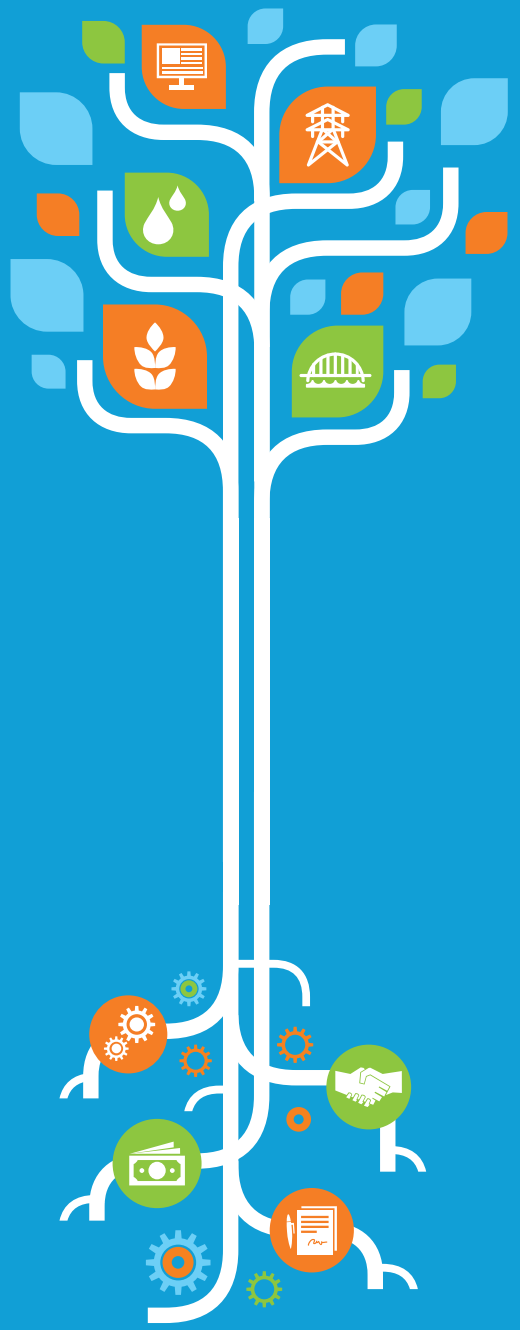

ADB

TAITRA 2021 ADB Business Opportunities Seminar

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BUSINESS OPPORTUNITIES

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[1] Digital Technology (DT) and Information and Communications Technology (ICT) are often used interchangeably. DT is a newer term used to highlight its transformative role in the digital economy.

What are Digital Technologies?

These digital technologies are likely to be important for ADB operations.

Technology	Description
1. Broadband Communications	Mobile networks (5G), undersea cables, satellite networks, etc.
2. Smartphones	Low-cost personal devices for broad public internet access
3. Digital Identification	Critical for deploying personal digital services
4. Digital Payments	Critical for enabling digital commerce
5. Cloud Computing	Enables data storage and processing without physical infrastructure
6. Internet of Things (IoT)	Low cost sensors that collect data from everyday life and are connected to the internet to enable digital services
7. Artificial Intelligence	Using big data, collected from a variety of data sources such as sensors and social media, to build intelligent systems for development projects
8. Robotics/Drones	Using intelligent systems to power autonomous machines
9. Cybersecurity	Improving the privacy and security of users
10. Geospatial Information Systems (GIS)	Digital location, mapping and routing services (e.g. ridesharing apps enabled by GPS, digital maps and digital routing)
11. Earth Observation	Using satellite and drone imagery for planning and analysis tasks
12. Genetics	Genetic sequencing and editing for health and agriculture

PART I.
ADB Digital Technology Projects (2010–2019)

ADB's Digital Technology Projects at a Glance (2010–2019)

