Co-creating Digital Development to Achieve Society 5.0 for SDGs

May 29, 2020

Keidanren

(Japan Business Federation)

Japan International

Cooperation Agency (JICA)

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This co-creation document was drafted and edited by a "Co-creating Digital Ecosystem in Developing Countries" group under the Digital Transformation Taskforce (DXTF), in collaboration with the Keidanren Committee on Overseas Development Cooperation, its member corporations, and the International Cooperation Bureau, etc. JICA established the DXTF directly under the JICA President from December 2019 to May 2020.

1. Message from JICA and Keidanren

(1) Using Japan's ODA to Co-Create Digital Societies with Trust

Japan International Cooperation Agency (JICA)
SHISHIDO Kenichi, Vice President and Head of the
Advisory Group for the Digital Transformation Taskforce

As an independent development agency tasked with administering Japan's Official Development Assistance (ODA), JICA's mission is to achieve "Human Security and Quality Growth" across the world. The United Nation's commitment to "leave no one behind," which is at the heart of the Sustainable Development Goals (SDGs) adopted at the UN Summit in 2015, similarly encompasses the vision of Human Security. Given the many changes that have occurred in the 25+ years since the concept of Human Security was first introduced, JICA is prepared to double down on its commitment to achieve Human Security and respond to the threats and challenges of today.

In 2020, with the spread of COVID-19, the entire world faces economic challenges and disruptions to daily lives. As COVID-19 infections and fatalities continue to rise, preventing the further spread of the virus remains a top global priority. In light of this situation, JICA is committed to maximizing its support to help developing countries cope with this unprecedented challenge. As a result of the pandemic, developing countries now need more support to tackle persisting social challenges, including efforts to reduce poverty and address global environmental concerns. JICA will not only support the economic recovery and restoration of people's lives, but it will also encourage additional investments by collaborating with a variety of partners, including Japanese enterprises with sophisticated technologies and know-how.

To implement adequate support, JICA is committed to assisting developing countries create resilient economic structures and social mechanisms that can effectively cope with global upheavals, like those posed by COVID-19. Specifically, JICA believes strengthening countries' abilities to implement and properly use digital technologies is vital, because it enables economies and societies to largely maintain their activities even under conditions of restricted movement. In this way, JICA supports the adoption and use of these technologies, including the promotion of the Internet of Things (IoT), or the interconnecting of all things via the Internet, as well as the use of Artificial Intelligence (AI), which can help develop optimal solutions for existing challenges based on data assessments. As JICA introduces these technologies to partner countries and helps them adopt its uses, it also recognizes the importance of building relationships based on mutual trust by conducting honest dialogues with governments, local start-ups and other stakeholders to address concerns related to privacy and cybersecurity.

In December 2019, JICA established the Digital Transformation Taskforce (DXTF), which directly reports to the JICA President with suggestions on digital technology support for developing countries. Together with Keidanren, the DXTF has published a document titled, "Co-creating Digital Development to Achieve Society 5.0 for the SDGs," to develop innovative solutions that combine the use of JICA implemented ODA with digital technologies offered by Japanese enterprises. With this document, JICA and Keidanren commit to guiding Japan's international cooperation to help establish a digital society trusted by the international community.

(2) Co-creating Digital Development to Achieve Society 5.0 for SDGs

**Keidanren (Japan Business Federation)
DAI Kazuhiko, Chair, Policy Sub-committee,
Committee on Overseas Development Cooperation, and
Vice Chairman and Executive Officer, Taisei Corporation**

The Japanese business community is working closely with the Government of Japan to realize "Society 5.0" -- a society in which communities imaginatively and creatively develop solutions for social challenges through digital transformation. Under this vision, Keidanren is advocating for the use of digital technologies to achieve "Society 5.0" to help realize the United Nation's Sustainable Development Goals.

Many countries and regions have limited access to the critical infrastructure that they need to develop their economies, including infrastructure in the energy, transportation, telecommunications, and/or urban development sectors. The people of these countries often also lack access to adequate social systems, which are foundational to their livelihoods and economies. These include access to digital governments, as well as adequate agricultural, educational, and health and medical services. We, therefore, believe we must contribute to the development of "quality infrastructure" through the appropriate use of Japanese technologies and know-how to help build necessary infrastructure and social systems to achieve the SDGs across all countries and regions.

Given rapid and continuous technological developments, the need to accelerate the deployment of digital solutions at the field-level is vital for infrastructure strengthening in developing countries. As part of Japan's philosophy of establishing "Data Free Flow with Trust (DFFT)", the Japanese business community seeks to bolster necessary privacy and cybersecurity protections, not only for technological hardware, but also software, including its support services. In order to achieve DFFT, Keidanren recognizes the importance of both intergovernmental collaboration, as well as partnering with the private sector.

The on-going COVID-19 pandemic has severely impacted the world economy, and we must now act together to avoid unilateral actions and strengthen global collaboration. With this mindset, Keidanren and JICA published this document to accelerate tangible actions to help realize Society 5.0 by offering proposals that combine the use of digital technologies and know-how provided by Japanese enterprises with the Official Development Assistance (ODA) implemented by JICA (Japan's ODA is comprised of ODA loans, Private-Sector Investment Finance, grant aid, and technical cooperation. The latter includes training programs and various studies which support private sector activities). We also seek to promote digital transformation and conduct policy dialogues between governments and those in JICA's network, including multilateral aid agencies, to not only benefit Japan, but also support all countries and regions around the world. JICA and Keidanren will also maximize the use of this document and continue to work with the Japanese government to improve, diversify and enhance the operability of Japan's ODA.

By promoting digital transformation, we hope to strengthen public-private partnerships that can create innovative solutions that tackle social challenges faced around the world. As part of this vision, we will increase our collaborations with local partners, including start-ups that provide innovative solutions and propose sophisticated digital technology use.

