training directly promoting their usage. The Project will enable government agencies to realize efficiency gains for their investments in digital systems and applications and to provide faster and more reliable and secure services to their constituents. The Project's digital economy component will create 3,000 new digital-enabled jobs to contribute to Mongolia's youth employment challenge. This increase is significant as it will increase the number of digital-enabled jobs in Mongolia's ICT industry by an estimated 30 percent to help in digitization of Mongolia's other economic sectors (10,000 jobs in 2021).[37]

45. **In the longer term, the Project's activities will contribute strategically to addressing the country's development challenges through digital transformation.** The Project's activities and benefits contribute directly to GoM's Vision 2050 goals to digitalize and transform its public and private sectors and to improve governance as it is "a cross-cutting root issue behind all key challenges."[38] The Project's whole-of-government approach will enable and catalyze public sector agencies to share and rationalize their public data, improve their efficiency and services, and link their disparate digital systems to reduce institutional silos and achieve economies of scale in digital investments and operations. The Project's digital economy activities will also help Mongolia address its "fundamental problem"[39] of jobs and private sector development. It will increase youth and female employment and diversify its economy. It will help Mongolia prepare for the impact of disruptive technologies that is expected to transform the global socioeconomic landscape at an exponential pace.

46. **A preliminary economic and financial analysis of this Project's investment has been completed and the details are in Annex 2**. The modeling was modest in measuring only the most readily quantifiable aspects of the PDO-level results indicators and then was especially conservative in its projections of pecuniary benefits resulting from those aspects. The primary indicators that were analyzed were those relating to: (a) the cost-efficiency savings from the migration of the national datacenter to a cloud, (b) the savings on prevention of future informational losses due to the development of the CIRT, (c) impact of the Project on economic growth through the increase SME productivity and competitiveness via the development of SME technology adoption and absorption capabilities, (d) impact on the economy through direct and induced digital job creation via backward and forward linkages and the attendant increase in tax revenues, and (e) increased public sector productivity.

47. **The methodology is based on an internationally used model, customized to the unique circumstances of Mongolia, and indicates the Project's positive returns from both the economic and financial perspectives.** For the purposes of calculating the rates of return, the total amount of the Project cost was assumed to be $41.7 million over a five-year implementation period. A net present value for the investment over five years (calculated at the Bank of Mongolia's discount rate of 6 percent) is estimated to be $2.12 million for purely financial impact (the impact on public sector productivity) and $42.43 million for economic impact. Cost and benefits over five and 10-year periods were calculated, as shown in Table 3.

Table 3. Cost Benefits Over Five and Ten Years

Summary of the Project's Economic and Financial Returns		5 Years	10 Years
Benefit / Cost ratio (at net present value)	Financial	1.06	8.55
	Economic	2.28	14.77
Net Present Value	Financial	$2,118,798	$251,241,936
	Economic	$42,434,899	$457,872,170
IRR	Financial	18%	109%
	Economic	138%	175%

48. **This Project produces additional positive externalities on gender equality and climate benefits.** The cost-benefit analysis does not quantify the positive externalities of increased participation of women in the labor force, such as: (a) increase family economic security, (b) increase in firm performance due to gender diversity, (c) improvement in the development outcomes for the next generation, and (d) in making institutions and policies more representative. The Project supports green development through migration of the government's datacenters to the national cloud computing platform, but the cost-benefit analysis does not explicitly capture the climate benefits of the reduction in the carbon footprint through decreased fuel consumption and use of renewable power.

B. Fiduciary

Financial Management

49. **As the Project's implementing agency, CS will be responsible for the overall project oversight** and a Project Steering Committee will be established and maintained under the CS. A PIU will be formed to carry out day-to-day implementation and coordination of the Project's activities and will report to the CS. It is expected that the current PIU of the Smart Government Project has a satisfactory track record will be retained for the implementation of the follow-on Project. The Project's FM arrangements, including the handling of the IDA credit proceeds through the Project's Designated Account (DA), will be managed by the PIU with proper approvals from both the CS and MoF. The DA will be set up with the Treasury Single Account managed by MoF. The WB has conducted an FM assessment on the proposed operation and has identified actions/measures to strengthen the Project's FM arrangements. The residual FM risk for the Project after mitigating measures is assessed to be Moderate. The FM assessment concludes that with the implementation of the proposed actions, the FM arrangements will meet the WB's requirements under the WB Directive: Financial Management Manual for WB Investment Project Financing Operations. The FM assessment in Annex 1 provides detailed information on the Project's FM arrangements. The draft FM Manual will be developed and finalized by the PIU as an integral part of the POM.

50. **Advance contracting and retroactive Financing.** For payments made prior to the Signature Date, except those withdrawals up to an aggregate amount not to exceed SDR 5,900,000 ($8 million equivalent); may be made for payments made prior to this date but on or after March 31, 2022, for eligible project expenditures and those against

[37] As mentioned above the labor statistics indicates total number of employees in the ICT industry has dropped to 10,000 in the first quarter of 2021: Research Institute of Labor and Social Protection; Ministry of Labor and Social Protection. 2021. Labor Market Bulletin 2021 - First Quarter. *http://www.rilsp.gov.mn/tasudalgaa.php*

[38] Refer to page 10 of the World Bank Group. 2021. Country Partnership Framework for Mongolia for the period FY21–FY25.

[39] Refer to page 10 of the World Bank Group. 2021. Country Partnership Framework for Mongolia for the period FY21–FY25.

contracts procured in accordance with applicable WB procurement regulations.

Procurement

51. **Applicable Procurement Rules and Procedures.** Procurement for the Project will be carried out in accordance with the WB Bank's Procurement Regulations for Investment Project Financing Borrowers, dated November 2020, as required by the provisions of the Loan Agreement. Also applicable to the Project are the WB's Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants. In this Project, the WBorld Bank's planning and tracking system (Systematic Tracking of Exchanges in Procurement) will be used to prepare, clear, and update procurement plans and conduct all procurement transactions. Accordingly, all the procurement activities under the Project will be entered into, tracked, and monitored online through the system.

52. **Project Procurement Strategy for Development.** In accordance with the WB's Procurement Regulations, a Project Procurement Strategy for Development (PPSD) is being developed by the CS. The major procurement activities under the Project are in Component 2 on 'Transforming Digital Government' (for $29.55 million), including subcomponents 2.1 to 'Improve Usability of Digital Public Services and Provide Strategic Services' ($12.2 million), 2.2 to 'Upgrade GoM's National and Disaster Recovery Data Centers' ($12 million), and 2.3 to 'Strengthen the Cybersecurity Incidence Response Team and Security of State Registration Data' ($4 million). It is also in Component 3 on 'Growing the Digital Economy' ($8.75 million); including 3.1 on 'Digital Skills Training for Civil Servants and Citizens' ($2.75 million) and 3.3 on 'Supporting SMEs to Adopt Digital Solutions' ($2 million).

53. **Market Approach.** Based on the information available at this stage, both the international and the national markets may be interested in the consulting services under Component 1 and Component 3. International and local firms may be interested in Component 2's activity to develop and upgrade the NDC and DRC, and set up the CIRT and digital signature, including supply and installation of software and hardware contracts. The CS's PPSD will provide detailed market analysis on the activities to be procured and inform what activities the local or international suppliers and consultants will be more interested in and more capable to perform, and address individual government decisions pertaining to emergency situations (e.g., COVID-related road and border closures. Unpredictable increases in manufacturer's costs related to price fluctuations in raw material and transportation services may negatively affect project procurement.

54. **Procurement Plan.** The Project will use the same implementation arrangements as the original project. CS will continue to be responsible for the overall project implementation and management through the same PIU, including procurement and contract implementation. Based on the PPSD, the procurement plan prepared by the CS has been cleared by the WB during the Project's negotiation. The plan includes all the contract activities to be procured over the Project's 5-year period. The plan will be updated annually or as needed to: (a) reflect project implementation, (b) accommodate changes, and (c) add new packages as needed. All contract activities included in the plan should be agreed upon in advance by the relevant staff of the Borrower and the WB's task team; and will be procured in accordance with WB Procurement Regulations.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

55. **The Borrower has prepared an Environmental Code of Practice for the new digital infrastructures installation and the potential minor civil works to mitigate the limited environmental impacts during implementation.** TA activities will be screened for E&S risks and the TA's terms of reference to include provisions to ensure E&S risks are assessed and mitigation measures are proposed as part of the TA outputs for addressing those E&S implications consistent with the Environmental and Social Framework, and the requirement has been included in the Environment and Social Commitment Plan (ESCP). The terms of reference of the public meeting/capacity building will adopt occupational health and safety requirements and measures based on the WB EHS Guidelines as well as WHO health guidance regarding COVID-19.

56. **The Borrower has prepared their Labor Management Procedure (LMP) and Stakeholder Engagement Plan (SEP) in Mongolian and English languages.** The list of project stakeholders, their respective interests, and the preferred methods to engage with each group are outlined in the SEP. The original Smart Government Project has a well-established grievance redress mechanism (GRM), and that same system will be used for this follow-on Project. The communications officer in the PIU is managing the GRM and prepares bi-annual reports on the GRM; and will continue to disclose it on the original project's website at: http://www.smart.gov.mn/mn/feedback/.

57. **The Environmental Code of Practice, ESCP, SEP, and LMP have been disclosed at the website of CS' Smart Government Projects** at *http://www.smart.gov.mn/mn/draftenvsocialdocs/* on November 26, 2021; and these documents have been disclosed on the WB's website.

58. **Citizen engagement.** The design and delivery of Project activities will be based on feedback collected from end-users or beneficiaries. Feedback collection will be facilitated during implementation as part of the service design process, and through setting up an online citizen engagement portal (Subcomponent 1.3). The result of the engagement will be tracked through the key intermediate level indicators in the Results Framework on 'Share of citizens consulted and satisfied with consultation process through the online portal set-up (75 percent satisfaction target) and share of participants consulted and satisfied that are from marginalized groups (participants who are women, PWD, and/or rural inhabitants) with a target of 50 percent.

V. GRIEVANCE REDRESS SERVICES

59. Communities and individuals who believe that they are adversely affected by a WB-supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred or could occur as a result of WB noncompliance with its policies and procedures. Complaints

may be submitted at any time after concerns have been brought directly to the WB's attention, and WB Management has been given an opportunity to respond. For information on how to submit complaints to the WB's corporate GRS, please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the WB Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

60. **The overall residual risk of the Project is Substantial.** The political and governance risk is Substantial despite mitigation actions due to inherent risks arising from the recent creation of the new Ministry of Digital Development and Communications in January 2022 that may affect the Project's implementation arrangements. The Project's technical design risk is also Substantial after mitigation due to the overwhelming demand by agencies for the Project to support their sector-specific needs. The other risks associated with COVID-19 are Substantial as Mongolia's and global experiences have shown the pandemic's spread and continued impact to be highly unpredictable despite the country's efforts. All other risks are rated Moderate, as this follow-on Project will significantly leverage the digital government achievements, implementation experiences, and lessons learned from the original project.

61. **Political and governance risk is rated Substantial.** GoM's strategic vision for the digital development agenda is anchored in its Vision 2050 goals. The current Prime Minister has leveled up the digital ambitions significantly through various actions to achieve these goals, including the launch of 182 public services on its e-Mongolia platform. The Project's implementation structure will remain the same as the original project. It will have one implementing agency responsible for project management, procurement, and financial management, and include the key beneficiary agencies of the original project to the extent feasible. The Project will leverage the current PIU's technical expertise and proven capacity for implementing digital investments. GoM has recently set up the new MDDC and this development could significantly affect the Project's implementation arrangements. The MDDC's key new staff are transferred from the recently dissolved CITA. CITA is a beneficiary agency of the original project and is heavily involved in technical implementation of numerous activities from that project. The transition to the new ministry and how the new ministry will work creates uncertainties. For mitigation and to reduce the residual risk—the Project will continue to engage and coordinate closely with the former CITA staff who are now key staff in MDDC. The Project will include a legal covenant for GoM to submit to the Bank a transition plan that is satisfactory to the Bank; to ensure that all necessary arrangements (such as staffing, budget etc.) are put in place if the new ministry takes over the implementing responsibilities. This transition plan is expected to form a part of the Project Operational Manual and could include a requirement to retain certain key positions in the PIU for at least one year after the change of implementing agency. This action will help to maintain the PIU's significant expertise and experiences in implementing Bank-financed projects. The Project will emphasize the need for the Project to be able to continue to leverage CS' influence and cross-sector mandate, and the Project has included a separate activity dedicated to building the capacity of the implementing and relevant government agencies.

62. **Macroeconomic risk is rated Moderate.** Mongolia's economic outlook is dependent on global macroeconomic factors, particularly mineral commodity prices, and the economic impact of the ongoing COVID-19 outbreak is expected to be significant. For mitigation the Project will continue to articulate its significant relevance for addressing these challenges. The Project's digital government activities will increase the government's resilience in operating their macroeconomic activities and provide business service to the private sector. It will also provide the important business permits and licensing services online in case of continued COVID-19 related restrictions on travel and movements. The Project's digital economy component is strategic for supporting the country's efforts in increasing economic competitiveness and diversification and for mitigating this risk. The residual impact is not expected to be significant given the high relevance of the Project's activities in helping Mongolia manage its macroeconomic challenges.

63. **Sector strategies and policies risk is Moderate.** The Project's Component 1 includes measures to strengthen and de-risk the relevant strategic and policy environment for e-Mongolia in Vision 2050. Notably, the Project will support and address any gaps through comprehensive technical assistance: (a) implementation of laws (see Footnote 34), (b) establishment of institutions and their organizations and independence (e.g., functional, technical, financial), and (c) adoption of strategies and policies- according to global best practices. Component 1 includes comprehensive technical assistance to GoM to mitigate this risk and reduce its residual impact. It will strengthen the necessary strategic and policy environment for this Project's successful implementation, including the development and adoption of a digital economy strategy, and technical assistance to identify additional gaps and draft or refine the necessary digital-related policies and regulations for this Project.