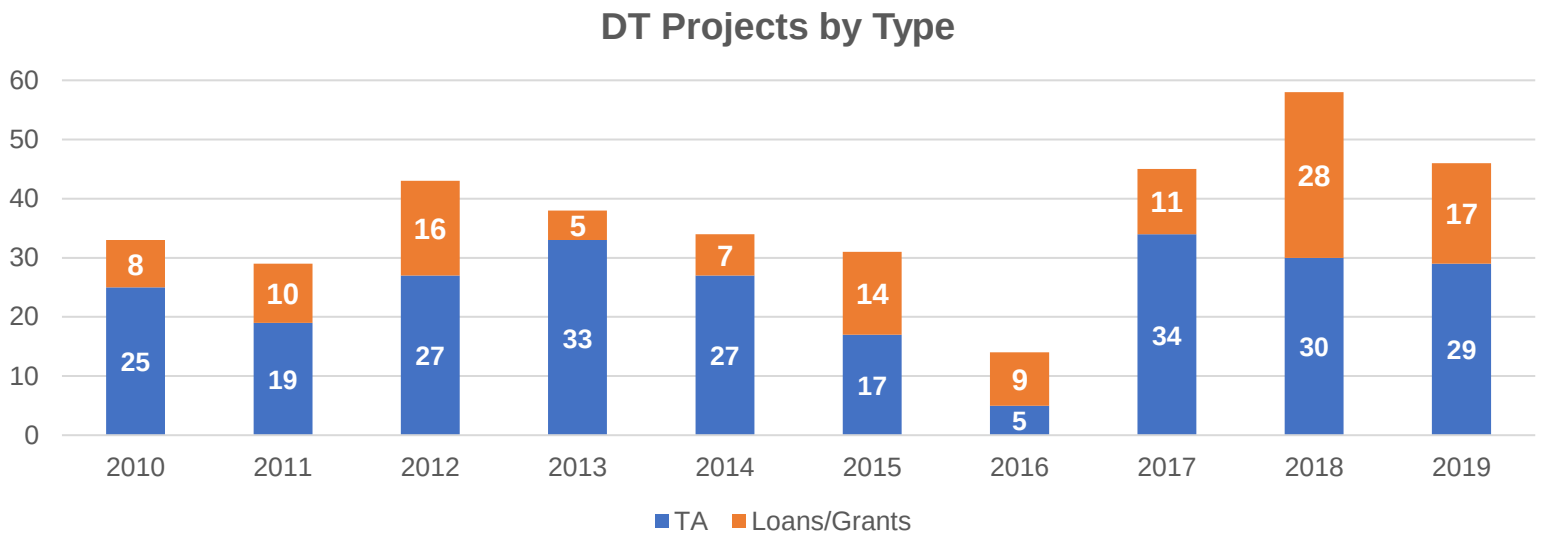
- ADB supported **371 DT projects** (including 27 non-sovereign projects)

  ✓ 125 loans/grants

  ✓ 246 TAs

- **1 out of 10** (371 out of 3,709 ADB projects) had DT components.

	Typical DT interventions
Loan/Grant (non-sovereign)	• DT application, MIS system development • Telecommunications
TA	• Pre-feasibility study • Advisory reports on policies and regulations • Training, knowledge sharing