2. Introducing Keidanren and JICA's Initiatives and Activities

(1) Keidanren:

Society 5.0 for SDGs

1. Society 5.0 = A Creative Society

"Society 5.0" is our vision for the next stage in the social and economic evolution of human society. Society 5.0 represents a "Creative Society," which follows previous social and economic revolutions, including Hunting, Agrarian, Industrial, and Information Societies. By integrating digital transformation with people's ingenuity, we aim to introduce new solutions to social challenges.
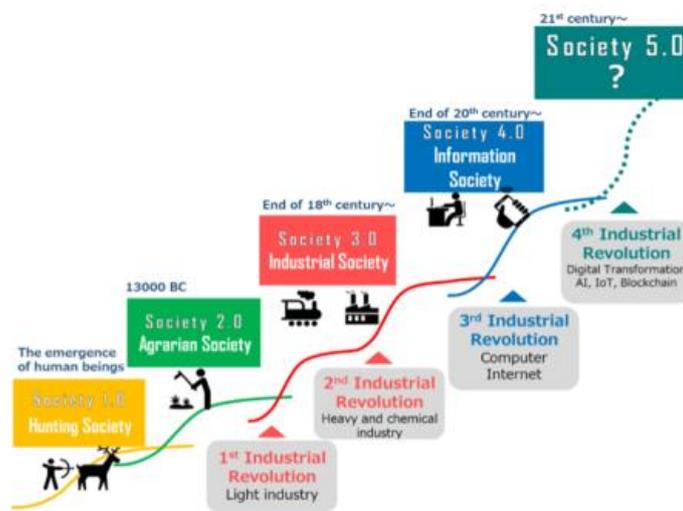

Figure 1:   Society 5.0 (1)

In the era of Society 5.0, societies must be both imaginative and creative. We must be imaginative in order to understand the diverse needs and challenges faced by different sectors of society, and we must be imaginative in order to design appropriate solutions. We also need to think creatively to utilize digital technologies and data to actualize viable solutions.
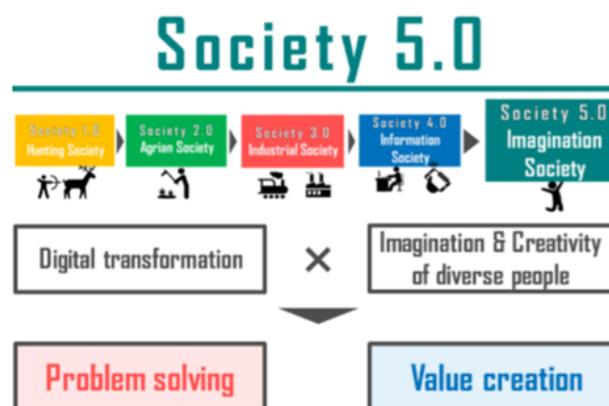

Figure 2:   Society 5.0 (2)

7   JICA-Keidanren "Co-creating Digital Development to achieve Society 5.0 for SDGs" (May 29, 2020)

2. Society 5.0 for SDGs

Society 5.0 aims to contribute to the UN's Sustainable Development Goals (SDGs) by addressing social challenges and enabling the peaceful co-existence of machines and nature. At Keidanren, we are promoting the idea of "Society 5.0 for SDGs" by advocating for the beneficial adoption of digital technologies to increase global prosperity.

(Examples)

➢ Urban and Rural Development: Realize diverse lifestyles through the development of independent, prosperous societies through the peaceful co-existence of humans and nature.

➢ Disaster Risk Reduction: Use digital technologies to maintain and manage essential infrastructure and rapidly share vital information across organizations.

➢ Financial Reforms: Efficiently allocate financial resources across societies.

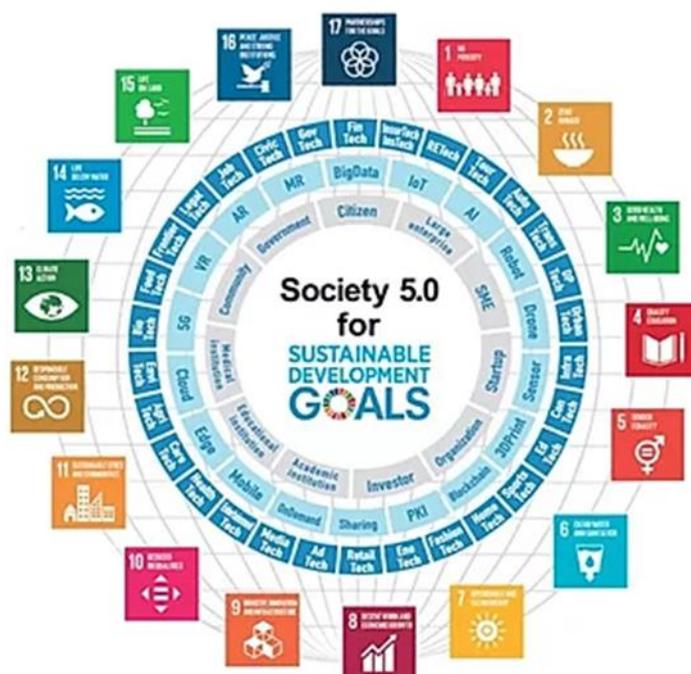➢ Public Administration Reforms: Establish social safety-nets to protect communities.

Figure 3: Society 5.0 for SDGs

(2) Japan's ODA and JICA's Assistance Modalities

Many stakeholders are involved in supporting the socioeconomic progress of developing countries, including governments, international organizations, non-governmental organizations (NGOs) and the private sector. Official Development Assistance (ODA), or the financial and technical assistance governments provide to developing countries, is one form of such cooperation. ODA is broadly classified into two forms of assistance: multilateral aid and bilateral aid. Multilateral assistance is financial contributions to multilateral assistance funds and programs. Bilateral aid is composed of three forms of assistance: technical cooperation, finance and investment cooperation and grants. Japan's bilateral assistance also includes dispatching volunteers to developing countries.
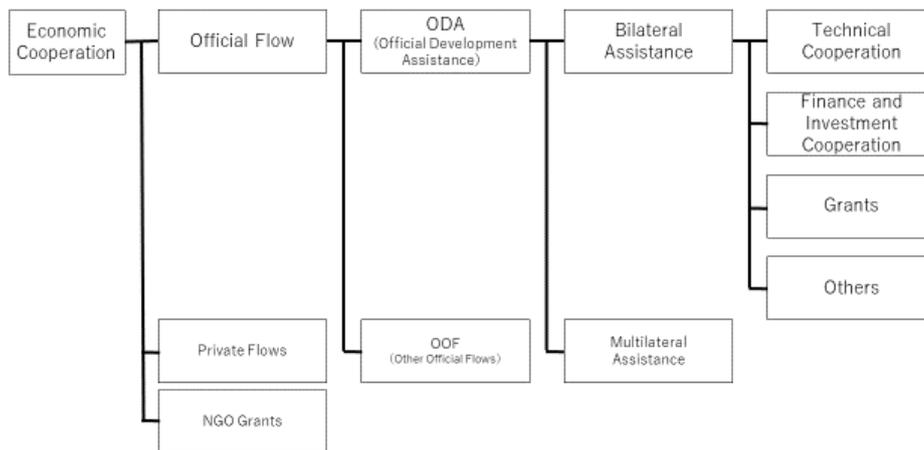

Figure 4:   Japan's ODA

JICA is one of the world's largest bilateral aid agencies providing foreign assistance to developing countries. Under JICA's Vision, released in July 2017, the agency supports developing countries to overcome their challenges by flexibly combining its various assistance modalities.