64. **Technical design of Project risk is Substantial.** There is overwhelming demand from GoM agencies for their sector-specific digital applications to be included into this Project. The inclusion of excessive sector-specific applications may cause deviation of the Project's focus from its overall development objectives and expansion of scope beyond the Project's budget and the implementing agency's capacity. The Project will continue to leverage CS as the cross-sector and influential agency to manage these internal requests; and its shared cloud and cybersecurity services will be emphasized as an enabler for these sector-level applications. While GoM has amassed experience in digital government through the original project, this Project includes a digital economy component that GoM has not supported significantly before. For mitigation, the Project will leverage the technical study and recommendations by Korea International Cooperation Agency and the Japan International Cooperation Agency to develop the GoM's CIRT and partnership approaches for academia and IT industry to provide digital skills training to youths. The World Bank will bring its extensive global experience in IT industry and digital economy activities to design and implement this Project and will facilitate knowledge sharing for the implementing agency with countries (such as Bangladesh, Ghana, and Kosovo) that have implemented IT industry development/digital economy activities. Despite these comprehensive mitigation activities, the residual risk remains substantial and will require close monitoring, support and adaptation by the implementing agency and the Bank during the Project's implementation.

65. **Institutional capacity for implementation and sustainability risk is Moderate.** A high level of technical capacity is required for digital investments, and the Project's implementation will be more complicated as its cost is expected to be twice that of the original project and the implementing agency has not used the WB's Environmental and Social Framework before. There is a need to ensure sufficient technical expertise and capacity to sustain operations of the Project's investments and consider the climate-related implications of sustainability. The Project will mitigate this risk and reduce its residual impact by leveraging GoM's proven institutional capacity for digital investments, especially through the adoption of the implementation arrangements and PIU of the original project. The Project includes an activity to increase the energy efficiency of GoM's data centers to minimize the climate-related impacts of the Project's investments. The original project has provided CS with experience in developing environmental and social management plans due to minor civil works. This experience will help to mitigate the risks for CS to adapt the use of the Bank's Environment and Social Framework for this Project.

66. **Fiduciary risk is rated Moderate.** The Project will use the same implementation arrangements as the original project. Namely, CS will continue to be responsible for the overall Project implementation and management through the same PIU, which has been established under the original project and has performed with a satisfactory track record. While the overall financial management and procurement arrangements and personnel set up under the original project will largely be intact, the proposed Project will follow the World Bank Procurement Regulations and there will likely be changes to the beneficiary agencies and more extensive procurement activities due to its higher project cost. There is also a moderate risk of delay in processing and noncompliance exacerbated by the complicated intra-government coordination requirements for this Project and complexity in procurement of some large information systems and/or digital platforms. Mitigation actions to manage its residual impacts will be proposed and agreed with

the CS to ensure close coordination with Project stakeholders and to enhance the procurement and contract management capacity of the implementing agency. These include strengthening the bid evaluation committees and complaints mechanism, incorporation of integrity due diligence checks by the bid evaluation committee and the project implementing agencies in all bid evaluation reports during the post-qualification, inclusion of fraud and misrepresentation clauses in the bidding documents to avoid misconduct, regular fiduciary training provided by the Bank to the Project's implementing agency and supporting technical agencies, capacity building to raise awareness of integrity risks, and close monitoring of potential red flags in the procurement and contract implementation process and on the GRM system for allegations of fraud and misrepresentation. This risk rating will be reassessed and updated further, if necessary, during Project implementation based on the review and application of proposed and agreed mitigation measures.

67. **Environmental risk is Moderate.** The environmental risks and impacts are expected from the physical investments including installation of new ICT equipment and hardware, and potential minor civil works related to the use of sustainable cooling technologies and/or integration with renewable energy sources in the activity of increasing the energy efficiency of the cooling and power systems in the existing NDC (only 1,307 square meters) and DRC (only 310 square meters), such as digging of trenches less than 500 meters, rehabilitation of spaces in existing buildings, electrical retrofitting, or cable routing, etc. The environmental risks related to these physical investments include potential dust, noise, solid waste, and occupational health and safety hazards, which are considered site specific, short term, low in magnitude and readily managed through the environment mitigation hierarchy. The energy efficiency increments of the cooling and power systems in the existing NDC and DRC will also contribute to lower the indirect greenhouse gas emission and energy waste. The other activities supported by this Project are various technical assistance (TA) activities that can be divided into 2 types: supporting the strengthening of legal, regulatory, policy, and institutional frameworks (Type 2), and capacity building and training (Type 3), and may have more diffuse and induced impacts, often playing out over a longer term. The Borrower has prepared an Environmental Code of Practice for the new digital infrastructure installation and the potential minor civil works to mitigate the limited environmental impacts during implementation. TA activities will be screened for environmental and social risks and TA terms of reference need to include provisions to ensure environmental and social risks are assessed and mitigation measures are proposed as part of the TA outputs for addressing those Environment and Social implications consistent with the Environment and Social Framework, and the requirement has been included in the Environmental and Social Commitment Plan. In addition, the terms of reference of the public meeting/capacity building will adopt occupational health and safety requirements and measures based on the WB Environment, Health, and Safety Guidelines as well as the World Health Organization’s health guidance regarding COVID-19.

68. **Social risk is considered as Moderate.** The Project will not involve land acquisition or resettlement and expected to produce positive impacts such as improved access to public services to citizens and businesses, increased digital skills and literacy for civil servants and digitally divided citizens, revenue generated by the digital industry, job creation, and improved usability of digital services for citizens and businesses. Digital exclusion may occur among low-income or no digital literacy household members, PWD, elderly, and herders living in remote areas. Identified ethnic minorities such as Kazakh and Duha reside in Bayan-Ulgii and Khuvsgul *aimags*. A Social Impact Assessment has been carried-out by CS prior to appraisal that informs the Project's design with wider inclusion of above group and propose mitigation measures. Stakeholder consultations and a beneficiary feedback mechanism expected to ensure that digital platforms are designed and fine-tuned based on citizen preferences and user experience. Communities may have concerns about impacts on privacy rights because of legal reforms on cybersecurity. Meaningful engagement will be vital for managing fears and the potential risks and consequences of the Project activities. The Borrower has prepared SEP. The SEP defines a program for stakeholder engagement, including public information disclosure and consultation, throughout the entire project cycle. Furthermore, it outlines the ways in which the Project team will communicate with stakeholders and

includes a mechanism by which people can raise concerns, provide feedback, or make complaints about project and any activities related to the Project. The Environmental Code of Practice, ESCP, SEP and LMPs have been disclosed by both the Borrower and on the WB's website.

69. **Stakeholders' risk is Moderate.** There are multiple agencies seeking the Project's inclusion of their sector-specific requirements, and success of the Project will depend significantly on the support of relevant stakeholders across GoM agencies and the private sector. Successful implementation of digital transformation initiatives relies largely on mature governance structures to be in place. CS has conducted discussions with multiple agencies for the Project's preparation and identified the activities to be included in the Project. It will continue the role of managing their internal stakeholders during implementation. The Project will leverage the goodwill and track record of the original project for the support of public sector stakeholders and other government institutions. In addition, the Project will collaborate closely with the local IT industry associations and companies for its design and implementation. The Project's digital economy activities to provide digital skills training and digitize SMEs are expected to garner significant support from the local IT industry as these activities will be highly beneficial to their businesses and the IT industry's growth.

70. **Other risks associated with COVID-19 are Substantial.** The impact of the pandemic on global supply chains, macroeconomic conditions, and social activities is still evolving, and the ongoing COVID-19 emergency and aftermath are expected to have a cross-cutting impact on the Project's implementation. If the pandemic continues to constrain trade in goods and movement of people, it will delay the implementation of many activities included in the Project. For example, it would cause delays in importation of IT equipment or travel of Project staff or consultants. Even after these immediate constraints are lifted, the pandemic may have medium- to long-term impacts on economic growth globally and in Mongolia which may hinder the possibility for SMEs and key industries to invest in digital technologies or for firms to create jobs, which could also delay the Project meeting its development objective. The Project's design has been assessed to be of high relevance for future escalations of this pandemic or other emergencies. Its digital government activities will enable GoM to respond with faster and better public digital public services in case of future movement restrictions, its digital literacy activity will help citizens to cope better through online access to public and private sector services, and its technical assistance programs will leverage digital to increase the resilience of Mongolia's small and med-size enterprises. To support post-COVID-19 recovery, this Project will fast-track activities to provide digital-enabled jobs for 3,000 youth and assistance programs for recovery of the local IT industry. Additional mitigation measures will be devised in consultation with GoM and deployed during implementation as they depend on the developments in containing the pandemic globally and in Mongolia. The Project will encourage the use of local consultants (to the extent feasible) in the process of developing the Project Procurement Strategy for Development. The WB will strengthen its local presence to provide the necessary on-the-ground level of support to the government's implementing agency.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Mongolia

Smart Government II Project

Project Development Objectives(s)

To improve the usability and efficiency of online public services to citizens and businesses, and to increase digital skills and digital-enabled jobs.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
Improve usability/efficiency of public services, increase digital skills and digital-enabled jobs.			
The Project's online public services compliant with standards on human-centric design, presentation, and navigation for improved usability (Percentage)		0.00	75.00
Cost-efficiency savings from use of the shared cloud computing platform by GoM agencies (Amount(USD))		0.00	12,000,000.00
Increased digital skills of beneficiaries trained by the Project (Percentage)		0.00	30.00
Of which the beneficiaries are women (Percentage)		0.00	30.00
Digital-enabled jobs created by the Project (Number)		0.00	3,000.00
Of which are taken by women (Number)		0.00	1,500.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
Component 1: Enabling Environment for Digital Transformation			
Policies and Regulations for Digital Transformation refined/drafted (Number)		0.00	5.00
Trained public officers who have expressed positivity and confidence in undertaking recommendations from the change management action plan (Percentage)		0.00	75.00
Share of citizens consulted and satisfied with consultation process through the online engagement platform (Percentage)		0.00	75.00
Share of citizens consulted and satisfied who are from marginalized groups (participants who are either women, persons with disabilities, and/or rural inhabitants) (Percentage)		0.00	50.00
Component 2: Transforming Digital Government			
New digital public services launched (Number)		0.00	100.00
GOM agencies utilizing the digital infrastructure (Number)		0.00	15.00
CO2 e-emission reduction by GoM's national and disaster recovery data centers (Percentage)		0.00	50.00
National Cybersecurity Incidence Response Team provided with technical assistance on its core functional capabilities (Yes/No)		No	Yes
Component 3: Growing the Digital Economy			
Digital skills training for GoM's civil servants (Number)		0.00	3,000.00
Of whom are women (Number)		0.00	1,500.00
Digital literary training for digitally divided citizens (Number)		0.00	10,000.00
Of whom are women (Number)		0.00	5,000.00
Digital skills training for youths (Number)		0.00	4,000.00

Indicator Name	PBC	Baseline	End Target
Of which the training is for female youths (Number)		0.00	2,000.00
SMEs provided technology advisory services and/or adopted digital solutions for increased competitiveness (Number)		0.00	2,000.00
Of which are women-owned or women-lead SMEs (Number)		0.00	1,000.00

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
The Project's online public services compliant with standards on human-centric design, presentation, and navigation for improved usability	The Project's 100 public services will be evaluated for their compliance to a set of standards for improved usability as compared to the existing online public services provided by GoM. These standards will be developed by the Project based on studies that identify the usability issues with GoM's existing services, and recommendations to improve the usability of these services.	Yearly	Project documents and beneficiary agencies.	PIU's monitoring and evaluation function will collect the data from project documents and beneficiary agencies.	PIU

Cost-efficiency savings from use of the shared cloud computing platform by GoM agencies	The cost-efficiency savings will be calculated for each new public sector digital systems or services adopting the cloud computing platform. It will compare the (i) cost to develop, host and operate the new digital system and/or service using the cloud computing platform, and the cost to develop, host and operate the system or service without using the platform (whereby the relevant GoM agency will have to procure additional hardware, software and/or enablers). The savings from each of these adopters will be added to calculate the total savings over the project's duration.	Yearly	Project implementation documents, beneficiary agencies.	PIU's monitoring and evaluation function will collect the data from project documents and beneficiary agencies.	PIU
Increased digital skills of beneficiaries trained by the Project	The overall indicator can be a composite of the 2 matrices which measure the improved digital literacy for civil servants and citizens based on objective skills tests before and after the training to these	Yearly	Project documents, beneficiary agencies, and training firm providing the digital training	The training firms engaged will propose the methodology for the Project's approval, conduct these tests for beneficiaries as part of their scope of work,	PIU

	beneficiaries. The 2 matrices are (i) Increased scores on digital skills tests related to general ICT usage skills/digital skills needed for office work after training of 3,000 civil servants, and (ii) increased scores on digital skills tests related to general digital literacy after training 10,000 digitally divided citizens. Each matrix will be weighted based on the number trained. The skills testing methodology will developed or based on proven and/or common testing systems, such as the European Commission's DigComp Framework and the Northstar digital literacy test.		program.	and provide periodic report to the PIU.	
Of which the beneficiaries are women	Percentage of the training's women who benefited from improved digital skills.	Yearly	Project documents	Survey data	PIU
Digital-enabled jobs created by the Project	This indicator measures the number of jobs created in the digital/ICT sector and digital/ICT specialists in other sectors. The number is	Yearly	Project documents and beneficiary agencies.	PIU will verify employment documents in relation to the 'Hire-and-Train' program.	PIU

	counted based on the 3 jobs generation activities included in the project; which the Hire-and-Train, online freelancing and matchmaking for SME jobs activities. The ICT sector is defined in International Standard Industrial Classification (ISIC) Rev.4 whereas ICT specialists are defined in ISCO-08. Refer to ILO 2020. "Skills shortages and labour migration in the field of information and communication technology in Canada, China, Germany and Singapore" at https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_755663.pdf				
Of which are taken by women	Supplementary indicator for female beneficiaries	Yearly	Project documents and beneficiary agencies.	PIU's monitoring and evaluation function will collect the data from project documents and beneficiary agencies.	PIU