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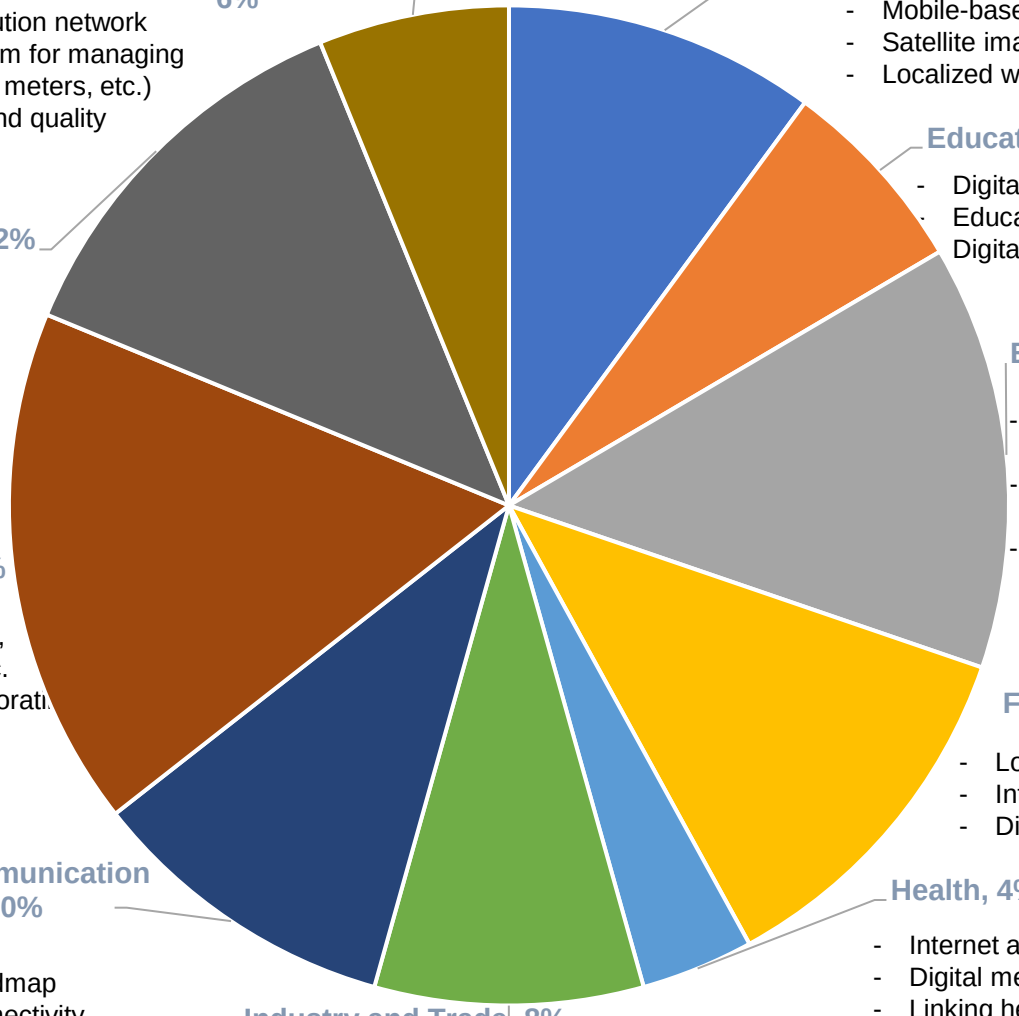
Digital Technology Projects per Sector (Loans and Grants) and Example Projects (2010–2019)



Water and other urban infrastructure and services, 6%

- Control system for water distribution network
- Digital asset management system for managing lifecycle of infrastructure (pipes, meters, etc.)
- Sensors to detect water leaks and quality

Agriculture, natural resources and rural development, 10%

- Mobile-based agriculture extension services
- Satellite imagery to optimize irrigation
- Localized weather information for farmers

Education, 6%

- Digital tools to teach students
- Education management information system
- Digital job skills and job placement services

Transport, 12%

- Real-time traffic optimization using data from sensors
- IT systems for scheduling, ticketing, etc.

Energy, 13%

- Smart grid system for renewable energy system
- Digital tools for efficiency (e.g. automatic street light control)
- Charging infrastructure for electric vehicles

Public sector management, 16%

- eGovernment portal: birth, death, marriage, vehicles, business, etc.
- National digital ID system incorporati biometrics

Finance, 11%

- Low cost digital payment networks
- Internet banking via smartphones
- Digital credit scoring for SME lending

Information and communication technology, 10%

- National broadband strategy/roadmap
- Submarine cables for island connectivity
- National financial management systems for procurement, payroll, etc.