JICA's Mission

JICA, in accordance with the Development Cooperation Charter, will work on **human security and quality growth**.

JICA's Vision

Leading the world with trust

JICA, with its partners, will take the lead in forging bonds of trust across the world, aspiring for a free, peaceful and prosperous world where people can hope for a better future and explore their diverse potentials.

Table 1:   JICA's Mission and Vision

As Japan's ODA implementing agency, JICA provides support to developing countries by combining its various assistance modalities, including its financial cooperation and its technical cooperation, to address specific country needs. JICA currently manages operations in approximately 150 countries and territories, and it is able to use its various modalities to offer solutions that address a wide variety challenges through the use of digital technologies.

Financial Cooperation		
Finance and Investment Cooperation	**ODA Loans**	➤ ODA Loans are extended under generous lending conditions (long repayment periods, low interest rates) mainly to developing country governments for projects supporting the development in developing countries, and are applied to infrastructure construction and other projects requiring a large amount of funding.
	Private-Sector Investment Finance	➤ Private-Sector Investment Finance provides equity investment and loans for private-sector activities in developing countries.
Grant Aid		➤ Grant Aid provide funds mainly to low-income developing country governments without obligation of repayment to support the construction of facilities necessary for social and economic development, such as schools, hospitals, wells, and roads, and the procurement of equipment and other supplies.

Technical Cooperation / Public-Private Partnerships	

Technical Cooperation	➤ Technical Cooperation mainly supports developing country governments for the development of human resources that will promote socioeconomic development, the improvement of technical standards, and the establishment of administrative systems by utilizing the knowledge, experience, and technologies of Japan. By accepting training participants in Japan and dispatching Japanese experts, JICA assists developing countries' capacity development in solving problems.
	【Major type of assistance】
	   1. Dispatch of experts
	   2. Technical Training
	   3. Technical Cooperation Projects
	   4. Technical Cooperation for Development Planning

Public-Private Partnerships	➤ By providing support for the introduction of excellent technologies and products by Japanese private companies and their participation in projects, JICA contributes to the solution of the social and economic issues faced by developing countries. Such support is extended through schemes support programs for SME's overseas business development and PPP infrastructure.

Table 2: JICA's Primary Assistance Modalities

(3) Goals and Guiding Principles for Co-Creating Digital Development

Goal

Combine
(1) The solutions offered by Japan's private sector through the use of their digital technologies and know-how with
(2) JICA implemented ODA (financial cooperation, technical cooperation / public-private sector partnerships) to

Create Digital Societies with Trust (Society 5.0 for the SDGs) in Developing Countries

Guiding Principles

（１）Embody the concept of **Principles for Digital Development**
（２）Contribute to **Solving Developing Country Challenges**
（３）**Utilize the Wisdom of the Private Sector**
and their high-quality digital technologies and know-how.

Principles for Digital Development	Principles for Digital Development
	Design With the User User-centered design starts with getting to know the people you are designing for through conversation, observation and co-creation.
	Understand the Existing Ecosystem Well-designed initiatives and digital tools consider the particular structures and needs that exist in each country, region and community.
	Design for Scale Achieving scale requires adoption beyond an initiatives pilot population and often necessitates securing funding or partners that take the initiative to new communities or regions.
	Build for Sustainability Building sustainable programs, platforms and digital tools is essential to maintain user and stakeholder support, as well as to maximize long-term impact.
	Be Data Driven When an initiative is data driven, quality information is available to the right people when they need it, and they are using those data to take action.
	Use Open Standards, Open Data, Open Source, and Open Innovation An open approach to digital development can help to increase collaboration in the digital development community and avoid duplicating work that has already been done.
	Reuse and Improve Reusing and improving is about taking the work of the global development community further than any organization or program can do alone.
	Address Privacy & Security Addressing privacy and security in digital development involves careful consideration of which data are collected and how data are acquired, used, stored and shared.
	Be Collaborative Being collaborative means sharing information, insights, strategies and resources across projects, organizations and sectors, leading to increased efficiency and impact.

Table 3: Goals and Guiding Principles for Co-creating Digital Development

(Note) For additional information, please refer to the Principles for Digital Development; the Reference Information (2); and the Message from the Dial Impact Alliance CEO.

(4) Actions and Next Steps for

Co-Creating Digital Development

With COVID-19 sweeping across the world, JICA and Keidanren will focus on the following actions as part of its vision on Co-Creating Digital Development: (1) Crisis Response: share best practices to prevent the further spread of the virus; (2) Post-Pandemic Response: strengthen support to stakeholders from developing countries that have been badly impacted; and (3) Future Investments: Develop social systems and resilient infrastructure to enable economies to better manage global upheavals.

1. Crisis Response	2. Post-Pandemic Response	3. Future Investments
• [examples] • Use cloud medical systems and apps to monitor infections • Conduct media campaigns to educate and raise public awareness about the virus	• [examples] • Use fingerprint technology in health services for children ages 1-5 • ID Management System using Biometrics to Prevent Injustice Receipt	• [examples] • Analyze rural health screening data to prevent lifestyle diseases like Diabetes • Use ICT-based Construction(I-Construction) to refine on-site practices

Table 4: Actions and Next Steps (1)

As JICA and Keidanren work together to implement the aforementioned actions, we will also work to deliver the following next steps: (1) Establish dialogues between the Government of Japan and partner governments; conduct needs assessments; collaborate with start-ups to use their technologies and ingenuity to inform our work; (2) Conduct human resources capacity building for partner governments and institutions to strengthen their abilities; and (3) Introduce digital technologies like the IoT, AI and robotics to optimize actions through data-based decision-making.

Dialogues / Assessments / Collaborations	Capacity Building	Technology and Data
• Establish policy dialogues between Japan and partner governments • Use JICA's Network to conduct needs assessments • Collaborate with local start-ups and other development partners	• Conduct institutional reforms within partner governments and organizations • Strengthen human resources in developing countries	• Introduce digital technologies, like the IoT, AI and robotics • Actions based on analysis of information collected, utilizing digital device

Table 5: Actions and Next Steps (2)

3. Overview of Use Cases
for
Co-creating Digital Development
(will update regularly)

(1) Guidance on Use Cases

The appropriate use of digital technology is particularly important in developing and strengthening vital economic infrastructure, like those in the energy, transportation, telecommunications, and urban development sectors. These technologies are also imperative in helping to advance social systems, such as the creation of digital governments and essential agricultural, educational and health and medical services. Such infrastructure and social systems serve as the foundation for people's daily lives and economic activities. In order for developing country governments and stakeholders to effectively use these technologies, it is necessary for them to first conduct assessments to analyze current technology use, determine targets that would benefit most from technological reforms and strengthen their institutional and human resource capacities. In line with these objectives, this document provides use cases that could enable developing country governments and stakeholders to perform such assessments before implementing additional actions.