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Policies and Regulations for Digital Transformation refined/drafted		Yearly	Project document		PIU
Trained public officers who have expressed positivity and confidence in undertaking recommendations from the change management action plan	Measured by qualitative survey conducted on trained public officers on their perceived effectiveness of change management plans, delivery of the change management rationale and plans, alignment with strategic goals and mission of their relevant agencies, confidence on implementing change management plans and understanding on the impacts of the plans on their work. The survey will be developed in collaboration with the firm hired to conduct change management assessment as well as the beneficiary agencies.	Yearly	Survey data	PIU to conduct a survey in collaboration with the consultancy firm providing change management assessment and action plan and beneficiary agencies.	PIU
Share of citizens consulted and satisfied with consultation process through the	Satisfaction rates of users based on survey data.	Yearly	Survey data	PIU to conduct a survey through the online	PIU

online engagement platform				engagement platform.	
Share of citizens consulted and satisfied who are from marginalized groups (participants who are either women, persons with disabilities, and/or rural inhabitants)	Supplementary indicator for marginalized groups.	Yearly	Survey data	PIU to collect information from survey data and beneficiary agencies.	PIU
New digital public services launched	Measured by the number of unique services channels launched in the e-Mongolia portal.	Yearly	Project document and beneficiary agencies.	PIU to verify the number of unique service channels created with beneficiary agencies.	PIU
GOM agencies utilizing the digital infrastructure	Number of GoM agencies using the shared cloud computing platform.	Yearly	Beneficiary agencies	PIU will verify the information with beneficiary agencies.	PIU
CO2 e-emission reduction by GoM's national and disaster recovery data centers	Calculation of greenhouse gas reduction by use of online public services provided by the Project.	Yearly	Project documents and beneficiary agencies.	PIU to collect and verify information from beneficiary agencies.	PIU
National Cybersecurity Incidence Response Team provided with technical assistance on its core functional capabilities	Strengthening of the National Cybersecurity Incidence Response Team to be able to carry out its functions of facilitating international and local collaboration, and lead key initiatives on developing the	Yearly	Project documents	PIU to collect the data from project implementation documents.	PIU

	national cybersecurity strategy and protection for critical information infrastructure.				
Digital skills training for GoM's civil servants	Number of GoM's civil servants trained in a digital skills program.	Yearly	Project documents.	PIU to collect the data from project implementation documents.	PIU
Of whom are women	Supplementary indicator for female beneficiaries.	Yearly	Project documents.	PIU to collect data from project implementation documents.	PIU
Digital literary training for digitally divided citizens	Number of citizens in marginalized groups trained in a digital literacy program.	Yearly.	Project documents	PIU to collect data from implementation documents.	PIU
Of whom are women	Supplementary indicator for female beneficiaries.	Yearly	Project documents	Project documents	PIU
Digital skills training for youths	Number of youths trained in a digital skills program.	Yearly	Project documents.	PIU to collect data from project implementation documents.	PIU
Of which the training is for female youths					
SMEs provided technology advisory services and/or adopted digital solutions for increased competitiveness	Based on the number of SMEs provided technology advisory services and/or adopted digital solutions due to the Project	Yearly	Project documents	PIU to collect data from implementation documents.	PIU

Of which are women-owned or women-lead SMEs	Supplementary indicator for female beneficiaries.	Yearly	Project documents	PIU to collect data from project implementation documents.	PIU

Annex 1: Implementation Arrangements and Support Plan

1. The institutional and implementation arrangements have been described in the main text of the PAD. This section includes on the financial management and disbursement arrangements for the Project.

2. The World Bank FM team has conducted a financial management capacity assessment for the Smart Government II Project and assessed the residual FM risk as Moderate. The assessment, based on the World Bank Directive: Financial Management Manual for World Bank Investment Project Financing Operations issued on February 10, 2017, reviewed the adequacy of the Projects' FM arrangements and concluded that the Project will meet the World Bank's FM requirements. In the FM team's view, the Project will have FM arrangements acceptable to the World Bank which, as part of the overall arrangements that the borrower will have put in place for implementing the operation, provide reasonable assurance that the proceeds of the IDA credit will be used for the intended purposes for which the loan is provided.

3. FM risk is the risk that the loan proceeds will not be used for the purposes intended and is a combination of country, sector, and project-specific risk factors. The FM capacity assessment did not identify major risks associated with the proposed implementation arrangements for the Project as the implementing agency, CS, has first-hand knowledge and experience with regards to managing a Bank-financed project. In fact, the proposed Project is expected to leverage the well-established and well performing financial management and disbursement arrangements of the original Smart Government Project for its implementation. The experienced PIU staff of the original project will be retained to carry out the day-to-day project implementation work including the fiduciary tasks under the proposed Project. A Financial Management Manual will be developed for the new Project, and the Financial Mangement Manual of the original project will be used as the main template for developing that manual. The internal control procedures and other financial management arrangements prescribed in the new manual will be followed during project implementation. Considering these factors, the residual FM risk for the Project is assessed as Moderate.

4. Day-to-day fiduciary responsibilities including management of project funds as well as accounting and financial reporting duties under the Project will be carried out by the PIU. The PIU will be solely responsible for initiating payments and disbursement from the Project funds. Project beneficiary agencies will submit, where applicable, relevant payment requests and supporting documentations including delivery acceptance forms for their responsible project activities to the PIU for processing. All disbursement of project proceeds except for incremental operating costs will be processed by the PIU with the approval from two authorized signatories: one from CS and the other from the MoF. Payments relating to the incremental operating costs will be authorized by the PIU coordinator and accountant. The PIU will also be responsible for documenting all the Project expenditures to the Bank in a timely manner based on the frequency indicated in the Project legal agreements.

Risk Assessment and Mitigation

5. The following risks with corresponding risk mitigating measures have been identified during the assessment (abbreviations used: RR – Risk Rating; H – High; S – Substantial; M – Moderate):

Table A1.1. Risks and Risk Mitigation Measures

Risk	RR	Risk Mitigating Measures Incorporated into Project Design	RR After Mitigating Measures
Inherent Risk			
• Country Level Potential changes in the government officials involved in decision making on project activities and possible impact on PIU and FM staffing.	S	Collaborate with the relevant government counterparts to ensure that continuity around project implementation is maintained.	M
• Entity Level The implementing agency may change during the course of project preparation and the newly responsible implementing agency may lack prior experience in and knowledge of procedures relating to Bank-financed projects and, therefore, may not be as efficient and effective in implementing project activities.	H	The Bank will make necessary adjustments and ensure that the new implementing agency is provided with a continuous support on executing project activities in a timely manner and in good quality. In addition, the experienced PIU staff of the original project are expected to be retained for the follow-on project to ensure continuity of know how.	S
• Project Level A PIU is not yet established and a qualified financial officer for the Project is also to be appointed. The Project's financial management arrangements are not finalized.	S	PIU will be established under the CS to effectively coordinate daily activities of the Project. The current PIU staff of the original project are expected to be retained for the follow-on Project including the qualified project financial officer. A detailed Financial Management Manual will specify adequate financial management and disbursement procedures for successful implementation of the Project from financial management perspective.	M
Control Risk			
• Budgeting Poor budgeting: the Project funds not used for the intended purposes due to poor budgeting and budget controls. The project funds may not be spent in accordance with the Project budget. The approved project budget may be arbitrarily reduced by MoF.	H	Annual project budgets will be prepared each year based on procurement and disbursement plans and approved by the PSC and the Bank. The PIU shall conduct variance analysis between actual vs. planned expenses of the Project regularly and communicate the issues with large discrepancies with the task team for resolution. The PIU and CS will work closely with MoF to ensure that approved annual project budgets are properly secured for project use only.	S
• Accounting Reliability of the accounting system: there is a risk associated with selection of the software and its accuracy and reliability for the Project accounting.	S	The PIU will work closely with potential software vendors and the Bank on identifying the most appropriate accounting software for the Project and on making sure to meet specific requirements of the Project. Prior to purchasing and using the accounting software, manual accounting records can be maintained in the beginning of the Project. The manual registers shall then be replaced by a suitable computerized accounting system	M

Risk	RR	Risk Mitigating Measures Incorporated into Project Design	RR After Mitigating Measures
		within 6 months of effectiveness.	
• Internal Control Weak internal controls: there are not any internal controls related financial management policies and procedures established for the Project yet.	S	The Project will make use of and rely on well-established internal control practices under the original project. A project Financial Management Manual will be prepared by the PIU and approved by the Bank. The internal control procedures will be documented in the Project Financial Management Manual which will include but not be limited to the following: - Proper authorization and approval procedures for payments; - Appropriate segregation of duties and job description for each PIU staff; - Bank's no objection for significant project activities; - Control mechanism for accounting and reporting; - Regular bank reconciliation and periodic cash count; - Suitable project documentation filing procedures for relevant documents; - CS' internal audit/control department will also conduct an annual internal audit on the Project activities.	M
• Funds Flow Delays and bottlenecks in the Project funds flow and disbursement through the Treasury Single Account.	H	The PIU will closely work with CS and MoF in ensuring the Project funds are managed as efficiently as possible through the government's Treasury system.	S
• Financial Reporting Reliability and timeliness of financial reporting: the financial statements do not fully and accurately report on the Projects' activities and usage of its funds.	S	The Project will adopt financial reporting templates that satisfy the Bank's reporting requirements. Interim Financial Reports (IFRs) will be prepared and submitted to the Bank for review on a quarterly basis as specified in the legal agreement. The IFRs will be system generated from the software to be purchased under the Project. Overall, the Project will adopt similar financial reporting arrangements as under the original project.	M
• Auditing Audit quality: unqualified auditors may audit the Project's financial statements. Poor follow-up on audit findings: PIU does not address audit findings noted by the auditors.	S	External auditors acceptable to the Bank, will be appointed by the Mongolian National Audit Office to conduct the Project's annual financial audit under the terms of reference acceptable to the Bank. The Bank's FM team will monitor the PIU's implementation of annual audit findings.	M
Overall:	**S**	**Residual:**	**M**

Disbursement and Funds Flow Arrangements

6. Four disbursement methods will be available for the Project including advance, reimbursement, direct payment, and special commitment. The primary method of disbursement for the Project will be the advance method. Supporting documents for the Bank disbursements will be statements of expenditures and project account statements. The detailed

requirements will be laid out in the Project Disbursement and Financial Information Letter to be issued by the Bank and agreed with the Borrower.

7. As a pooled Designated Account in United States dollars ("DA") has already been opened at the Bank of Mongolia for Bank-financed projects, a segregated ledger account will be opened and maintained with the Treasury Single Account for the Project to make transactions from its DA. The ceiling of the DA, minimum value of applications for Direct Payment, Reimbursement and Special Commitment, and supporting documentation are set out in the Project's disbursement and financial information letter.

8. Funds will be disbursed from the Bank to the Project DA in United States dollars. The DA will mainly be used for USD transactions. For all other local currency payments, an MNT investment subaccount will be used that will be replenished from the DA. The Project's investment subaccount will be opened with the Treasury. The disbursement against eligible project expenditures from the DA and the investment subaccount will be signed off by authorized officials from the CS and MoF. Specific project payment approval procedures will be documented in the Financial Management Manual and will follow government requirements. SOEs will report the payments made by the Project. The ceiling will not be established for the investment subaccount but it will be dictated by the overall ceiling set for the DA.

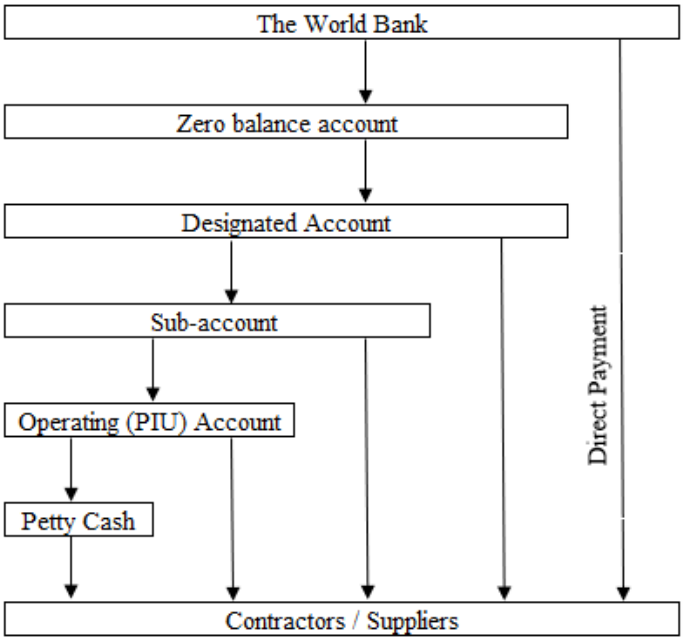
9. The Project will also use a separate Treasury Operating subaccount for PIU's incremental operating costs with signing authority delegated to project coordinator and accountant. This will ensure efficiency in that MoF and CS won't have to review and sign off on all the incremental operating costs incurred by the PIU. The Operating subaccount will be replenished from the investment subaccount based on quarterly operating budgets as approved by MoF.

10. To receive funds from the Bank, the DA will make use of a zero balance account. The zero balance account will be maintained separately at a commercial bank, the State Bank, and will be used to initially draw funds from the Bank. Once the funds are received in the zero balance account, they will automatically get transferred to the Projects' DA. This renders the zero balance account a "pass-through account" through which funds from the Bank get transferred to the main project DA. MoF has reached an agreement with the State Bank on the use of zero balance accounts to accommodate Treasury Single Account needs as they pertain to project funds flow and disbursement.