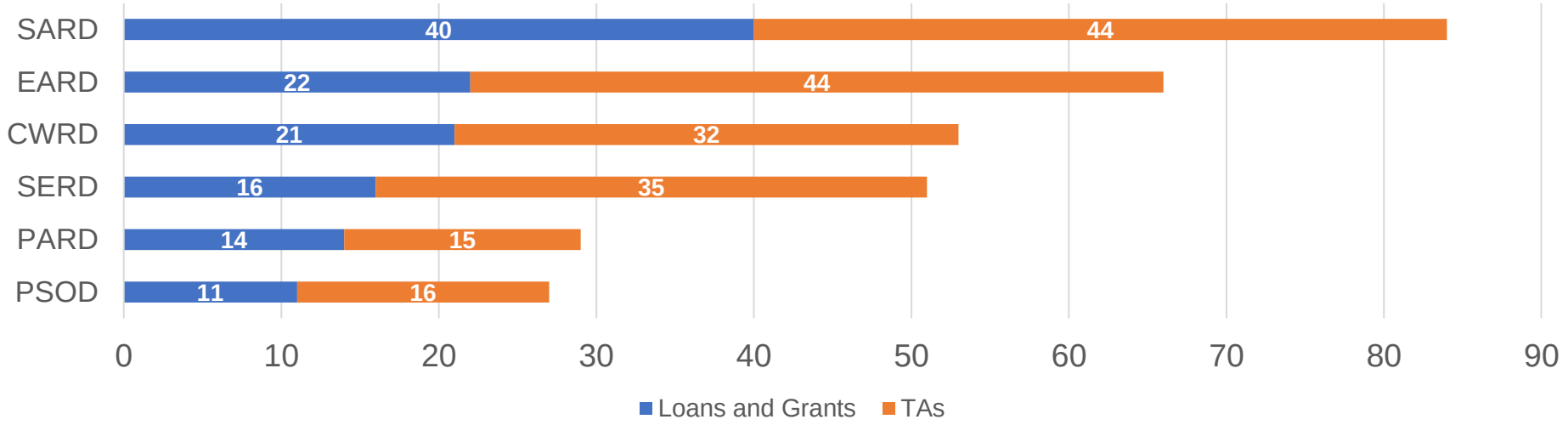
Health, 4%

- Internet access for health facilities
- Digital medical records systems
- Linking health systems to national ID

Industry and Trade, 8%

- Digitization of customs clearance documents and processes
- Submarine fiber cables for internet connectivity

Digital Technology Projects by Department and Country (2010–2019)



TOP 5 Countries

Country	Total DT Projects	Loan/Grant	TA
PRC	37	15	22
India	26	13	13
Mongolia	23	7	16
Bangladesh	17	8	9
Indonesia	16	7	9

PSOD projects

- 11 loans: i) telecom backbone expansion in PNG and Solomon Islands, ii) telecom projects in Myanmar, iii) SMS-based prepaid payment for solar power service in India; iv) branchless banking in AZE; and iv) broadband internet satellite
- 16 TAs: feasibility studies, pilot project in areas mobile agriculture service, mobile finance, telecom network (Georgia, Azerbaijan, Pakistan, Solomon Islands)