When devising nation and sector-wide digital strategy assessments, governments and stakeholders should first clarify their goals and identify the necessary steps to achieve them. The following diagrams depict the goals and corresponding steps that a Japanese power company identified to lead digital transformation in the electrical power sector. Prior to implementing individual activities or adopting digital technologies, we recommend drafting a blueprint like those diagramed below.
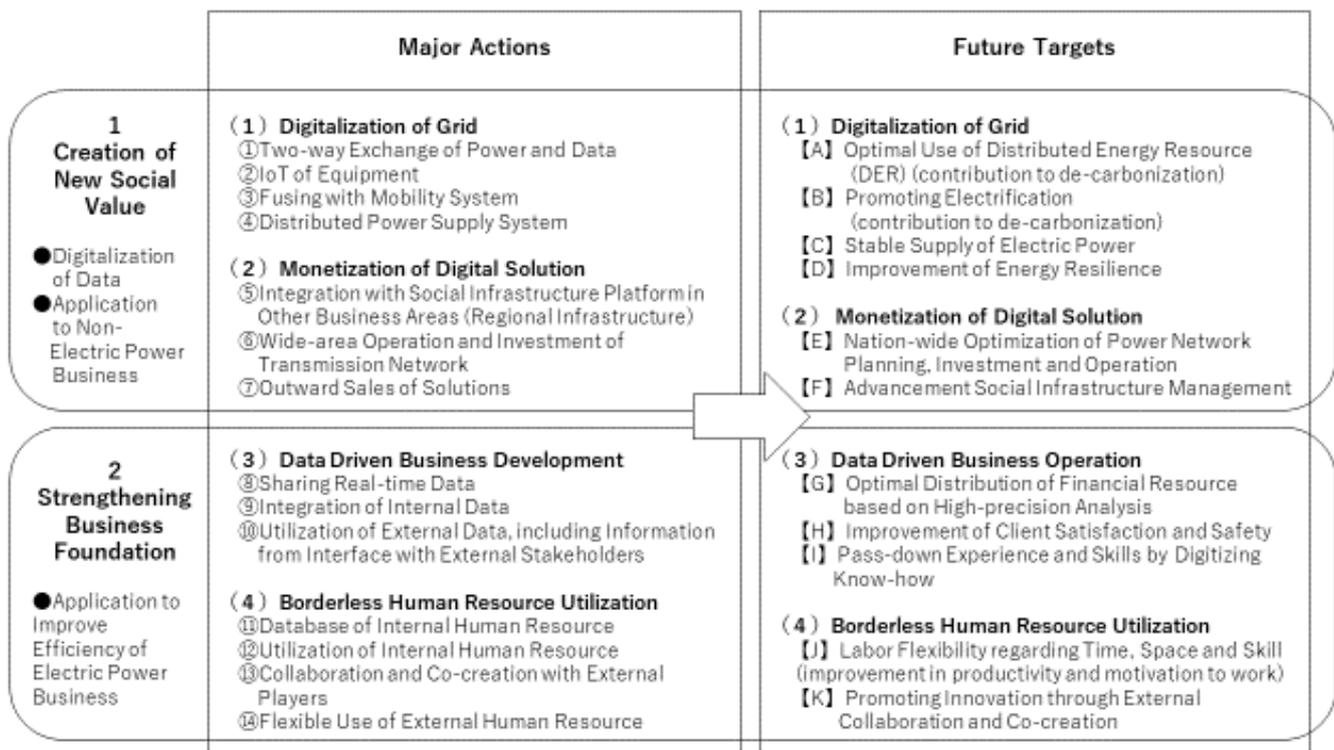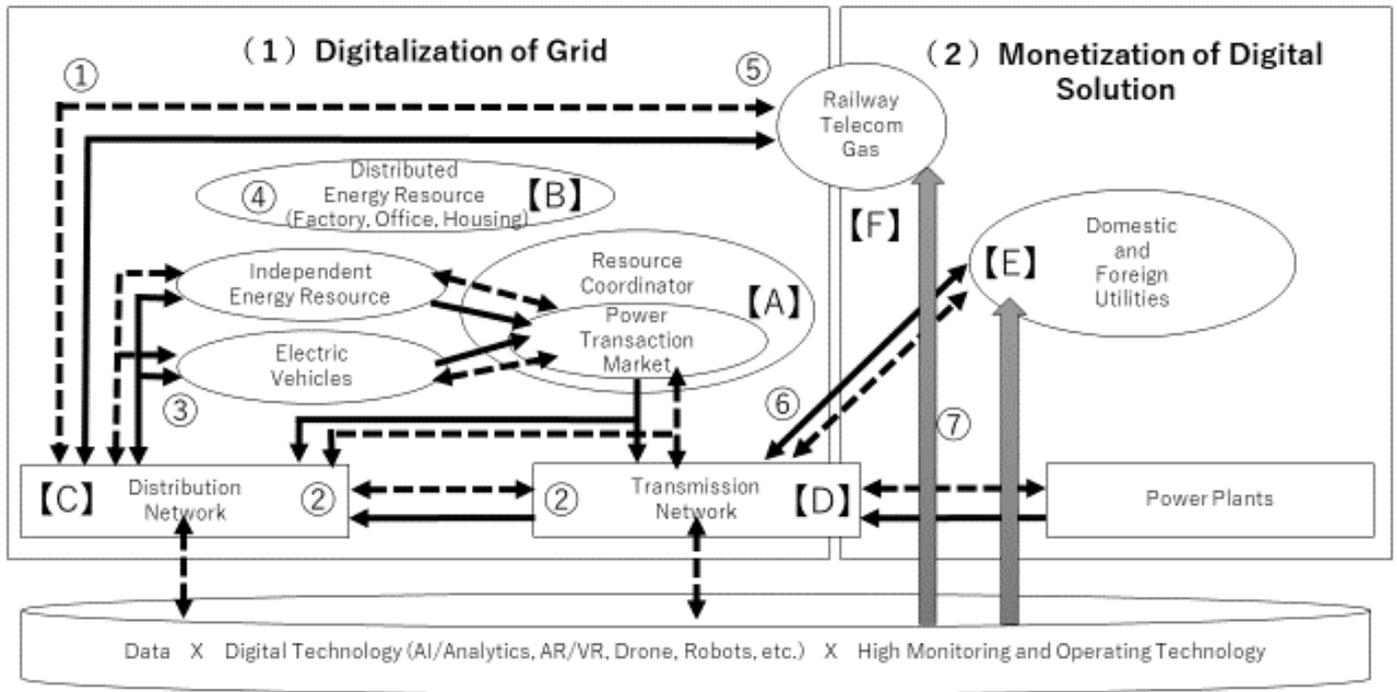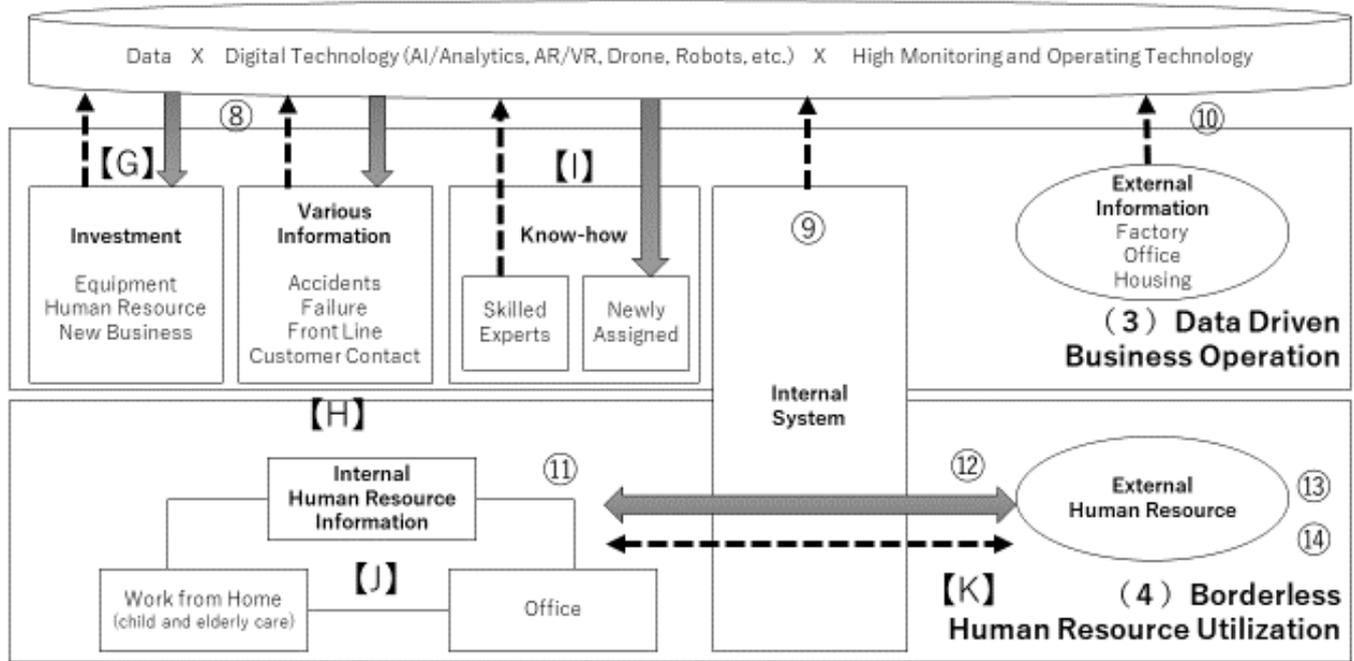