11. The PIU may manage a petty cash up to the ceiling to be approved under the Project's internal control procedures.

12. Figure A1.1 shows the general flow of funds for the Project.

Figure A1.1. Flow of Funds



13. The PIU will be directly responsible for the management, maintenance, reconciliations of the DA, SA, OA and cash transactions and will prepare withdrawal applications (WAs) for documenting project expenditures as well as for requests for an advance or direct payment. The DA Reconciliation Statement will be prepared when submitting the WAs per the frequency stated in the Project disbursement letter. The withdrawal applications will be reviewed and signed off by the authorized representatives from MoF and the CS before being submitted to the Bank for review and processing.

14. Primary financial documents maintained for the Project shall be made available for review by the Bank's supervision missions, external auditors, internal auditors, CS, MoF and other relevant local inspections. If the auditors or the Bank find disbursements that are not justified by supporting documentation or made for ineligible expenditures, the Bank may request the funds spent on ineligible expenditures to be refunded to the Bank or take other actions in line with relevant Bank policies.

15. The Project proceeds will be disbursed against eligible expenditures (inclusive of taxes) as shown in Table A1.2.

Table A1.2. Disbursement Details

Category	Amount of IDA Credit (Expressed in USD Equivalent)	Amount of IDA Credit (Expressed in SDR)	Percentage of Expenditures to be Financed (inclusive of Taxes(%)
(1) Goods, works, consulting services, non-consulting services, training and workshops, and operating costs for the Project	40,700,000	29,500,000	100
(2) Emergency Expenditures under Part 5 of the Project	0	0	-
TOTAL AMOUNT	40,700,000	29,500,000	100

Advance Contracting and Retroactive Financing

16. Retroactive financing of up to an aggregate amount not to exceed SDR 5,900,000 ($8 million equivalent) of the IDA credit will be allowed for payments made prior to the Signature Date of the Financing Agreement but on or after March 31, 2022.

Planning and Budgeting

17. The PIU will prepare an annual budget/disbursement plan based on realistic estimates with a quarterly timetable with inputs from the Projects' beneficiary agencies and submit the draft to the Bank by end-December each year. The annual budget/disbursement plan will be discussed and approved by the Project Steering Committee and the Bank and will be reflected in the relevant section of the state budget.

18. The PIU will conduct regular variance analyses and report the results in the IFRs during project implementation to explain reasons for any differences between planned (budgeted) and actual expenditures and necessary actions to be taken to ensure that the Project can be implemented as planned.

Accounting and Financial Reporting

19. Separate and stand alone administration, accounting, and reporting will be set up for this Project in accordance with the Bank requirements which obligate CS to prepare project financial statements in accordance with acceptable accounting standards. The PIU may adopt the cash basis of accounting for preparing the financial statements.

20. For the Project's initial few months of implementation until setting up a computerized accounting system, the PIU may maintain manual accounting records and produce financial reports using MS Excel. After the initial six months, the Project accounting and reporting should be done through a commercially available computerized accounting software package which will have to be procured by the Project. Prior to the purchase and implementation of the accounting software, the Project can consult with the Bank's FM team as needed. The FM team will plan a supervision mission shortly after the system is put in place to ensure its readiness to be used for the Project.

21. The Bank does not mandate a specific format for project financial statements. The project financial statements shall include the following in addition to the local reporting requirements:

- Balance Sheet of the Project;
- Statement of Sources and Uses of Funds;

- Disbursement Report;
- Statement of Designated Account;
- Statement of Subaccount;
- Statement of Operating Account; and
- Notes to the Financial Statements (for audit of annual financial statements).

22. The PIU will prepare Interim Financial Reports (IFRs), inclusive of the above reports, in accordance with pre-agreed formats as part of reporting on the Project financial statements. These reports will be used to monitor and supervise project implementation. The IFRs will be submitted to the Bank within 45 days after the end of each reporting quarter.

23. The Bank task team will monitor the Project's accounting and financial reporting processes implementation to ensure complete and accurate financial information is available to the relevant project stakeholders in a timely manner.

Internal Control

24. To mitigate risks in the area of internal control, regular oversight by the Project Steering Committee, periodic Bank supervision, internal audit by CS and annual external audits will serve as mechanisms to ensure that project financial management system is functioning properly. In addition, proper review and authorization for payment requests, segregation of duties, and other internal control mechanisms relating to the Project will be defined and included in the FM Manual. The procedures in the FM Manual should be fully and adequately implemented by all parties involved in project implementation.

Audit Arrangements

25. The Bank requires the Project financial statements to be audited in accordance with auditing standards acceptable to the Bank. The Mongolian National Audit Office (MNAO) will appoint an independent external auditor acceptable to the Bank to conduct an annual financial audit of the Project's financial statements in accordance with International Standards on Auditing and under terms of reference satisfactory to the Bank. The annual project audits will be financed from the Project.

26. The auditors will: (a) express an opinion on the Project financial statements; (b) determine whether the Project funds have (i) been correctly accounted for, and (ii) been used in accordance with the legal agreements; and (c) determine adequacy of the supporting documents and controls surrounding the use of SOEs as the basis for disbursement. The auditors will also furnish a separate Management Letter that will: (a) identify significant weaknesses in accounting and internal control as well as asset management; (b) report on the degree of compliance with financial covenants of the legal agreements, and (c) communicate matters that have come to the attention of the auditors which might have a significant impact on the implementation of the Project. The CS will submit the annual audit report on the Project financial statements to the Bank within six months after the end of the reporting period (by June 30 of each calendar year). This requirement will be stipulated in the Project legal agreements.

FM Supervision plan

27. The FM implementation support plan for this Project will be based on its FM risk rating, which will be evaluated on a regular basis by the Bank's FM team in line with the Bank's Financial Management Manual (Financial Management Manual) and in consultation with the task team leader. During the early implementation of the Project, the FM team supervision will focus on the following areas:

- Appropriateness of procedures and policies included in the Financial Management Manual;
- The Project's adherence to the agreed FM arrangements stated in the Financial Management Manual;
- Timeliness and accuracy of the manual accounting and financial reporting of the Project;
- Proper and full recording of transactions through review of sample transactions; and
- Timely adoption of an accounting software.

Annex 2. Detailed Project Description

The following sections provide a detailed description of the Project's components and subcomponents, and Table 1 below provide the cost breakdown by the components and subcomponents.

Component 1: Enabling Environment for Digital Transformation ($1.4 million)

2. **This component will strengthen the policies and regulations for digital government, digital economy, and connectivity as the enabling environment for Mongolia's digital transformation.** It will carry out change and stakeholder management for the public sector to mainstream the adoption of the shared infrastructure and platform. Lastly, this component will promote online engagements, and participation of citizens to promote online citizenry and engagements in public policies.

3. ***Subcomponent 1.1: Strengthen Policies and Regulations for Digital Transformation.*** This subcomponent will strengthen the enabling environment for digital government services and Mongolia's digital economy by addressing gaps and strengthening the legal, regulatory, policy, and institutional frameworks consistent with global best practices. The principal areas of focus are on digital as a cross-cutting enabler across sectors and it will include cybersecurity[40] and cybercrime, data protection,[41] electronic transactions, energy efficiency standards in ICT procurement, e-commerce, virtual assets, and cloud computing. The approach will be both rights and principles based, protecting fundamental rights such as protecting citizens from surveillance and other online risks, to maximize inclusiveness and economic performance.

4. ***Subcomponent 1.2: Change and Stakeholder Management for the Project's Digital Government Investments.*** This subcomponent will carry out change and stakeholder management activities to promote adoption and usage of the Project's digital government investments in Component 2 (as described below). It will be focused on government officials and stakeholders involved in adoption and usage of Component 2's cloud computing platform, CIRT and digital signature; by increasing their awareness, understanding, acceptance and usage of these Project investments. Resistance to change is to be expected in digital transformation programs. This subcomponent will undertake holistic actions needed to facilitate institutional coordination, ownership, and processes, to help the other agencies move toward the use of these digital investments. The activities include conducting a change management assessment to identify change management challenges and developing an action plan to mitigate the identified challenges in adopting and use of these Project investments. Training workshops will focus on leading and communicating change, will be conducted for these government officials and stakeholders to equip them with the knowledge and tools to undertake the recommendations from the action plan. It will carry out activities to leverage the potential winners in this digital transformation process and alleviate or mitigate the impact on potential losers.

[40] Mongolia currently has a Law on Cybersecurity which signals motivation but does not represent global best practices as it lacks major components, such as data breach notification requirements, data security breach right of action, cybercrime laws, surveillance safeguards, and public-private partnership arrangements. A robust cybersecurity legal framework includes relevant legislations, such as those data security with industry specific requirements for banking, health, and government, data breach notification requirements, data security breach right of action (right to sue data companies for breaches), computer hacking laws (for cybercrime, economic interests, and national security), surveillance safeguards, and public-private partnership. In addition, such laws should impose stringent and rigid security requirements on businesses not defined as critical infrastructure.

[41] Four laws for Mongolia's digital economy have been enacted in May 2022: Law on Protection of Personal Information, Law on Cybersecurity, Law on Public Information Transparency, and Law on Digital Signature. Component 1 will provide technical assistance for amendments and subordinate instruments (e.g., regulations, decrees) to address any gaps.

5. ***Subcomponent 1.3: Promote Online Engagement/Participation of Citizens.***[42] This subcomponent will promote citizen engagement and enable collaboration between the GoM and Mongolians of diverse backgrounds and interests on national and social issues; and particularly on the digital-related policies and laws in Subcomponent 1.1. The activity will build on the achievements of the original project that increased transparency and reduced the time to resolve citizens' feedback on GoM's 11-11 contact center; by implementing and using an online platform (for general web-enabled channels; including mobile devices) and tools to engage with communities and social groups such as grassroots organizations, voluntary welfare groups, professional groups, women, and special interest groups. The participation of citizens and their satisfaction with the consultation process will be tracked through key indicators in the Results Framework for a two-way engagement process. The online portal will facilitate two-way e-consultation services[43]on Mongolia's public policies through online feedback and polling tools. It will record transparently both feedback from citizens, and responses by the government based on the feedback, and have functions to track the responses in terms of time and decisions/resolutions made. This two-way interaction will also enable communication on climate events through timely warnings and will facilitate response actions directly with citizens who are impacted by the climate events. The responses by the government will include incorporating feedback from citizens in design of services, key decision making on policies, budgeting, and planning of services and/or other related actions. The online platform will be implemented and promoted through the 11-11 contact centers and e-Mongolia platform that are existing channels for citizen feedback and provide online public services to citizens.

Component 2: Transforming Digital Government ($29.55 million)[44]

6. **This component builds on the digital government experiences and achievements of the original project; and brings Mongolia to a more citizen-centric approach for public service delivery and more cyber-secured and whole-of-government for public sector transformation.** It will increase the number and usability of online public services and provide a national-level cloud computing platform and increase cybersecurity of government systems and data. The online public services for citizens and businesses will lead to a wider set of services and a better user experience. It will upgrade the capacity of the government's two national-level data centers and transform them into a national cloud computing platform to accelerate digital transformation through an efficient, robust, and secured digital infrastructure that is more energy efficient. The national CIRT, strengthening of security for state registration data, and public key infrastructure will safeguard government's digital assets and critical data, and enable more efficient, secure, and resilient transactions in the public sector.

7. ***Subcomponent 2.1: Improve Usability and Efficiency of Digital Public Services and Provide Strategic Services.*** This subcomponent will digitize 100 public services (for general web-enabled channels; including mobile devices) in a human-centric manner. These public services will provide demonstration value to improve the usability and efficiency

[42] This activity will identify during implementation the barriers for women to participate and make their voice heard in public policymaking. It will provide gender-specific support that can help to engage women in the use of online tools and platform, and account for the different needs of both genders to shape the country's public policies via e-consultation services.

[43] With regards to citizen engagement, the online platform will be designed and implemented with features to facilitate two-way interaction between citizens and the government. It will have transparent closure of the feedback loop and functions to reflect the actions taken in response to the online engagement and feedback, such as the incorporation of outcomes from public deliberation in government decision-making and leveraging scorecards/rating/online voting tools to organize, analyze, and integrate feedback. Other options to consider during implementation include participatory planning/budgeting via the online platform, with clearly outlined processes (and an indicator in the RF) reflecting how citizen's voices will be factored in.

[44] For Environmental and Social Framework purposes, this component is not expected to result in disposal of the hardware or software during the Project's life span. The purchase of new IT equipment (and software) will be for new functionalities and services, such as providing new digital enablers for GoM's cloud computing platform and/or setting up the new Cybersecurity Emergency Response Team. This Project does not replace GoM's current IT equipment used for its existing applications or services.

of public services on the e-Mongolia portal. MDDC's e-Mongolia portal already has more than 600 services used by more than 2 million citizens and businesses, and government plans to digitize hundreds more public services. Thus far the emphasis has been on quantity, rather than quality or usability. User interaction with these services can be improved, particularly for persons with disabilities (PWD) and/or those who are in remote or rural areas. To ensure mainstreaming of the improved usability across GoM's online public services, the Project will develop a digital service standard and have a legal covenant for its adoption by MDDC, the operator of the e-Mongolia access portal (*www.e-monoglia.mn*). The digital service standard will comprise of a set of standards, instructional guidelines, and templates to help government agencies implement digital services that are relevant and easy for citizens to use. The digital service standard will incorporate design thinking principles[45] in service design; a style guide to establish visual, writing, and formatting of content and services to improve usability by ensuring consistency across digital services; a business process improvement guide to identify opportunities to improve accuracy, effectiveness and/or efficiency of the service's processes and compliance information on cybersecurity; user privacy; and use of common service enablers provided by the Project. The digital service standard's development will be guided by the findings of the WB's Assessments of Digital Infrastructure and Services Design (P176424) analytical work, which has provided recommendations for GOM to take a human-centric design to improve the usability and efficiency of Mongolia's public services especially for women, PWD and/or those who are in remote or rural areas.[46] These new services will be selected based on criteria that promote pro-poor development, gender equity, citizen engagements, and to help address Mongolia's COVID-19 pandemic response and future emergencies.