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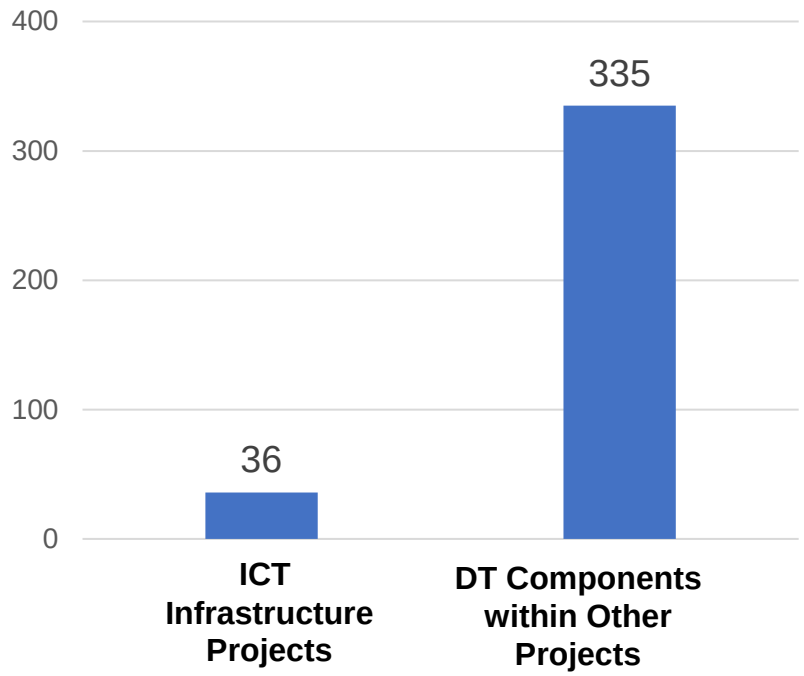
ADB Support for Digital Infrastructure is So Far Limited



- ADB supported 36 ICT infrastructure projects, **mainly for telecommunication sector and submarine cable and connectivity projects**.
- Broadband Internet connectivity is fundamental for DT services, but only 50% of population are connected to the Internet, mostly in urban areas. It is critical due to the lockdown caused by the pandemic as well as for economic recovery through untact businesses such as e-commerce, e-learning, telehealth, among others.
- ADB might consider supporting universal internet access programs via innovative financing options including PPP and Universal Service Funds (USF)[1)] to support internet connectivity in rural and remote areas.

1 Most countries impose a levy (typically 1-3% of annual revenue) to telecom operators to expand mobile network and broadband internet in rural and remote areas at affordable prices under Universal Service Program. ADB's support can complement the USP in expanding the broadband internet as well as e-services in those areas.

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PART II.

Strategy 2030 and Digital Opportunities

OP1: Addressing Remaining Poverty and Reducing Inequalities

Education	▪ Primary and Secondary: e-learning content, teaching skills using digital content, computer labs, and education sector MIS. ▪ TVET: skill matching databases for employment, digital skills for jobs ▪ Tertiary: improve curriculums on digital technology, and build research labs on digital technology	**Bangladesh: Tertiary Education** **Proposed BAN: Improving Computer and Software Engineering Tertiary Education Project** • $100M Loan (proposed in 2019) • DT component: IT and computer science education to produce IT skilled graduates in growing IT industry **State of Skills in Asia Report with LinkedIn** • Digital skills taxonomy to classify and analyze digital skills in the market
Health	▪ Universal health care by introducing national health information systems ▪ capacity building programs for health practitioners in rural health care centers ▪ Support rural health infrastructure equipped via internet connectivity and patient information systems	**Viet Nam: Local Health Care for Disadvantaged Areas Sector Development Program** • $100M Loan (2018) • DT component: To upgrade commune health station (CHS) infrastructure including the implementation of electronic health records
Social Protection	▪ Integrated social protection management information system covering various social protection schemes ▪ innovative payment mechanism (mobile, off-the-shelf payment using digital identification) for beneficiaries	• **Philippines: Expanded Social Protection Program.** $500M policy-based loan, (2020) • DT component: automate compliance verification by IT integration. ✓ E-payment, grievance redress process

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OP2: Accelerating Progress in Gender Equality

Education	• Distance learning for girls • Vocational and skills program on digital technology for girls
Women-led enterprises	• Use digital technology to provide women access to gender-sensitive financial services and alternative access to finance, especially for women entrepreneurs in rural and peri-urban areas. • Financing programs for women entrepreneurs to set up businesses in digital service industries (e.g. e-commerce, online outsourcing services, data entry, programming, web design, etc.)
Social Protection	• Social protection program for pregnant, childcare, and elderly using digital ID system (see Pakistan example on next slide)

Pakistan: Benazir Income Support Program (BISP)