Table 6: Digital Transformation in the Electrical Power Sector

Figure 5:   Digital Transformation in the Electrical Power Sector

To help meet the gaps identified through needs assessments, this document outlines numerous use cases offered by private companies to use digital technologies to benefit societies. In each use case, private sector partners outline ways in which they can leverage JICA's ODA modalities to implement its idea. These outlines provide merely an example of how JICA's modalities can be used, and it does not represent the extent to which projects can apply different modalities in each proposal. The table below illustrates some of these examples.

Financial Cooperation (ODA Loan, Private-Sector Investment Finance and Grants)	Technical Cooperation / Public-Private Partnerships
Digital Frontier Projects (Entire project uses digital technologies to contribute to the SDGs) 【Platform Projects】 Examples : ●Smart City ●Digital Agriculture 【Single Projects 】 Examples: ●Cloud computing in healthcare ●IoT/AI for sustainable aquaculture **Digital Components** (Digital technology used as a component of the project, such as during assessments like project appraisals) ●Satellite images for Global 3D Maps ●Digital twins and 3D models for electric utility assessment management ●AI to strengthen security for public services, like airports and railways	**Case 1: directly related to financial cooperation impact and efficiency** Example: ●Recommendation System to Support Road Intersection Traffic Improvement using AI Image Analysis (develop the system in the initial stages of the road project, such as Master Plan study, and acquire the same set of data all the way to construction completion, ex-post evaluation and operation) **Case 2: indirectly related to financial cooperation (same sector, etc.)** Example: ●Solution for Visualizing Conditions of Farm (based on information collected from IoT (satellites, drones, cameras, sensors, etc.) and weather forecasts, etc.) **Case 3: institutional capacity building** Example: ●Digital Communication System to Inter Connect amongst Multiple Distant Locations (Video Communication System for Government Offices, and for Remote Medical care and Education service) **Case 4: local start-up collaboration** Example: ●Visualization of surface movement using Synthetic Aperture Radar (SAR) image analysis, and collaboration with local start-ups to combine them with geological, meteorological, transport flow, hazard map data, etc. on GIS.

Table 7: Examples of JICA ODA use

Each private sector proposal uses the format below to provide details of its plan. These proposals are based on general information provided by actual cases, and they are not meant to be understood as potential commitments for developing countries. Additionally, depending on country circumstances and the individual conditions of each project, the expected outcomes, and the scale of those outcomes, may not match the information outlined in the proposal. Furthermore, JICA will have full discretion in deciding whether to allocate its ODA for projects based on these proposals after taking into consideration its budget restrictions and country priorities.

Table 8 Project Proposal Format

If your government or other stakeholders are interested in any of these proposals, please feel free to contact your local JICA office or reach out to JICA HQ at the address provided below. Once we receive your request, JICA will get in contact with the company associated with the proposal. If the company gives JICA the permission to share its contact information, JICA will connect the relevant parties. Additionally, JICA will inform Keidanren about the request and interest in the particular proposal.

[Contact Information]
Information on JICA Overseas Offices
https://www.jica.go.jp/english/about/organization/overseas/index.html
JICA Headquarters Contact
Office for Science, Technology, Innovation and Digital Transformation,
Governance and Peacebuilding Department
(Email address: imgsi@jica.go.jp）

(2) Overview of Use Cases by Category

We have grouped all our use cases into the following three categories. Should a project proposal fall under multiple categories, the proposal will be classified under its first eligible category.

> Category A: Digital Assessments and Related Activities for Developing Country Institutions
> Category F: Digital Frontier Projects (F-1: Platform Projects, F-2: Single Projects)
> Category C: Digital Components

On the left-hand side of each proposal, we have indicated the primary and secondary SDGs that each proposed project is expected to address.