8. **This subcomponent will implement strategic integrated digital services as part for the 100 services for quick wins, value demonstration, and strategic impact.** These are: (a) expanding the functionalities of the existing electronic procurement system operated by the Ministry of Finance (MoF),[47] (b) providing a single window for online business licensing and permits,[48] (c) completing the conflict of interest, income and asset declaration phase 2 system operated by the Independent Authority Against Corruption, (d) developing the Cabinet Secretariat's (CS) e-codification database, e-decision making, archiving, performance management and Digital Cabinet system, (e) upgrading and sustaining Mongolia's national tourism integrated platform operated by the Ministry of Environment and Tourism, (f) developing an online system for registration of forestation, afforestation and reforestation to support the GoM's 'Billion Tree' program, and (g) developing an online system to provide citizens with access to digitalized laws and regulations, and video recordings of parliament meetings, for a Digital Parliament.

9. **Compared to the use of face-to-face public services, the use of these online public services provided by the Project will reduce the distance citizens must travel to access government services, which will lead to a reduction of CO_2 emissions through lower fuel consumption.** Citizens, especially those in remote areas, can reduce the need to travel long distances to urban or rural centers to receive government services; fewer trips made would eventually translate

[45] Refer to the following for definition of design thinking: World Bank. 2017. Frontend Toolkit: A toolkit to transform IDEAs into intelligent action. *https://openknowledge.worldbank.org/bitstream/handle/10986/26111/112367-WP-P151932-PUBLIC-FrontEndtoolkit.pdf?sequence=1&isAllowed=y#:~:text=The%20design%20thinking%20process%20is,choose%2C%20implement%2C%20and%20learn.*

[46] The ASA was completed in March 2022 and its findings and recommendations will be timely for use for this project's implementation. From a citizen-engagement perspective the ASA will carry out design thinking workshops with the targeted citizens mentioned above as part of the human-centric approach's consultative and iterative process to improve the usability, access, and usage of public services.

[47] The e-procurement system's functionalities will be expanded by integrating it with external systems for administration (including budget planning and the treasury system of MoF), automating the bid evaluation process, establishing a cloud-based backup for the transactional data, and strengthening the system's cybersecurity.

[48] The design of this activity will leverage the Bank's ASA on 'Mongolia Business Regulations and Competitiveness Assessment (P177463).' Its Activity 2 on 'Technical assistance to improve business registration and licensing, the legal framework on Permit' would serve as a core enabling condition for the implementation of the single window for online business licensing and permits. The licenses and permits would be identified through a government-wide license and permit landscape survey and would include 22 licenses issued by MET for the environmental sector/Mongolian forests.

into lower gas consumption and CO_2 emissions. The GoM can reduce Mongolia's green-house gas emissions by transitioning toward a paperless economy, and through reduced use of electricity compared with the facilities needed for physical/face-to-face public services. While there are expected to be some material lifecycle emissions from increased use of data/ICT devices, the activity is expected to contribute to net greenhouse gas (GHG) emission reduction in the long run (see Annex 4 for calculations on emissions).

10. ***Subcomponent 2.2: Upgrade GoM's National and Disaster Recovery Data Centers.*** This subcomponent will enhance MDDC's existing NDC and DRC by: (a) upgrading their hardware capacity and transforming it into a National Cloud Computing Platform (NCCP) for private use by the GoM,[49] (b) adding common service enablers (such as single user ID and access control) for shared use by government agencies, (c) examining the possibility of using commercial cloud computing services on a hybrid cloud approach and decentralized infrastructure, and (d) improving the data centers' energy efficiency.

11. **The NCCP will enable a more sustainable and energy-efficient approach for the shared hosting of IT applications and services, and equipment use across government agencies.** The pooling of the data centers' resources through cloud computing will increase the overall resilience of the GoM's IT systems as these are no longer subject to the single point of failure which can occur when using dedicated server hardware and operating software. Cloud computing will enable government systems to have increased resilience to pandemics and/or climate-related/natural disasters. The platform resides as a layer above both data centers and can switch between and use the available data center in case either one is affected by these emergency events. It will enable rapid sharing of critical data (such as pandemic-related data) across ministries and agencies for improved capacity and coordination to cope with national crises and emergencies.

12. **Common service enablers will facilitate data protection, production, sharing and collaboration between these agencies for a whole-of-government approach to Mongolia's digital transformation.** These enablers will be integrated, expanded or built into the NCCP for government agencies to build and implement their IT systems and digital services, on an 'build-once, reuse-always' basis. The GoM's current enablers to be integrated are the 'DAN' electronic identification system from the GASR to authenticate citizens for online transactions, the 'KHUR' decentralized government information exchange, 'XYP' data exchange and their online government payment service currently being developed by the Bank of Mongolia. The existing public key infrastructure system will be upgraded to allow the use of digital signature between civil servants, and the open data portal will be enhanced to avail more data sets to enrich the government's publicly available data. The enhanced open data portal will serve as an enabler to spark innovative services and usages by citizens and businesses. Other common enablers will include scaling the business analytics capability piloted in the original project to analyze the GoM's statistical and transactional data, short-message service notification gateway, open application programming interface to allow government applications to connect with each other, and GIS to enable government agencies to integrate their data with spatial location and provide visualizations.[50] To strengthen digital connectivity the Project will upgrade the country's Internet connectivity hardware, update connectivity into the internet exchange point for management and use of IP routing. The NCCP will be implemented on a small-scale in the initial phase, as it can be rapidly scaled-up as needed due to its software-based/virtualized nature.

13. **This subcomponent will examine the possibility of the GoM using commercial cloud computing services for private capital mobilization and adoption of newer and more efficient infrastructure designs and data management**

[49] Includes hardware and cloud computing infrastructure for the national emailing system.

[50] The recently adopted Strategy for Geo-driven Digital Transformation and Innovation (2020-2025) has highlighted the benefits of investing in the National Spatial Data Infrastructure to underpin digital services with location-based information and the need for a holistic approach to enhance governance, technology and people pathways. The Agency for Land Administration and Management, Geodesy, and Cartography will provide their technical inputs into the design of the GIS and be one of its first users.

models; and edge computing to decentralize infrastructure, transactions, and analysis. The subcomponent will assist the GoM in technical assessments and recommendations to adopt the hybrid-cloud approach, as being used by countries more advanced in digital government, such as Singapore and the United States, which use the private sector's cloud services to host their non-mission-critical systems and less sensitive public data. The hybrid approach requires the GoM to have a robust data classification framework and operational practices and processes in place to be able to separate its data to be hosted on the commercial cloud. The subcomponent will additionally assess the potential for the GoM to adopt an edge computing model with decentralized infrastructure that enables faster digital service transactions outside of Ulaanbaatar, and to conduct real-time data analysis.

14. **This subcomponent will increase the energy efficiency of the cooling and power systems in the NDC and DRC to increase their sustainability and provide the green data center framework for GoM's subsequent investments in hosting infrastructure.** The energy efficiency approach will be guided by international best practices and the findings and recommendations from the ASA report (P176424, mentioned above) with its pillar on green data centers for Mongolia. This subcomponent may result in minor civil works related to the use of sustainable cooling technologies and/or integration with renewable energy sources to the extent feasible. These could entail digging of trenches of less than 500 meters in length, rehabilitation of existing spaces, or electrical retrofitting. No major civil works are expected as GoM's datacenters are currently limited in their physical sizes; with the NDC at 1,307 square meters and DRC at 310 square meters.

15. **Subcomponent 2.3: Strengthen the National Cybersecurity Incidence Response Team (CIRT) and Security of State Registration Data.** This subcomponent will establish a National CIRT in MDDC that will monitor, warn, coordinate response and recovery efforts to address cyber threats and risks and protect the GoM's digital assets. It will facilitate collaboration between government, the private sector, academia, and the international community when dealing with cybersecurity issues. The CIRT will be developed based on international best practices and technical studies by the International Telecommunications Union and the Republic of Korea [51] (including maintaining gender parity in staff hired) that identified the National CIRT as an urgent need for Mongolia. The National CIRT's general role is to coordinate information between private and public bodies to respond to cyber incidents. The National CIRT will be tasked to nurture national and international collaborations to align capabilities and expertise necessary to manage and raise awareness of potential risks; to develop and implement remedial actions; to continue to play a key role in ensuring the cooperation and participation in international and regional professional associations of incident response teams, and to facilitate trusted collaboration. The National CIRT will support the protection of critical information infrastructure, academic institutions, SME, and other private sector organizations. It will be the critical driving force in developing and implementing the national cybersecurity strategy and serve as a central coordination organization to further build and strengthen a national culture of cybersecurity through its mandate and reach. For the protection of critical state registration data managed by GASR, this activity will strengthen the security of GASR's recovery center system by providing the necessary hardware and database and security related licenses.

Component 3: Growing the Digital Economy ($8.75 million)[52]

[51] Mongolia Communications and Information Technology Authority and National Information Society Agency of the Republic of Korea. 2017. *Establishment of the Mongolian National CERT and Cyber Security Management.*

[52] For Environmental and Social Framework purposes, this component will not promote, recommend, or finance the private sector to build data centers. The focus of this component will be on training, job creation, and international business development assistance for local IT companies. The activity to digitize SMEs and three key industries is for technical assistance only. It will advise these companies on the possible types of software applications and automation tools these companies can consider for improving their productivity or competitiveness and suggest curated software and vendors they can use. The need (or not) for a data center is at the lowest level of the technology layer/decision for these companies. It depends on numerous factors outside the scope of this Project. For example, it depends on whether the companies are installing

16. **This component's activities are catalytic in nature to support the growth of Mongolia's digital economy. It has limited but essential activities and investments for growth as the digital economy is a relatively new development agenda and a new area of WB-financing for the GoM (as compared to digital government).** The component will provide: (a) digital skills training for public administration officials and citizens, (b) create 3,000 digital-enabled jobs for youths (especially women), and (c) support SME to adopt digital solutions to improve their productivity, competitiveness, and operational resiliency. The component builds continuity and sustainability of these activities by leveraging the relevant government agencies and programs to assist in implementation and to build their capacity.

17. ***Subcomponent 3.1: Digital Skills Training for Civil Servants and Citizens.*** The subcomponent will provide practical digital skills training for GoM's civil servants/public administration officials.[53] Its targeted outcome of increased digital skills will be evaluated based on skills tests for the civil servants and citizens before and after their training. This is reflected in the PDO-level indicator (c) and its footnote. The activity will increase their overall understanding, competencies, and use of digital technologies in the public sector, including technologies for climate change preparedness and mitigation (for example, trainings on data analytics/data analysis/ML/AI/data visualization/statistics to monitor climate risks and improve climate response). A public sector digital skills training strategy will be developed to identify and align courses to support the civil servants' job functions, and the online training portal (Surgalt.gov.mn) will be enriched with new online training content. It will develop a structured digital skills training curriculum for the civil service and provide training to the 3,000 public administration officials working in government ministries and agencies, with targets set for participation by female officials. This activity's digital training will focus on developing skills for digital leadership, technologies, and culture (e.g., socioemotional skills); and will incorporate design thinking approaches for officials involved in public service planning, design, development, and deployment. A training firm will be hired to implement the training through the government's e-Mongolia Academy. This activity's digital skill curriculum will be provided for the academy's integration and use in their intended training for public sector leaders and officials, and the academy can learn significantly from the training firm's methodologies and processes.[54] Data on completion of this training program will be provided to CS for potential inclusion in the civil servants' annual results and performance assessments.

18. **This subcomponent will strengthen the human resource capacity of the Project's implementing agency for efficient and effective implementation.** It will strengthen the agency's technical and project management skills and support cross-sector digital collaboration mechanisms through working groups and communities of practice on pertinent implementation issues on use of the enterprise architecture, interoperability of systems, and data sharing.

19. **This subcomponent will implement a catalytic digital literacy program for targeted groups of digitally divided Mongolian citizens (of which 50 percent target for women) to help build a more inclusive digital economy.** Rapid digital developments in Mongolia can result in a digitally divided economy and society as witnessed globally, and digitally illiterate citizens should not be excluded from the benefits of digital governance, public and private sector services, information, and knowledge from across the world.[55] The subcomponent will provide the targeted beneficiaries basic

any of the TA's suggested software and the hosting capacity needed for the software. If additional hosting capacity is required, it depends on whether the companies can use their existing hosting capacity. If that is insufficient, it depends on whether these companies can have existing server rooms or data center to host it, or if they are outsourcing it to a commercial data center/hosting service.

[53] Public administration officials form the 'core civil servants' in Mongolia, and 'are the group that most closely meet the traditional definition of a civil servant'. From World Bank. 2020. Mongolia – Towards a High Performing Civil Service: Reform Progress and Challenges. *https://openknowledge.worldbank.org/handle/10986/18610*

[54] No project funds will be transferred the technical agencies (e-Mongolia Academy, NCLE, public universities and SME Agency) under subcomponents 3.1, 3.2, and 3.3 respectively.