- Government program launched in 2008 as a flagship safety net program
- Provides monthly cash grants to women in the targeted families
- Possession of a computerized national ID card (CNIC) is a prerequisite for the benefits.
- In the beginning, 50% of women were not registered with a national ID.
- ADB support for BISP
  - ✓ $430M loan
  - ✓ Status: Approved in 2013 (currently active)
  - ✓ Supported expansion of the cash transfer program (paid to the female head of targeted poor families)
  - ✓ Women households receive payment via ATMs, banks, mobile phones based on a computerized national ID card.
  - ✓ The program is currently expanding the benefits to health insurance and skills development based on the same ID card.
- As of today, 20M additional women were registered and issued a national ID.

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OP3: Climate Change, Disaster Resilience, and Environmental Sustainability

Energy	• Renewable energy integrated into smart grids • Digital Technology for energy efficiency (e.g. automatic street lighting control) • Electricity charging infra for Electric Vehicles
Disaster Risk Management	• National disaster and emergency communications network (mobile and satellite communication) • Mobile-based early warning system (floods, earthquakes) • Satellite imagery for disaster risk assessment, rehabilitation planning,
Environment	• Earth Observation (EO) technology for monitoring weather, environment, ocean pollution, etc. • Big data analysis from various information sources on weather, land, water sources, etc. contributing to integrated water resource management and planning

Earth Observation Examples

India: Kolkata Environmental Improvement Investment Program

- Developed flood risk maps and improving resilience to floods using satellite imagery of prior flood incidents
- Funding from $1M TA, associated $100M loan (2016)

Indonesia: Emergency Assistance for Rehabilitation and Reconstruction

- Comparing pre- and post-tsunami satellite imagery to plan the reconstruction of the Palu
- $300M loan program approved in June 2019

Pakistan: Climate Change Risks for Sindh Coastal Area

- Identify areas of coastal degradation using satellite imagery to prioritize mangrove rehabilitation
- Loan preparation for 2020

Bhutan: Integrated Irrigated Agriculture Development Project (BIIADP)

- Identify landslide risks to irrigation infrastructure in Bhutan using satellite imagery
- Loan preparation for 2020

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OP4: Making Cities More Livable

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Urban Water and Waste Management	• Asset management information systems (water pipes, sewer pipes, etc.) • Smart technologies (IoT sensors) used to detect water leaks in pipes • Supervisory Control and Data Acquisition (SCADA)[1)] systems	**Promoting Smart Drinking Water Management in South Asian Cities** • TA: $2.5M(2015) • Digital technology component: smart technology solutions (IoT-based) for non-revenue water leak detection • Knowledge partnership with K- Water
Urban Transportation	• Intelligent Transportation Systems (real time traffic control, transport routing information, ambulance dispatch, etc.) • IT systems for multi-modal transport systems (scheduling, ticketing, unified transport card, etc.)	**Guizhou Gui'an New District Smart Transport System Development Project in PRC** • Loan: $200M(2019) • Digital technology component: Intelligent Transport System (ITS), electronic buses and its infrastructure
Others	• e-government services at local government offices (civil registration, vehicle registration, business registration services) • Smart surveillance and alarm systems using CCTVs for public safety • Intelligent street lighting using IoTs for energy efficiency	**Project: Kolkata Environmental Improvement Investment in India** • Program loans: $100M (2018), $200M (2016), $100M (2013) • Digitized its administrative, planning, and asset management systems. • GIS and web-based platform is used for a comprehensive sewage master plan. • ICT based flood forecasting and early warning system.

[1] SCADA is a control system used for process management in industrial and infrastructure process such as electric transmission and distribution, oil and gas pipelines, water supply system, etc.