Please note that it has been the responsibility of private companies to formulate use case proposals and JICA and Keidanren are not liable for any consequential damages related to the use of such proposals. These include incidental and indirect damages, including the loss of income and profit, as well as any damages to interested parties and third parties, regardless of foresight or foreseeability.

Category A: Digital Assessments and Related Activities for Developing Country Institutions

SDGs③(4,8,9,17)
Health and Medical Digital Assessment and Solution Matching

SDGs⑧(1,16)
Agile Leadership to Promote Organizational Digital Transformation

SDGs⑧(1,16)
Establishing Human Resource Capacity to Promote Digital Reform utilizing Strategic Workforce Planning and BOT (Build-Operate-Transfer) Model

SDGs⑨(6,11)
Digital Reform Assessment for Infrastructure Authorities
(Telecom, Electric Power, Gas, Water, Transport, etc.)

SDGs⑨(8,11,17)
Cyber Security Incident Handling Training

SDGs⑰
Digital Assessment for Public Institutions

Category F: Digital Frontier Projects

F-1: Platform Projects

SDGs①⑨⑰(2,4,7,8,12)
Data Driven Solution for Social Challenges in Developing Countries
～Contributing to Enhancement of Livelihood through Solving Social Challenges in Developing Countries utilizing Big Data and Partnership with Start-ups～

SDGs②④⑥(8,9,13,14,15)
Sustainable Food Production Eco-cycle based on Digital Agriculture Platform
～Simultaneously Contributing to Higher Productivity, Human Resource Development and Environmental Conservation utilizing IoT, Big Data and AI～

SDGs⑧(1,16)
Blockchain Platform for Traceability of Scarce Resources and Products and for Equitable Profit Sharing Mechanism

SDGs⑨(4)
Government Common Platform for Developing Countries
～Supporting Governments and Public Institutions in Developing Countries to Develop IT Infrastructure utilizing Public Cloud～

SDGs⑨⑬⑮(2,4)
Establishment of Smart Seed-Breeding Platform
～New Variety Development by Conserving Crop Genetic Resources and Uncovering Useful Traits～

SDGs⑪(8,9,17)
Upgrading Civil Services and Industrial Promotion based on Development of Unified Smart City Platform (City OS) at National and Regional Levels

SDGs⑪(9)
Recommendation System to Support Road Intersection Traffic Improvement using AI Image Analysis
～Solution for "Transport Safety" and "Traffic Congestion" using Surveillance Camera Images～

F-2: Single Projects

SDGs①(8)
Blockchain-based Music Investment System for Improving Livelihood of Refugees and People in Poverty

SDGs①(8)
Digital Money Salary Payment System and Job Creation Program through Public Investment funded by Temporary Use of Digitally Paid Salary

SDGs①②⑥(13,15,17)
Solution for Visualizing Conditions of Farm and Automatic Farming using AI
～Subscription Services Using Cloud Application to Reduce Initial Investment Cost～ (applicable product is processed tomato only)

SDGs①②⑧⑨(17)
Agricultural Development Support in Developing Countries utilizing E-Voucher

SDGs②
Satellite Image Applicability Study for Upgrading Beekeeping Industry

SDGs②(6)
Digital and Modern Irrigation Agriculture through Development of Evidence Data based Canal Management System

SDGs②(8)
Farmer e-Learning based on Video Digital Content
～Dissemination Training for Ensuring Quality of Agricultural Products using Smart Phones and Long Distance Wi-Fi Network～

SDGs②(15,17)
Solution for Visualizing Conditions of Farm
～Subscription Service Using Cloud Application to Reduce Initial Investment Cost～

SDGs②③(4,5)
Digital Maternal and Child Health Handbook for Improving Developmental Disorders and Mortality Rates of Infants

SDGs③(9)
Medical Communication Networking towards Universal Health Coverage (UHC) in Developing Countries

SDGs③(17)
Cloud Medical Systems and Applications Supply
 (Supplying Picture Archiving and Communication Systems (PACS), Tele-Radiology Systems, Diagnostic Imaging AI, and Personal Healthcare Record (PHR) Applications)

SDGs③⑫(11,13,17)
IoT for Optimal Operation of Elimination Type Microorganism Organic Matter Disposal Machine for Food Residue and Garbage

SDGs③⑯(17)
Universal Health and Civil Services Coverage in Developing Countries utilizing Child (1-5 years old) Fingerprint Technology

SDGs④(3)
Harnessing Visual Media for Education and Raising Public Awareness
Building a "Learning Society" to Provide Universal Access to Education

SDGs④⑧⑨(2,6,13,14,15)
Capacity Building Activities utilizing Digital Agriculture Platform

SDGs⑤⑧⑪⑯⑰(3)
AI Technology for Strengthening Security in Public Facilities (Airports, Railways, etc.) ～High-speed, efficient search and tracking of individuals based on big data from surveillance camera video, using non-facial features～

SDGs⑦
Hybrid Renewable Power Storage System for Mobile Network Operators and Off-Grid Areas / Mini-Grids

SDGs⑧⑨⑪⑬(3,6,17)
Emergency Warning Broadcast System (EWBS) using Digital Broadcasting Technology ～Technical Support for Development of Low-cost and Resilient "Local Inclusive Disaster Prevention Information Dissemination System"～

SDGs⑨(7,13)
Preliminary Study for Designing Smart Buildings
〜Digital Technology Driven Low-Carbon, Energy-Saving Type Building Management〜

SDGs⑨(11)
Air Traffic Control and Navigation System

SDGs⑨(11)
Development of Digital Agriculture Cooperatives in Developing Countries

SDGs⑨(13)
Telematics Dash Camera for Establishment of Comfortable and Safe Road Transportation System

SDGs⑨⑪
Traffic Control System during the era of CASE (Connected, Autonomous, Shared/Service, Electric) 〜Traffic Situation Prediction done by AI through Fusion of Vehicle Probe Data and Infrastructure Sensor Information (Currently under R&D)〜

SDGs⑨⑪(13)
System for Non-contact Debris Flow Detection utilizing Visual Image Analysis Technology

SDGs⑨⑰(4)
Utilizing AI to Transfer Skilled Expert Knowledge for Material Processing Industry Operation

SDGs⑩⑰(8,16)
Blockchain System Development
〜Human Resource Management System linking Japan and Developing Countries, and National ID System in Developing Countries〜

SDGs⑪(9,16)
Enhanced Video Analytics Solution
〜Strengthening Security by Behavior Detection, etc.〜

SDGs⑪(13)
Digital and Modern River Disaster Management through Development of Evidence Data based River Information System

SDGs⑪(13,16)
Solution for Public Safety using LTE (PS-LTE)
(Developing Safer Cities utilizing LTE Network)

SDGs⑪⑯
Personal Authentication System for Immigration using Biometrics

SDGs⑪⑯
ID Management System using Biometrics to Prevent Injustice Receipt of National ID Cards and Social Security

SDGs⑬(2)
Next Generation Weather Forecast Service powered by Microsatellites
〜Precision Forecast based on AI Analysis utilizing Unique Earth Observation Data〜

SDGs⑭(2,7,9,12,17)
IoT / AI Solution and Recirculating Aquaculture System (RAS) for Stable Production of Farmed Salmon throughout the year

Category C: Digital Components

SDGs②⑨⑫⑭⑮(8)
Robotic Conveyor Service Fit for Logistic Locations
 (for Seaports, Land Border/Immigration Facilities, Freight Railway Terminals, Freight Truck Terminals, Agricultural Warehouses, etc.)