[55] World Bank. 2021. A Global Study on Digital Capabilities. *https://documents.worldbank.org/en/publication/documents-reports/documentdetail/959181623060169420/a-global-study-on-digital-capabilities*

and needed digital skills to help them navigate and function, productively, in a digitalized economy.[56] Examples of the functions that will be taught are gathering and evaluating information online, interacting with the online community, creating basic digital products, cybersecurity awareness and practices (e.g., preventing online harassment that women may face), and awareness on climate-related adaptation and mitigation measures (for example, consumer awareness campaigns about food waste, energy efficiency, recycling and best practices on reducing energy use and dematerializing consumption). This activity will target its digital literacy training for typically marginalized segments of society from the digital perspectives; especially those who are female, elderly, rural and nomadic inhabitants, have disabilities, and/or are vulnerable. The targeted segments are those identified and analyzed by the Social Impact Assessment that is being conducted as part of the government's project preparation process.[57] The currently targeted number of citizens to receive digital literacy training is 10,000. The Social Impact Assessment's findings will be used to adjust and finalize this total number and breakdown the number of citizens to be trained for each targeted population segment. The selection criteria for the beneficiaries, including identification of ways to ensure participation by groups such as women will be developed further by the training firm during implementation for approval by CS's PIU. The activity will generate awareness among targeted citizens of the literacy program. Access to the skills development activities will consider accessibility of female participants in terms of time, safety, and transportation to encourage their participation. As the Project progresses and more applications are developed for the e-Mongolia portal, the training provided to citizens will be used in their daily interactions and are expected to foster and reinforce digital literacy. A training firm will be engaged to implement the training, and the firm with leverage the government's National Center for Lifelong Education's (NCLE) facilities and staff in most of Mongolia's 21 provinces and districts for this training purpose. This activity will use the NCLE's current beneficiaries as a supplementary source to identify potential trainees. The curriculum developed from this training will be provided to NCLE for its integration into its training programs, and this subcomponent will train and mentor the existing teachers to improve their capabilities for NCLE's related digital training activities. This activity will be supported by the development of a citizen digital literacy platform to document a training curriculum and content, trainee assessments, training statistics, and e-certificate issuance.

20. ***Subcomponent 3.2: Digital-enabled Jobs for 3,000 Youths.*** This subcomponent will implement a jobs creation program with supply and demand-side activities for Mongolian youths (especially women) to be ICT professionals in the local IT industry, online freelancing markets, and local SMEs. Increasing the technical capabilities and digital-enabled employment in a country is the basic prerequisite for building a digital economy. This subcomponent seeks to increase digital-enabled employment in Mongolia by 30 percent, as the total number of employees in Mongolia's ICT sector in the beginning of 2020 was only 10,000.[58] Given the demonstrated importance of digital technologies for COVID-19 responses worldwide, more digital skills are also needed for Mongolia's response and resilience to future health and climate-related shocks. The job creation program will provide training on fundamental digital skills for ICT professionals based on a demand-driven approach to help address the market mismatch and skills gaps between academia and industry, and will target students who are female, have disabilities and/or are vulnerable by actively connecting them to the labor market to reduce the digital divide in the ICT profession. It will have data protection mechanisms and safeguards like the activity to provide digital literacy training to citizens. This youth-oriented training will provide targeted skills training topics that are linked to digital skills gaps and jobs in mainstream technologies (such as coding,

[56] The training content will be created according to the international Digital Competency Framework for targeted groups. It will address their age, physical and mental characteristics and have different skills levels (basic, intermediate and advanced). These contents will be made available in public digital literacy platform developed by this activity.

[57] The Social Impact Assessment has been completed by the time of the project's Board approval. It identified the digital literacy gaps between population segments with a focus on the gaps experienced by the target segment described above. This activity's implementation will be refined based on the findings from the Social Impact Assessment, and it will include data protection safeguards and mechanisms for the targeted beneficiaries.

[58] Research Institute of Labor and Social Protection; Ministry of Labor and Social Protection. 2021. Labor Market Bulletin 2021 – First Quarter. *http://www.rilsp.gov.mn/tasudalgaa.php*

mobile apps development, user experience design, and agile methodology), cybersecurity, use of digitized data and information, or disruptive technologies such as artificial intelligence, Internet of Things, and data analytics. A firm will be hired to implement this subcomponent and its training program will be implemented through education institutions[59] and for students in their ICT-related programs, such as computer science and electrical engineering. It will develop the curriculum as a short skills top-up training for these students and promote the universities' integration of these courses into their curriculum for sustainability. The program will include training in basic cognitive and socioemotional skills, which is aligned with the generic skills framework adopted by the WB that has three core components comprising cognitive, socioemotional, and technical skills.[60] This skills training program will target students who are female, have disabilities and/or are vulnerable to reduce the digital divide in the ICT profession. For women and to address identified gender gaps in digital/ICT employment; trainings programs will include customized trainings on socioemotional skills, cultural barriers that are known to limit women's economic participation in digital. These trainings will be offered in both offline and online modalities to encourage greater female participation and more flexible freelance opportunities will specifically be considered for women in hiring. It will have data protection mechanisms and safeguards like the activity to provide digital literacy training to citizens.

21. **The subcomponent will have three approaches that lead to digital-enabled jobs. It will (i) use a 'hire-and-train' approach that provides training support to local IT companies' new employees on a cost-sharing basis**.[61] The training will be selected from the topics mentioned above that is relevant for the company, and these companies must provide guaranteed employment to at least 80 percent of the trainees for a minimum of six months and are required to have a female ratio of at least 50 percent among the trainees, if they are proposing more than one trainee. The Project will assess and select local IT companies' applications based on criteria to be detailed in the Project's operations manual (POM). It will arrange for the relevant education institutions to provide this training program with the assistance of the consulting firm,[62] and engage these universities to adopt useful elements of the training curriculum for sustainability.

22. **The job creation program will (ii) provide digital skills training to youths for jobs in the global online freelance market, and (iii) match trainees to jobs in the local SMEs being digitalized due the Project's technology extension services (detailed below).** The online freelance market has grown rapidly in the last decade and workers can access these opportunities from anywhere and anytime if they have access to a computer and the Internet. This activity will leverage successful global experiences in generating online freelance jobs. These experiences include training in complementary noncognitive/soft skills, motivation, integrity, interpersonal interactions, and online self-marketing, and international communication skills. It includes providing mentorships to help trainees compete, win, deliver, and sustain their online work activities. A jobs-matching function will be included to match trainees with jobs in local SMEs who are beneficiaries of the subcomponent as the local SMEs' adoption of digital solutions may require in-house technical capabilities to implement, operate, maintain and/or use these solutions. These online freelancing or flexible jobs are

[59] The education institutions will be assessed for their interest and capacity to participate in this activity, and PIU (with the assistance of the consulting/training firm) will select the relevant education institutions for this activity during the Project's implementation. This activity is focused on generating digital jobs rather than training. However, it will provide internationally recognized certifications as needed.

[60] World Bank. *Understanding Poverty – Topics - Skills Development*. https://www.worldbank.org/en/topic/skillsdevelopment

[61] The 'hire-and-train' approach was used in Bangladesh and had created more than 30,000 jobs under the Bank-financed 'Leveraging ICT Project (P122201)'. Refer to the Bank's Implementation Completion Report Review at *https://documents.worldbank.org/en/publication/documents-reports/documentdetail/841851595538001728/bangladesh-bd-leveraging-ict-growth-employ-gov*

[62] The consulting/training firm engaged for this activity will develop the curriculum, provide master trainers to train the education institutions' teachers/lecturers as needed, and coordinate with the local IT companies on the training needs for their new employees. The educational institutions will provide their teachers/lecturers to assist in the training and provide use of their computer room facilities. The local IT companies will transfer their cost-sharing fees directly to the education institutions, and their percentage of cost-sharing is estimated at 50 percent and will be finalized during implementation.

expected to be particularly suitable for women who cite lack of flexibility as a key hindrance that limits workforce participation.

23. ***Subcomponent 3.3: Support Small and Medium Enterprises to Adopt Digital Solutions.***[63] This subcomponent helps to address SMEs' low level of adoption of digital solutions, increase their operational resiliency and raise SME digital competencies. It supports Mongolia's need to improve small SME competitiveness and enable quick restarts in the event of a major disruption, whether caused by another pandemic, fire, flood, or malicious attack by cybercriminals. It focuses on SMEs in tourism as the sector is in urgent need to improve its competitiveness, and on SMEs that are led or owned by women for gender equity. The subcomponent will increase the digital capabilities and adoption of digital technologies by 2,000 SMEs. The selection criteria for the SME will be developed by the consulting firm during implementation for approval by the PIU, with specific targets set for participation of women-owned and women-run SMEs. This subcomponent will: (a) develop a digital transformation road map for Mongolian SMEs with business continuity considerations; (b) provide technology extension services to SMEs interested in digitalization, including customized support on leadership, negotiations, socioemotional skills for women-owned and women-run SMEs; (c) increase the quantity and quality of SME's hiring of youths for digital-enabled jobs through the job-matching activity described above; and (d) curate common/horizontal enterprise applications available in the market for use by SMEs, such as those for accounting, human resource management, and electronic/social-commerce.

24. The technology extension service will: (a) guide the SMEs on implementing the roadmaps' recommendation, (b) advise their top and middle-management on training options to increase their digital leadership skills, (c) offer hands-on technical advice and guidance for the SME's adoption of the curated enterprise applications, and (d) assist the SMEs in assessing and applying for SME grants under the ongoing WB-financed Export Development Project (P147438) being implemented by the SME Agency under the Ministry of Food, Agriculture, and Light Industry (MoFALI). This subcomponent will be focus on the tourism industry, which has been decimated by the impact of COVID-19 as in many other countries but has significant potential to diversify the economy and to provide private-sector employment for Mongolia's growing number of well-educated, English-speaking youths.[64] It will leverage the findings from the WB's study on 'Mongolia Business Regulations and Competitiveness Assessment (P177463), whose Area 2 on 'Supporting entrepreneurship and SME growth' and its findings from the 'diagnostic of binding business environment constraints and development support framework for entrepreneurship and SMEs and firm-level ICT adoption/transformation' will inform the design of this activity's technical advisory services to SMEs. A consulting firm will be hired to implement this activity and will leverage the complementary programs and outreach/contacts of the SME agency.

Component 4: Project Management Support ($1 million IDA; $1 million in GoM's in-kind financing)

25. ***Project Implementation Unit (PIU) Setup and Operations.*** This subcomponent will support the continuation and expansion of the existing PIU that was set up under the original project. As with the original project, the PIU for this Project will be responsible for implementation support, including planning, coordination, implementation, monitoring of Project activities, and reporting of project implementation. It will be responsible for coordinating and carrying out procurement, financial management (FM), and environmental and social safeguards activities. The PIU will be accountable for communicating the Project objectives, activities and results to the GoM and the public and implementing GoM's environmental and social safeguards plans and commitments. The PIU will consist of a full team of

[63] This subcomponent will develop its digital transformation roadmaps with consideration on equal opportunities for female IT professionals and women-led SMEs. The purpose is to develop their capacities and business and improve women's economic opportunities and access to jobs; especially in the target sector tourism where women make up the majority of workforce.

[64] New.mn. Mongolian tourism sector decimated by Covid-19. *https://news.mn/en/796003/*

staff and consultants dedicated to Project implementation. The PIU will support the Project Steering Committee (PSC) in its regular operations and follow-ups and coordinate the activities implemented by the beneficiary agencies.

Component 5: Contingent Emergency Response ($0)

26. **A contingent emergency response component (CERC) is included in the Project's structure.** This will have an initial value of zero but may be financed during project implementation to allow for an agile response to eligible crisis or emergency. Adding the component from the beginning, albeit with zero funding, provides for flexibility to respond to crises as they arise, and the POM will be adapted to guide the use of this component, including risk mitigation strategies. The primary issue at the time of writing is the COVID-19 pandemic's high unpredictability, which may require additional urgent response during the Project's implementation, such as providing additional remote work systems and support for government officials and/or Internet bandwidth for remote health facilities and educational institutions.

Table 1: Cost Breakdown for Components and Subcomponents

Components and Subcomponents	Cost in $
Component 1: Enabling Environment for Digital Transformation	**1,400,000**
Subcomponent 1.1: Strengthen Policies and Regulations for Digital Transformation	400,000
Subcomponent 1.2: Change and Stakeholder Management for the Project's Digital Government Investments	500,000
Subcomponent 1.3: Promote Online Engagement/Participation of Citizens	500,000
Component 2: Transforming Digital Government	**29,550,000**
Subcomponent 2.1: Improve Usability of Digital Public Services and Provide Strategic Services	12,200,000
Subcomponent 2.2: Upgrade GoM's National and Disaster Recovery Data Centers	13,350,000
Subcomponent 2.3: Set up a Cybersecurity Incidence Response Team and Strengthen Security of State Registration Data	4,000,000
Component 3: Growing the Digital Economy	**8,750,000**
Subcomponent 3.1: Digital Skills Training for Civil Servants and Citizens	2,750,000
Subcomponent 3.2: Digital-enabled Jobs for 3,000 Youths	4,000,000
Subcomponent 3.3: Support Small and Medium Enterprises to Adopt Digital Solutions	2,000,000
Component 4: Project Management Support	**2,000,000**
Project Implementation Unit Setup and Operations (including counterpart financing of $1,000,000)	2,000,000
Component 5: Contingent Emergency Response	**0**
Total (including counterpart financing of $1,000,000)	**41,700,000**

Annex 3. Economic and Financial Analysis

1. A preliminary economic and financial analysis of this Project's investment has been completed. The modeling was modest in measuring only the most readily quantifiable aspects of the PDO-level results indicators and then was especially conservative in its projections of pecuniary benefits resulting from those aspects.

2. The primary indicators that were analyzed were those relating to:

(a) The cost-efficiency savings from the migration of the national datacenter to a cloud. Cloud servers are responsible for the largest energy reduction, more than 67 percent, due to being more energy-efficient and more highly used. Cloud data center facilities account for another 11 percent reduction by using power and cooling systems that are more efficient, bringing energy savings closer to 79 percent. Enabling cloud service providers to source renewable power for their energy needs would further reduce carbon footprint of workloads by 15 percent in the cloud.[65] Studies have shown an estimated ROI ranging from 10[66] to 125 percent[67] from cloud migration strategies. The analysis is based on a conservative ROI of 25 percent per annum and calculated the savings from the $10 million investment of this component over a period of 10 years.