OP5: Promoting Rural Development and Food Security

Agriculture value chain	• Digital agriculture market information hubs and marketplaces • Agriculture products supply chain tracking systems
Farming and irrigation technology	• Earth Observation (satellite imagery) technology used for planning irrigation systems and for measuring water consumption
Rural economic hub	• Multipurpose rural ICT centers (agriculture, education, health, and government services) • E-learning and training programs for agriculture extension workers

PRC: Gansu Internet Plus[1)] Based Agriculture Service

- Agriculture value chains are complex and can benefit from digitization. In Asia, smallholders are increasingly getting internet access via smartphones.
- PRC has initiated **internet-plus policies**[1)] with the objective to integrate the agricultural sector into the wider economy by linking rural economic development approaches with internet-based DT solutions (e.g. automated traceability system for agriculture products, e-commerce systems)
- E-commerce and internet-based support services are accelerating growth in rural areas.
- PRC government has requested ADB to provide **lending support** for "the Gansu Internet-Plus Based Socialized Agricultural Service System Development Project".
- The project is included in 2020 pipe-line (firm) for $220M OCR.

[1] **The term of "Internet Plus"** is proposed by PRC prime minister Li Keqiang in his Government Work Report on March 5, 2015 so as to keep pace with the Information Trend.

OP6: Strengthening Governance and Institutional Capacity

Public Management	• Public finance and tax management information systems • Cadastral and land management systems to track zoning boundaries, subsurface infrastructure, ownership history, etc. • E-procurement systems to improve public procurement efficiency, transparency, integrity and anti-corruption
Service Delivery	• Cybersecurity and data privacy services and policies • One-stop service portal for citizens • Online registration and e-certificate services (birth, death, marriage, vehicle registration, business registration, etc.)
e-Government Infrastructure	• Cloud hosting of e-government systems • National broadband networks connecting all public institutions, including local government offices, schools, public health facilities • National ID systems as a foundation for integrated e-government

Mongolia: Tax Administration Management Information System

- **ICT systems for tax management** can help streamline the tax administration and optimize revenue collections to create fiscal space for development.
  - Previous ICT system for tax management in Mongolia was fragmented and inefficient in handling the tax management process.
- **ADB loan ($25M)** for Strengthening ICT Systems for Efficient and Transparent Public Investment and Tax Administration in Mongolia
  - Approval date: 20 Sep 2018
- **Implementation**: Oct 2018–Sep 2021
- **SDCC (DT) supported** the project team for the initial concept design of the digital component (ICT system for tax management) of the loan through a SDCC-DT's regional TA in 2017.

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OP7: Fostering Regional Cooperation and Integration

Connectivity	• Regional Internet Connectivity (e.g. submarine cables in Pacific)
Trade Facilitation	• Digitization of international trade processes
Regional Public Goods	• Health surveillance information systems for communicable diseases • Remote and distance learning (e.g. regional campus in Pacific)

- **ADB supported[1] development of submarine cable systems** in the Pacific:
  - ✓ Tonga (2011) – Grant $9.7M
  - ✓ Solomon Islands (2012) – Loan $10.5M and Grant $7.5M
  - ✓ Samoa (2015) – Grant $25M
  - ✓ Palau (2015) – Loan $25M
- The submarine cable in Tonga has reduced internet prices by 50%, and has connected remote communities, provided greater business opportunities (such as a call center established in Tonga), and increased scope for e-health and e-education service delivery.

South Pacific: Regional University Integration

- ADB approved a $19M regional loan for the University of South Pacific (USP) In 2012:
  - ✓ to expand **regional campuses** and accommodation facilities in Kiribati and the Solomon Islands
  - ✓ to enhance **ICT based distance learning programs**
  - ✓ to improve student services
  - ✓ to strengthen school administration capacity
- **USP is the world's first regional university**, with over 25,000 students from across the Pacific, with campuses in each of the 12 Pacific island members.
- 12 campuses were connected via internet and cloud to share teaching materials and student records.

[1] Grant to Tonga-Fiji Submarine Cable Project; Loan to Solomon Islands for Broadband for Development Project, 2015; Grant to Samoa for Samoa Submarine Cable Project; Loan to Palau for North Pacific Regional Connectivity Investment Project

PART III.