SDGs③(1,4,5)
Preventing Lifestyle Diseases (such as Diabetes) using Rural Health Checkup Data
～Solution for Social Issues in Emerging Countries, such as Poverty, Gender Equality and Health～

SDGs③④(8,9,11,13,17)
Digital Communication System to Inter Connect amongst Multiple Distant Locations
～Video Communication System for Government Offices, and for Remote Medical care and Education service～

SDGs⑦(9)
Service in regards to Improvement of Power Plant Operation utilizing Digital Technology (Proof of Concept)

SDGs⑦(9,17)
Digitalization for Design and Construction of Underground Distribution Power Facilities

SDGs⑦(9,17)
Digital Twin and 3D Technology for Asset Management of Electric Power Facilities (Generation, Transmission, Substation, Distribution)

SDGs⑨
Enhancing Productivity of FPSO (Floating Production Storage and Offloading System) utilizing IoT and AI

SDGs⑨(7)
Preliminary Survey and Proof of Concept for Utilization of Drone in the Energy Sector

SDGs⑨(7,13)
[Drone x AI Utilization] Inspection Service for Solar Cell Modules (Panels)
(Service for Mega Solar Power Plants)

SDGs⑨(8,11,17)
Walkie-talkie like Communication at Anywhere using Ordinary Smartphones

SDGs⑨(8,11,17)
Economic Data Network for IoT Device to Support Wide Area Coverage, Low Power Consumption, High-speed Moving Communication, and Data Transmission
(LPWA: Low Power Wide Area)

SDGs⑨(11)
Regional Monitoring of Infrastructure (Energy, Transport, etc.) utilizing Synthetic Aperture Radar (SAR)

SDGs⑨(11)
Overseas Deployment of ICT-based Construction (I-Construction) for Efficient and Refined On-site Practices

SDGs⑨⑪⑬⑰(2,6,15)
Global Digital 3D Map prepared from Satellite Images

SDGs⑪
Detecting Dangerous Objects Using Invisible Sensing for Overseas Transport Projects (Railways, Buses, etc.)

SDGs⑪(7)
Harbor Monitoring Solution
～Security Solution to Comprehensively Monitor Important Coastline Social Infrastructure, Sea Port Facilities, Vessels, etc. from Air, Water Surface and Underwater～

SDGs⑪(7,9,13,17)
Mobile Solar Camera Solution
～Cloud Surveillance System, possible to be used even in Areas without Wired Network and Power Supply～

SDGs⑬(1,8,11)
3D Modeling Solution with a Smartphone for Quick Disaster Investigations

SDGs⑬(7,9,12,17)
AI Assessment for
Deterioration of
Existing Solar Power Plant

4. Reference Information

(1) Promoting Data Free Flow with Trust (DFFT) through the Super City Initiative

Office for the Promotion of Regional Revitalization (National Strategic Special Zones), Cabinet Office, Government of Japan

1. Super City Initiative (J-Tech Challenges to achieve the SDGs)

➢ Many cities around the world are conducting urban development projects utilizing up-and-coming digital technologies, like AI and Big Data. For example, in Hangzhou, China, and Barcelona, Spain, private enterprises have collaborated with public administrations to establish projects that improve their urban environments and enhance people's livelihoods. In Japan, however, we have not implemented these activities on a nationwide scale, even though we have access to these same underlying technologies. To address this issue, the Cabinet Office of the Government of Japan launched the "Super City Initiative" to establish a "Comprehensive Future City," under the government's policy to realize Society 5.0.

➢ By conducting regulatory reforms to make the Super City Initiative possible, Japan seeks to offer solutions for a wide array of regional social challenges by implementing reforms across nearly all sectors. These sectors include transportation, logistics, payments, public administration, medical and healthcare services, education, energy, environmental conservation, law enforcement and disaster mitigation. Through this initiative, Japan will collect data on these sectors and place the information on a shared platform to enable Japan to work toward providing services that better meet citizens' needs. The National Diet of Japan passed and enacted legislation on the Super City Initiative that would enable rapid and simultaneous regulatory reforms with these goals in mind. To facilitate more collaboration across cities and sectors, Japan will ensure the Application Implementation Interface (API), established through the shared data platform, will be free and open to the public.
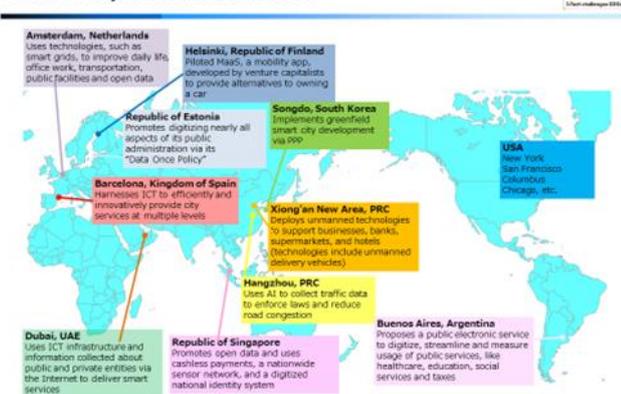
2. Private Enterprise Involvement