(b) The savings on prevention of future informational losses due to the development of the Cybersecurity Incidence Response Team. Estimates have shown that cybersecurity breaches amount to a global GDP loss of 1 percent[68] annually. We follow the Gordon, Loeb, Zhou[69] approach of calculating the benefits of cybersecurity as the expected dollar value of information loss prevented in the future due to cybertheft. Employing the global estimates, it is assumed that the value of the expected informational loss suffered by the Mongolian government, in a given year, is expected to be in the neighborhood of 1 percent of their annual revenues. The cost-benefit analysis assumes that the probability of such information loss can be cut by 40 percent with the development of CIRT. The analysis then calculates the net present value of this future expected informational loss that is prevented by CIRT.

(c) Impact of the Project on economic growth through the increase SME productivity and competitiveness via the development of SME technology adoption and absorption capabilities. SME's account for 17.5 percent of Mongolia's GDP annually. The Project is expected to digitize 1 to 1.5 percent of SMEs in Mongolia. Global estimates of increase in SME productivity vary from 5 percent[70] to 19 percent.[71] We have used a conservative estimate to computer the impact on the Mongolian economy if 1 percent of its SMEs were able to gradually increase their productivity by 5 percent.

(d) Impact on the economy through direct and induced ICT job creation via backward and forward linkages and the attendant increase in tax revenues. Studies have estimated that through backwards and forward linkages, the ICT

[65] S&P Global Market Intelligence, in association with Amazon Web Services
S&P Global Market Intelligence, in association with Amazon Web Services
2015. *https://assets.kpmg/content/dam/kpmg/pdf/2015/11/cloud-economics.pdf*
[67] The Business Value of Amazon Web Services Accelerates Over Time, White Paper, International Data Corporation, 2013.
https://media.amazonwebservices.com/IDC_Business_Value_of_AWS_Accelerates_Over_time.pdf
[68] Economic Impact of Cybercrime – No Slowing Down, The Center for Strategic and International Studies (CSIS), in partnership with McAfee, 2018.
https://www.csis.org/analysis/economic-impact-cybercrime
[69]Integrating cost–benefit analysis into the NIST Cybersecurity Framework via the Gordon–Loeb Model, Lawrence A Gordon, Martin P Loeb, Lei Zhou, Journal of Cybersecurity, Volume 6, Issue 1, 2020. *https://doi.org/10.1093/cybsec/tyaa005*
[70] Knowledge, robots and productivity in SMEs: Explaining the second digital wave, Ballestar, Diaz-Chao, Sianz, and Torrent-Sellens, Journal of Business Research, Volume 108, January 2020. *https://www.sciencedirect.com/science/article/abs/pii/S0148296319306861*
[71] Impact of Internet and Digitization on SMBs in India, KPMG study, January 2017.
https://assets.kpmg/content/dam/kpmg/in/pdf/2017/01/Impact-of-Internet-and-digitisation.pdf

sector has an employment multiplier[72] of 5.7 where the induced jobs (jobs created via consumption) are roughly around 3.2 whereas the indirect jobs (jobs created in the supply chain) account for 2.5 jobs. The analysis assumed that induced jobs would earn the minimum wage in Mongolia and the indirect jobs earn the median wages. The contribution to the GDP and to tax revenues are then calculated assuming a slow diffusion, following an S-curve, of these backward- and forward-linkages over a 10-year period.

(e) Increased public sector productivity by: (i) streamlined interactions with users of public digital services (G2C, G2B and G2G) and channel shift, (ii) time and cost savings by increased take-up of digital services by people and businesses, and (iii) digital skills training of GoM officials and citizens. The analysis estimated the savings the Mongolian government achieves through channel shift and estimated the dollar value of time saved by consumers and businesses due to the uptake of digital services. Finally, the analysis assumed a modest 1 percent increase in civil servant productivity, using median civil service employee wages as a proxy for the monetary value of their output.

3. The methodology is based on an internationally used model, customized to the unique circumstances of Mongolia. The total amount of the Project cost of $41.7 million over a five-year implementation period was used for calculating the ROI. A net present value for the investment over five years (calculated at the Bank of Mongolia's discount rate of 6 percent) is estimated to be $2.12 million for purely financial impact (the impact on public sector productivity) and $42.43 million for economic impact. Cost and benefit over both a five- and a 10-year period were calculated as shown in Table A1.3.

Table A3.1. Summary of Economic and Financial Returns

		5 years	10 years
Benefit / Cost ratio (at net present value)	Financial	1.06	8.55
	Economic	2.28	14.77
Net Present Value	Financial	$2,118,798	$251,241,936
	Economic	$42,434,899	$457,872,170
IRR	Financial	18%	109%
	Economic	138%	175%

4. The cross-cutting and varied impacts of this Project make it highly complex to conduct a holistic cost-effectiveness analysis for a total estimate of its benefits. Doing so will require significant inputs from across government agencies at different levels of the public administration and from various demographic and occupational groups across citizens and businesses. Therefore, the approach taken does not seek to quantify all impacts, but simply to provide sufficient confidence that the Project will deliver impacts which are sufficient to justify the Project's investment.

5. The Project provides other positive externalities on gender equality and for the climate. This cost-benefit analysis does not include the positive externalities of increased participation of women in the labor force, such as: (a) increase family economic security, (b) increase in firm performance due to gender diversity, (c) improvement in the development outcomes for the next generation, and (d) in making institutions and policies more representative. The Project supports green development through migration of GoM datacenters to a cloud, but the cost-benefit analysis does not explicitly capture the climate benefits of the reduction in the carbon footprint described in Annex 4.

[72] Updated employment multipliers for the United States economy, Josh Bivens, Economic Policy Institute, January 2019. *https://files.epi.org/pdf/160282.pdf*

Annex 4. Identified Gender Barriers and Proposed Actions

1. A gender analysis has been undertaken, detailed below, which identifies key gender gaps that inform the Project's actions on gender (Table 1). Actions proposed are in line with existing national gender policies and gender-specific targets for ICT adopted (noted above), and wider research on important interventions and design choices that affect women's participation in the workforce. They are also aligned with the core pillars of the WB Gender Strategy, 2016-2023, focused on: (a) improving human capital endowments, (b) removing constraints for more and better jobs, (c) removing barriers to women's ownership and control of assets, and (d) enhancing women's voice and agency and engaging men and boys.

Table A4.1. Summary of Proposed Actions to Address Identified Gaps in Gender in ICT

ANALYSIS: Gender gaps identified	ACTIONS: Proposed actions taken to address gaps	INDICATORS: How bridging the gap will be measured
Low digital literacy levels While literacy levels exhibit gender parity, this may not necessarily hold true in the case of digital literacy, but no statistics exist to measure the level of digital literacy in Mongolia[73] In the absence of national statistics, information on women's technical skills in the ICT sector can be used to shed light on digital literacy levels. Here it is seen how within the ICT sector, most women work in non-technical roles such as administration or customer relations. As an example, in the leading IT company in Mongolia with over 250 employees, women comprise 33 percent of its workforce but only 10 percent of females work in technical positions, while 57 percent of males work in technical positions[74] Several factors may also deter women from participating in training, when offered, including the chosen modality, time, location, and perceived relevance[75]	**Subcomponent 3.1: Digital Skills Training for Civil Servants and Citizens ($2.75 million).** Ensure that digital literacy training provided is designed to accommodate women and encourage their participation by inter alia: • Training on basic and needed digital skills for them to live and function productively in a digitalized economy, such as gathering and evaluating information online, interacting with the online community, creating basic digital products, and cybersecurity awareness and practices • Ensuring that design and outreach of the training scheme is informed by consultations with women through the ongoing Social Impact Assessment • Ensuring targeting locations for conducting the training through use of schools and other educational institutions to encourage greater participation by women • Offering childcare facilities to women at training sites • Leverage the programs and facilities of the government's 'National Center for Lifelong Education (NCLE) to conduct these training as they have these resources in most of the country's 21 provinces and districts. This activity will use the NCLE's current beneficiaries as a supplementary source to	**PDO indicator** Improved digital skills of beneficiaries trained by the Project (for female beneficiaries) (Percentage) Target = 30 percent **Intermediate level indicators** Digital skills training for GoM's civil servants of which are female Target= 50%

[73] Digital Readiness Assessment, Mongolia in the Digital Age, Access Solutions Inc. 2020. *https://artnet.unescap.org/sites/default/files/file-2019-11/Digital%20Readiness%20Assessment%20Final%20Draft%20%2009.09.pdf*
[74] Ministry of Labour and Social Protection, Mongolia Comprehensive National Review, May 2019. *https://asiapacificgender.org/sites/default/files/documents/Mongolia_(English).pdf*
[75] UN -Equals Global Partnership (2019), Taking Stock: data and evidence on gender equality in digital access, skills and leadership

ANALYSIS: Gender gaps identified	ACTIONS: Proposed actions taken to address gaps	INDICATORS: How bridging the gap will be measured
	identify potential trainees. The teachers at the centers (with a focus on leveraging female teachers) will provide technical inputs into the terms of reference for the firm to be hired on how to reach out to female participants and encourage application	
Gender employment gap in ICT Latest statistics indicate how approximately 36.4 percent of people working in the ICT sector are women indicating a gender gap in the sector[76]. More broadly at a national level across sectors - female labor force participation (FLLP) shows a 15-percentage point gap and FLLP has been falling over the last decade (2006-20)[77]. Factors that may be contributing to lower female participation in the workforce include i. Insufficient flexibility at work (e.g., part-time, working hours, home-based) and inadequate provision of childcare facilities[78] ii. Cultural norms of gender bias in the division of labor, domestic work burden on women[79] iii. High level of informality among youth, particularly women wherein >60 percent of female youth (age 15-24 years) work in the informal sector[80] Note: There is gender parity in education, including STEM indicating that the issue of gender gap in ICT may not be a pipeline challenge	**Subcomponent 3.2: Digital-enabled Jobs for Youths ($4 million)** • Jobs in the online freelancing market to allow for flexibility at work for women, this will offer greater easy to access job opportunities to women which were previously unavailable thereby increasing avenues for employment. The trainings offered (see below) will enable women to be better prepared to access and benefit from these job opportunities being created • 'Hire and Train' program in collaboration with local IT companies that will offer job placements: o Training to students, with minimum targets for enrolling female students. o Trainings to be conducted through both online/offline models and through schools, offices and communities/associations with female participation or membership which can allow greater participation by women o These trainings will include skills suited for IT companies' needs including technical skills, online self-marketing, communication, use of digital tools and others to ensure applicants are adequately prepared for the jobs o Training on socio-emotional skills, cultural barriers and others will also be included to encourage female participation	**PDO Indicator** Percentage of digital jobs created for women Target = 50 percent

[76] According to labor market statistics by the NSO, in 2018 there were 15,176 people working in the ICT sector, of which 5,519 (36.4%) were female, Ministry of Labour and Social Protection, Mongolia Comprehensive National Review, May 2019. *https://asiapacificgender.org/sites/default/files/documents/Mongolia_(English).pdf*

[77] Mongolian Statistical Information Service. Employment Indicators of population aged 15 and over, by quarter, annual and national level. Data updated on Aug. 18, 2021. *http://www.1212.mn/*

[78] Schmillen, Achim; Sandig, Nina-Weimann. 2018. Perceptions of Precariousness: A Qualitative Study of Constraints Underlying Gender Disparities in Mongolia's Labor Market." World Bank, Washington, DC. *https://openknowledge.worldbank.org/handle/10986/29539*

[79] Digital Readiness Assessment, Mongolia in the Digital Age, Access Solutions Inc. 2020. *https://artnet.unescap.org/sites/default/files/file-2019-11/Digital%20Readiness%20Assessment%20Final%20Draft%20%2009.09.pdf*

[80] Digital Readiness Assessment, Mongolia in the Digital Age, Access Solutions Inc. 2020. *https://artnet.unescap.org/sites/default/files/file-2019-11/Digital%20Readiness%20Assessment%20Final%20Draft%20%2009.09.pdf*

ANALYSIS: Gender gaps identified	ACTIONS: Proposed actions taken to address gaps	INDICATORS: How bridging the gap will be measured
	Subcomponent 2.3: Strengthening of the National Cybersecurity Incidence Response Team • Maintaining gender parity as part of the strengthening process	
Limited growth and expansion of women-owned or women-led SMEs, due to lack of competitiveness Only 39 percent of firms in Mongolia have a female participation in ownership and 37 percent employ a female top manager[81]. Due to 'lack of internal capacity' or 'management skills training' and 'access to networking and mentors'; it is more common for women than for men to remain in the informal sector[82]. Women are less likely than men to hold managerial positions and the contrast is more pronounced in rural areas, for instance in rural areas, fewer women hold managerial positions (34 vs 43 percent in urban areas). Further, a gender wage gap is prevalent- women's average monthly salary equaled 82 percent of men's average monthly earning in 2018[83] Women-owned SMEs are also smaller in terms of turnover, 63 percent of these had a turnover of less than MNT 50 million in 2013, while the same figure was reported by 45 percent of men-owned SMEs[84]	**Subcomponent 3.3: Support Small and Medium Enterprises to Adopt Digital solutions ($2 million) allowing to improve competitiveness of SMEs, specifically those owned/run by women** • Target 'women-owned or women led' SMEs, particularly in rural areas; The Project will use IFC's definition of women-owned or women-led enterprises, which includes firms where (i) a woman/women has/have a 51 percent or more ownership stake, or greater than or equal to 20 percent; (ii) 1 or more woman/women is/are the CEO/COO (President/Vice President); or (iii) 30 percent or more of the board of directors are women • Develop the digital leadership skills of their middle and top-management staff targeting women including through training on soft-skills, negotiation, socio-emotional abilities and related elements that can aid women in better negotiation for salaries, compete at par with men in higher management roles with the objective of improving competitiveness of women run owned SMEs • Assist the women run/owned SMEs in assessing and applying for SME grants under the Bank-financed Export Development Project (P147438) being implemented by MoFALI • Support for developing women-owned and women-led SMEs' business plan to support their growth and expansion, and improve their SMEs' competitiveness	**Intermediate level Indicator** SMEs provided technology advisory services and/or adopted digital solutions for increased competitiveness of which percentage women owned/led Target = 30 percent