Strategic Directions for Digital Strategies in Operations

SDCC-DT's roles in Implementing Strategy 2030 and 7 Operational Priorities

- **Country-based Digital Technology Roadmap:** Work with operations and STGs during CPS preparation to help develop country-based DT road maps for DMCs
- **Digital Technology Pipeline Development:** Work with operations and STGs to identify **project opportunities** (standalone DT projects + project components) using digital technologies and develop the pipeline of DT projects
- **Project Design Support:** Help operations, with support from STGs, to incorporate DT into **project design**
- **Knowledge on Digital Technology:** Capture, store, disseminate latest DT knowledge and application in ADB
- **Digital Technology Trends:** Keep up with the latest DT trends and continuously keep management, STGs and operation staff informed of new opportunities
- **Digital Agenda 2030:** Work with OIST to collaborate on Digital Agenda 2030

Strategic Directions

1 Using Country Focused Approach

- Conduct DT readiness assessments for DMCs to provide inputs for the countries' new CPS
- Provide tailored support for target DMCs based on DT readiness assessment
- Support developing digital strategies for DMCs in line with the CPS exercises

2 Promoting Innovative Technologies

- Promote innovations using DT through knowledge sharing in partnership with private sector
- Conduct pre-feasibility studies on digital components in ADB projects
- Support pilot projects in areas where the possibility of scaling up is high

3 Providing Integrated Solutions

- Deliver integrated solutions through cross-sector / thematic collaboration (e.g. smart city, e-government)
- Focus on cross-cutting areas to promote digital technologies (e.g. broadband internet, cloud computing, AI, digital ID, digital payment, earth observation and GIS, cyber security, etc.) .

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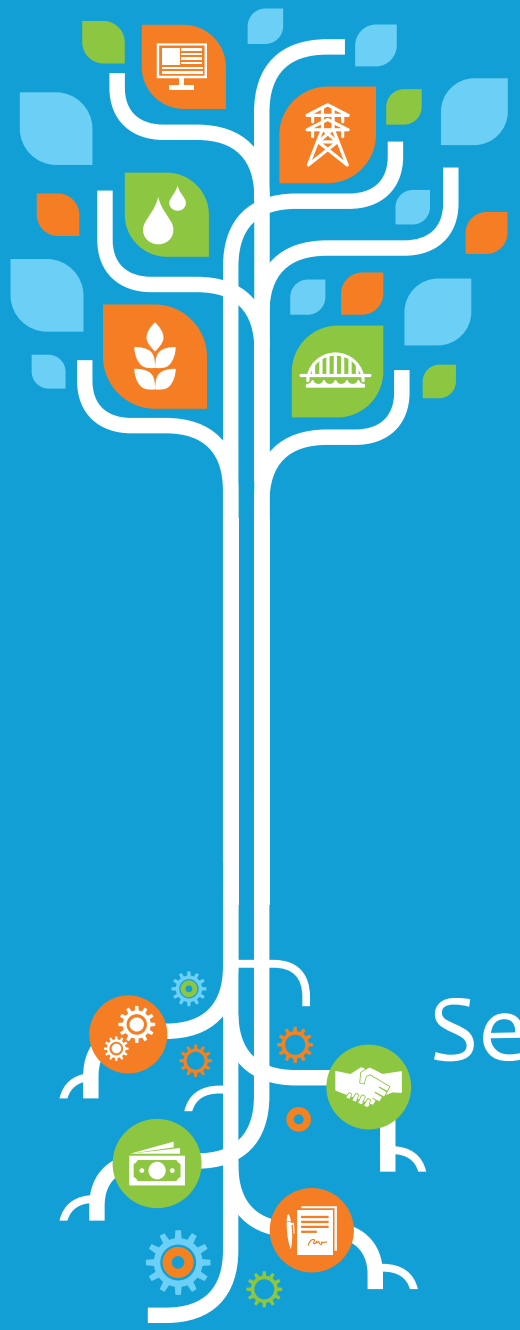

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THANK YOU!

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