➢ Data platforms and service applications developed under the Super City Initiative require collaboration with private enterprises. Given their importance, the Cabinet Office has set up a permanent online hub called the "Super City Open Laboratory." Through this hub, local governments can access virtual exhibition booths of participating private enterprises to learn about each other's activities. To date, 100 private enterprises have participated in this venture.
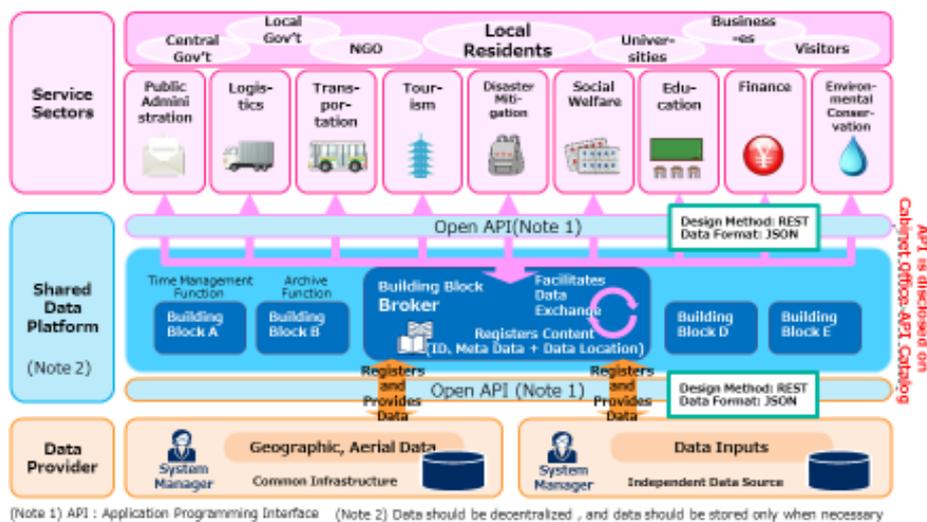
3. Shared Data Platform and Open API

➢ Under the Super City Initiative, participants of the shared data platform can mutually utilize data collected through the IoT by sensors, common infrastructure (including geographic data) and other data sources. This platform is then managed by brokers who gather and process the data to then share pertinent information to relevant parties. Additionally, these brokers connect service and data providers via the API and serve as "gatekeeper" by facilitating and managing the collection and transaction of the data. Given the everyday nature and costs of data maintenance, as well as security and privacy considerations, we are also planning to decentralize the data platform to prevent brokers from accumulating too much information. Additionally, we will only share data through the API when requested.

Technical Specifications of the "Super City Initiative"

- The Super City Initiative caters to a wide variety of service sectors and does not have specific technological restrictions.
- Shared Data Platform participants 1) **must disclose API on the catalogue developed by the Cabinet Office** and 2) to the extent possible, **use brokers to facilitate data exchange to decentralize data collection and transaction**.
- To ensure the security of the shared data platform, all concerned parties **should comply with data laws and regulations** and **adhere to security precautions equivalent to standards set forth by the Government of Japan**.

(Note 1) API : Application Programming Interface　(Note 2) Data should be decentralized , and data should be stored only when necessary

➢ As mentioned earlier, Japan will ensure that the API is free and open to the public under the Super City Initiative's shared data platform. Everyone will have access to the API, except for in such cases where participating entities wish to keep specific data confidential. Additionally, we will create a user-friendly website for technical development professionals, which will publicly showcase data accessible on the API. On this website, we will outline the terms for usage of the API, as well as disclose the sources of the API data. Furthermore, the Cabinet Office of the Government of Japan will develop guidelines for standardized methodologies, including methods for data transmission and data format.

4. Expectations for implementing the Super City Initiative in Developing Countries

➢ Access to the API and its standardized data platform will enable cities, individuals and corporations to freely and openly exchange data and connect with one another. The API's operability among participating cities will be strengthened by fostering friendly competition, establishing dialogue between cities for data standardization and creating a space for cities to share mutually beneficial information. By ensuring the connectivity and collaboration among cities, we can avoid creating limited and siloed solutions. This would then enable communities to implement best practices around the world, including in developing countries. Through the API and its shared data platform, Japan hopes to pioneer the Super City Initiative into an array of untapped interconnected markets.

(2) Message from

the Digital Impact Alliance

CEO, Ms. Kate Wilson

1. About Digital Impact Alliance (DIAL)

➢ The Digital Impact Alliance (DIAL) advances digital inclusion to achieve the Sustainable Development Goals (SDGs) so that all women, men and children can benefit from life-enhancing, mobile-based digital services. DIAL focuses on streamlining technology, unlocking markets and accelerating the rate at which others can deploy digitally enabled services. A partnership among USAID, the Bill & Melinda Gates Foundation, the Swedish government and the United Nations Foundation, DIAL's efforts help accelerate the collective efforts of government, industry and development organizations to realize this vision. DIAL is staffed by a global team and is guided by a board of leading emerging market entrepreneurs, technologists and development experts, making us uniquely positioned to serve as a neutral broker to promote new solutions to old problems.

2. About Principles for Digital Development

➢ In 2016, DIAL was named steward of the Principles for Digital Development (Digital Principles). The Digital Principles are nine living guidelines designed to help integrate best practices into technology-enabled programs and are intended to be updated and refined over time.

➢ As steward, DIAL facilitates dialogue among the digital development community, curating the exchange of new ideas and resources, and promoting adoption and new endorsement of the Digital Principles. DIAL seeks to foster community engagement and interaction; provide practical, relevant how-to guidance and resources for digital development practitioners, including implementing organizations, donors, and country governments; and increase awareness about the Digital Principles themselves.

3. Role of Digital Development in Response to COVID-19 and Beyond

➢ DIAL works with government, NGO, and MNO partners to utilize data analytics from mobile networks to understand population mobility patterns. When combined with traditional public health surveillance systems data, data analytics can be used to forecast population size to get a more accurate denominator and understand movement patterns of people to predict where supplies should be distributed. For example, the Government of Malawi has successfully used aggregate analytics from MNO data to establish where health services should be delivered in the country. Any NGO operating in Malawi can how access these data analytics upon request from the Ministry of Health. These analytics cannot be used to track individuals and is not useful in epidemiological "track and trace" surveillance.

➢ In response to COVID-19 and beyond, it is important to utilize the Principles for Digital Development when creating an appropriate digital response. Although speed and action are critical, the Digital Principles remind us that the response must leverage existing efforts from the ecosystem and address privacy and security considerations of those being reached. As the Digital Principles steward, DIAL can help countries or organizations identify existing tools or actors who are considering rapid responses or deploying new tools in fragile contexts.

➢ To that end, DIAL has developed an online catalogue of mobile network service integrators and aggregators that provide mobile service delivery around the world. This catalogue (https://registry.dial.community/organizations) helps users understand which mobile channels are available in a specific geography. On the aggregator page, you will see which countries an aggregator works in, which mobile network operators they partner with, and the specific service offerings that they provide.

4. Expectation to JICA and Keidanren (Japan Business Federation)

➢ Endorsing the Principles for Digital Development means that an organization, at the highest levels, agrees to put the Digital Principles into practice through its policies, processes and activities. It is a formal and public acknowledgement that an organization is committed to designing technology-enabled tools that can reach more people, achieve greater impact and produce stronger and more sustainable outcomes by actively living out the Digital Principles.

➢ As a formal endorser of the Digital Principles, JICA will be held to the expectation to embody the concepts of the Digital Principles, represented in their work culture and in the policies and processes guiding international development activities, including co-creation activities with Keidanren (Japan Business Federation).