[81] Enterprise Survey, 2013, World Bank
[82] SMEs, and Women-owned SMEs in Mongolia, Market Research Study, IFC, 2021. *https://www.ifc.org/wps/wcm/connect/fa1da257-f7a3-43a7-961f-720c19eb9e25/Women+SMe-Mongolia-Final.pdf?MOD=AJPERES&CVID=kFmAtKt*
[83] Digital Readiness Assessment, Mongolia in the Digital Age, Access Solutions Inc. 2020. *https://artnet.unescap.org/sites/default/files/file-2019-11/Digital%20Readiness%20Assessment%20Final%20Draft%20%2009.09.pdf*
[84] SMEs, and Women-owned SMEs in Mongolia, Market Research Study, IFC, 2021. *https://www.ifc.org/wps/wcm/connect/fa1da257-f7a3-43a7-961f-720c19eb9e25/Women+SMe-Mongolia-Final.pdf?MOD=AJPERES&CVID=kFmAtKt*

Annex 5. Support for Climate Change and Adaptation

Climate Vulnerability Context

1. **Mongolia has been identified as vulnerable to climate change.** The country currently ranks 67 out of 181 in the Notre Dame Global Adaptation Index[12] (72nd on vulnerability and 70th on readiness), indicating vulnerability to climate change and scope for improving readiness. Vulnerability (as also highlighted by the World Bank climate risk profile)[13] stems from rising temperatures which is likely to significantly impact energy security (a 1 percent change in ambient temperature can result in a 0.5 to 8.5 percent change in electricity demand),[14] induce risk of droughts, flooding or *dzud*[15] damaging physical infrastructure including digital (e.g., overheating of data centers)[16] and disrupting critical government service delivery. Factors contributing to low readiness include primarily limited use of energy efficient and resilient ICT infrastructure[17] and low capacity and awareness on disaster preparedness.[18] From 1940-2015 the recorded trend of increase in temperatures of over 2°C (higher than global average) and decreasing rainfall has amplified the existing harsh climatic conditions in Mongolia. By 2050, the country is expected to see further increase in temperature by 2-3°C, changing rainfall patterns resulting up to 60 percent increase in extreme weather events such as droughts, heat waves, storms, and melting of permafrost and floods necessitating adequate preparedness and response. Climate change induced desertification and land degradation causes additional pressure on arable land, and pollution from industrialization and household burning of fossil fuels exacerbates air pollution, particularly in the capital in winter. The average economic loss caused by natural and human induced hazards is equivalent to 2.5 percent of GDP

Plan to Address Climate Vulnerability

2. The Project is expected to have a positive impact on Mongolia's adaptive capacity and support climate change mitigation through the proposed activities shown in Table A2.1.

Table A5.1. Climate Change Risks, Capacity Gaps, Related Project Interventions and Potential Impact

Key Risk	Corresponding Project interventions and financing
Climatic events damaging critical infrastructure: Mongolia faces risks of climatic events such as droughts, flooding or *dzud*[85] which are known to damage physical infrastructure including digital (e.g., overheating of data centers[86]) and disrupt critical government service delivery, including emergency response/warning **Single point of failure**: There exists only one single point of critical infrastructure, i.e., data centers with no backups creating a risk of single point failure in the absence of redundancy	**Sub-component 2.2: Upgrade GoM's National and Disaster Recovery Data Centers ($13.35 million)** **Building resiliency in critical infrastructure allowing continuity of operations:** Upgrading data centers to the cloud allows to reduce the risk of a single point of failure as the cloud-based platform will be more efficient in reallocating computing resources and create data recovery and backup systems in case of climatic shocks prevalent in Mongolia (floods, *dzud*s). This will allow for building data center resiliency and allow continuity of operations of critical infrastructure in times of floods, *dzud*s and related climatic events.
Low capacity and awareness on disaster preparedness[87]	**Subcomponent 2.2: Upgrade GoM's National and Disaster Recovery Data Centers ($13.35 million)** **Setting up a GIS to facilitate disaster monitoring and weather events spatially;**

[85] A climatic phenomenon common to Mongolia that of a summer drought followed by a severe winter
[86] Mongolia Climate Change and Disaster Risk Profile, UNESCAP
[87] ND GAIN Index exhibits high vulnerability score on 'disaster preparedness' score of 0.57. *https://gain-new.crc.nd.edu/country/mongolia*

	facilitate weather and disaster monitoring to identity vulnerable locations, time and populations and subsequently inform emergency response through warnings/notifications in climatic events such as flood, *dzud*s or others. **Subcomponent 1.3: Promote Online Engagement/Participation of Citizens ($0.5million)** **Providing real time emergency response, and share information on preparedness and warnings regarding climatic events (floods, *dzud*s, droughts);** Setting up an online portal for a two-way consultation process between citizens and the government, allowing government digital service deliver timely warning/notification to citizens protecting vulnerable populations, and also responding to emergency support requests by citizens
Lack of buy-in and coordination among government officials regarding risks and response to climate events (floods, *dzud*s, droughts); government officials specifically in ICT, transport and energy sector lack awareness on risk that climate risks/shocks pose to their operations or infrastructure on account of natural disasters[88]	**Subcomponent 3.1: Digital Skills Training for Civil Servants and Citizens** (**$2.75 million)** **Capacity building for civil servants on climate change preparedness.** Civil servants at the national level will be trained in sing digital technologies, data analytics/data analysis/ML/AI/data visualization/statistics to monitor climate risks and improve climate response (on tools supported through the Project such as the cloud computing platform, GIS), as well as on methods, guidelines on climate related disaster response and recovery, communication systems e.g. on using digital government services to disseminate emergency information to citizens in a case of climate disaster

Mitigation

<table>
<tr><th>Green-house Gas Mitigation Potential</th><th>Corresponding Project interventions and financing</th></tr>
<tr><td>Energy efficient data centers
Vulnerability as highlighted by WB climate risk profile[89] is stemming from rising temperatures which is likely to significantly impact energy security (a 1 percent change in ambient temperature can result in a 0.5 to 8.5 percent change in electricity demand[90]). GoM's currently owns high energy consuming data centers (refer to table in corresponding column)</td><td>Sub-component 2.2: Upgrade GoM's National and Disaster Recovery Data Centers ($13.35 million)

• Establishing a cloud server via the NCCP which helps in reducing the CO2 emissions from the data centers

<u>Reduction in CO2 consumption over a 3-year project period</u> (assuming first two years of the Project for establishment of the new cloud server)
<table>
<tr><td>Key variable</td><td>Data</td></tr>
<tr><td>No. of existing data centers (National Data center and Disaster Recovery Center)</td><td>2</td></tr>
<tr><td>No. of servers in existing data centers
Estimated 150 servers per data center</td><td>300</td></tr>
<tr><td>Energy consumed by the existing servers in the data center
Estimated 1,000 server DC consumes 169.9 tons or 169k kgs of CO2</td><td>10k kg of CO2</td></tr>
</table></td></tr>
</table>

[88] Research Report on Resilient Infrastructure in Mongolia, UNESCAP, 2020. *https://www.unescap.org/sites/default/files/Research%20report%20%20on%20resilient%20infrastructure%20in%20Mongolia.pdf*

[89] Climate Risk Country Profile, Mongolia, World Bank and Asian Development Bank, 2021. *https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15813-Mongolia%20Country%20Profile-WEB.pdf*

[90] Santamouris, M., Cartalis, C., Synnefa, A., & Kolokotsa, D. (2015). On the impact of urban heat island and global warming on the power demand and electricity consumption of buildings—A review. Energy and Buildings, 98, 119–124. DOI. *https://doi.org/10.1016/ j.enbuild.2014.09.052*

Green-house Gas Mitigation Potential	Corresponding Project interventions and financing
	over a 15-year period[91] |
	Potential reduction in CO2 consumption on account of cloud server *Estimated cloud workload carbon footprint estimation of 67 percent reduction in CO2 use* [92] | **6.7k kg of CO2**
	Note that the model being adopted through the Project is that of establishing a 'hybrid cloud computing system' leveraging commercial cloud computing capabilities. This is an approach that has largely only been adopted in few countries such as the United States, Australia[93] and would be a novel approach for the region leading to a paradigm shift to new technologies and market segments leveraging private commercial operators. Further, given the long run benefits of moving to the cloud server model vs data centers in a country which has energy security concerns- this activity can be deemed crucial for Mongolia to meet its NDC targets. • **Technical assistance on adapting existing GoM's 2 national-level data centers to become 'energy-efficient data centers**' compliant with internationally recognized best practices guidelines and to transition them to greenfield data centers The data centers will leverage green procurement, improve the efficiency of cooling systems, enhancing the data centers' insulation, and switching to cooling agents with lower global warming potential. They will be improved based on internationally recognized best practice guidelines[94], or is substantially better than market standards or benchmarks. These factors potential applications will be examined in detailed under the World Bank's World Bank's Advisory Services and Analytics (ASA) report (P176424) for Mongolia that has a pillar on green data centers, and its findings and recommendations will be implemented under this Project.

High energy consumption on account of travel for accessing services (refer to table in corresponding column)
 	
Ambitious mitigation target of Mongolia's Nationally Determined Contribution is a 22.7% reduction in total national greenhouse gas (GHG) emissions by 2030
	Subcomponent 2.1: Improve Usability of Digital Public Services and Provide Strategic Services ($12.2 million):
	
	• **Provide 100 additional digital services in key sectors**
	  ○ Reducing need to travel resulting in reduction of emissions from travel. Use of digital services will also contribute to reduction of use of paper, and energy savings from running physical establishments (*see calculation of emission reduction below)*
	  ○ There would be material lifecycle emissions (due to increased energy use) from the increased use of Internet data/ICT devices for accessing the e-services itself (lack of sufficient data is limiting a calculation of exact emissions). However, it is expected that the GHG emissions incurred immediately would still bring long-term result in net positive GHG emission on account of long-term emission reductions
	
	The mitigation target of Mongolia's Nationally Determined Contribution is a 22.7% reduction in total national greenhouse gas (GHG) emissions by 2030. Government of Mongolia's estimated baseline emissions are calculated to reach 74.3 Mt CO2-eq and

[91] Schneider Electric DC-CO2 calculator
[92] S&P Global Market Intelligence, in association with Amazon Web Services
[93] Cloud computing as a key enabler for digital government across Asia and the Pacific, Asian Development Bank, 2021, https://www.adb.org/sites/default/files/publication/707786/sdwp-077-cloud-computing-digital-government.pdf
[94] Such as the international best practice from: EU. 2019 Best Practice Guidelines for the EU Code of Conduct on Data Center Energy Efficiency (JRC), https://e3p.jrc.ec.europa.eu/sites/default/files/documents/publications/jrc114148_best_practice_guide_2019_final.pdf

<table>
<tr><th>Green-house Gas Mitigation Potential</th><th>Corresponding Project interventions and financing</th></tr>
<tr><td></td><td>their mitigation target is 57.4 Mt CO2-eq., a reduction of 16.9 Mt CO2-eq. The project is estimated to reduce emissions by 135.9 million Kg CO2 over a three-year period or 45.3 million Kg CO2 annually. One Mt, million tons, is 1000 million Kg. The project's annual contribution of 45 million Kg amounts to 0.268% of Mongolia's 2030 mitigation target of 16.9 Mt CO2-equivalent.

<table>
<tr><td><u>Reduction in CO2 emissions from travel for in-person transactions over a 3-year project period</u> (assuming first two years of the Project for establishment of the 100 digital services)</td><td>Data</td></tr>
<tr><td>No. of services accessed by each household per year
Estimated each household interacts on average with 5 percent of total digital services (100)</td><td>5 services</td></tr>
<tr><td>No. of transactions for accessing services by each household per year. It is estimated that each service requires on average 2 transactions (filling a form and collecting the result/certificate)</td><td>10 transactions</td></tr>
<tr><td>Total transactions for households accessing services per year
Estimated 897,427 households in Mongolia95</td><td>8,974,270 transactions</td></tr>
<tr><td>Total distance travelled by households for transactions in accessing services per year

Estimated average distance travelled to access service is 10 kilometers or 6.25 miles per trip, assuming two-way trip is 12.5 miles</td><td>112.1 million miles</td></tr>
<tr><td>Total emissions in accessing services by households over 3 years

Estimated average CO2 emissions per mile are 0.404 kg[96]
Note: Emissions from a typical passenger vehicle have been considered since transport from only households is considered which use light vehicles. Use of heavy-duty vehicles in public transport system or through businesses is not included</td><td>135.9 million kg of CO2</td></tr>
</table></td></tr>
<tr><td>Education, capacity building or awareness raising focused on climate change mitigation

Need to increase buy-in and coordination among government officials of ICT, transport and energy sector regarding the risk that climate risks/shocks pose to their operations or infrastructure on account of natural disasters[97]</td><td>Sub-component 3.1: Digital Skills Training for Civil Servants and Citizens ($2.75 million):

• <u>For Civil Servants (national level);</u> Training on best practices for adopting a new climate smart and resilient digital infrastructure policy and regulatory guidelines will be provided to guide the new ministry on forward looking legislations. A training firm will be engaged to implement the training through GoM's e-Mongolia Academy. This training will also support capacity building of the implementing agency to raise their awareness and capacity for incorporating climate change mitigation actions into the Project's procurement requirements.
• <u>For Citizens;</u> consumer awareness campaigns about food waste, energy efficiency, recycling and best practices on reducing energy use and dematerializing consumption</td></tr>
</table>

[95] See: Montsame.mn
[96] See: *https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle*
[97] Research Report on Resilient Infrastructure in Mongolia, UNESCAP, 2020.
https://www.unescap.org/sites/default/files/Research%20report%20%20on%20resilient%20infrastructure%20in%20Mongolia.pdf