



Transforming the Global Agri-Food Sector through Data, Digital Agriculture and Innovation: *Leveraging the Korea- World Bank Partnership Programs*

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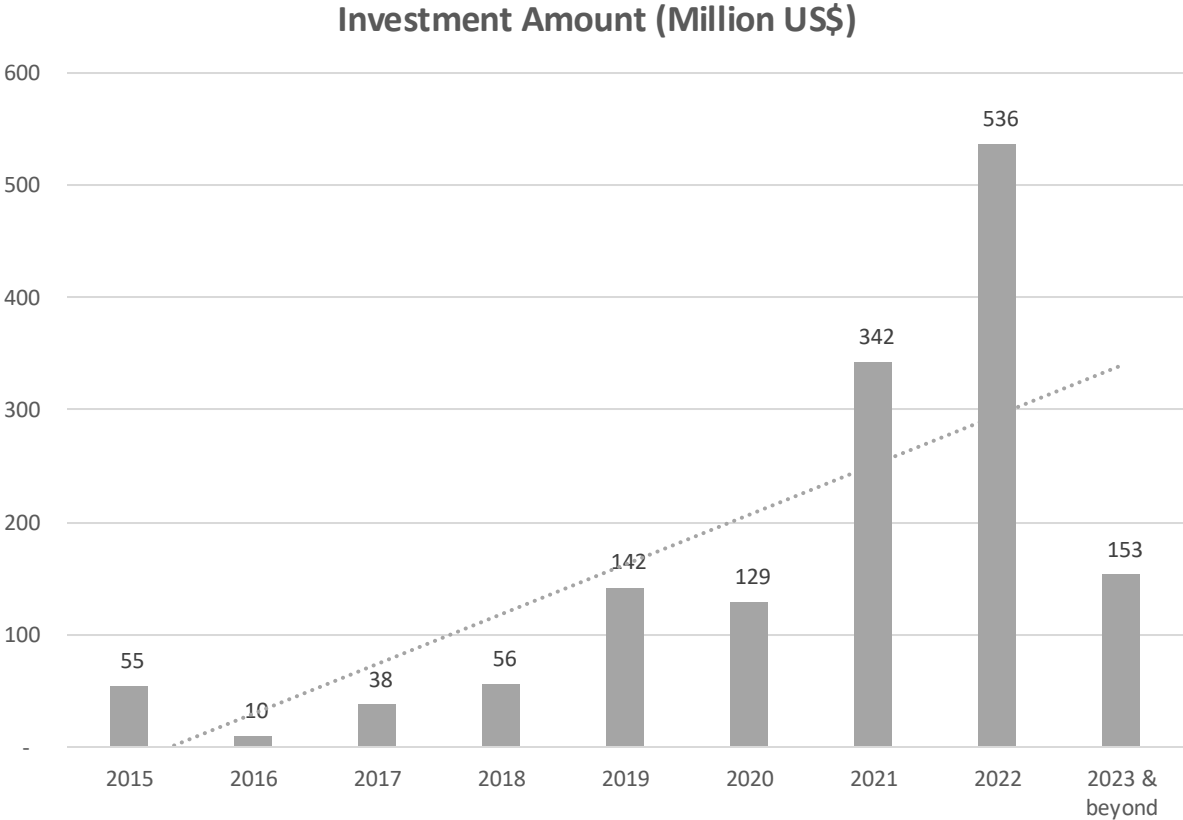
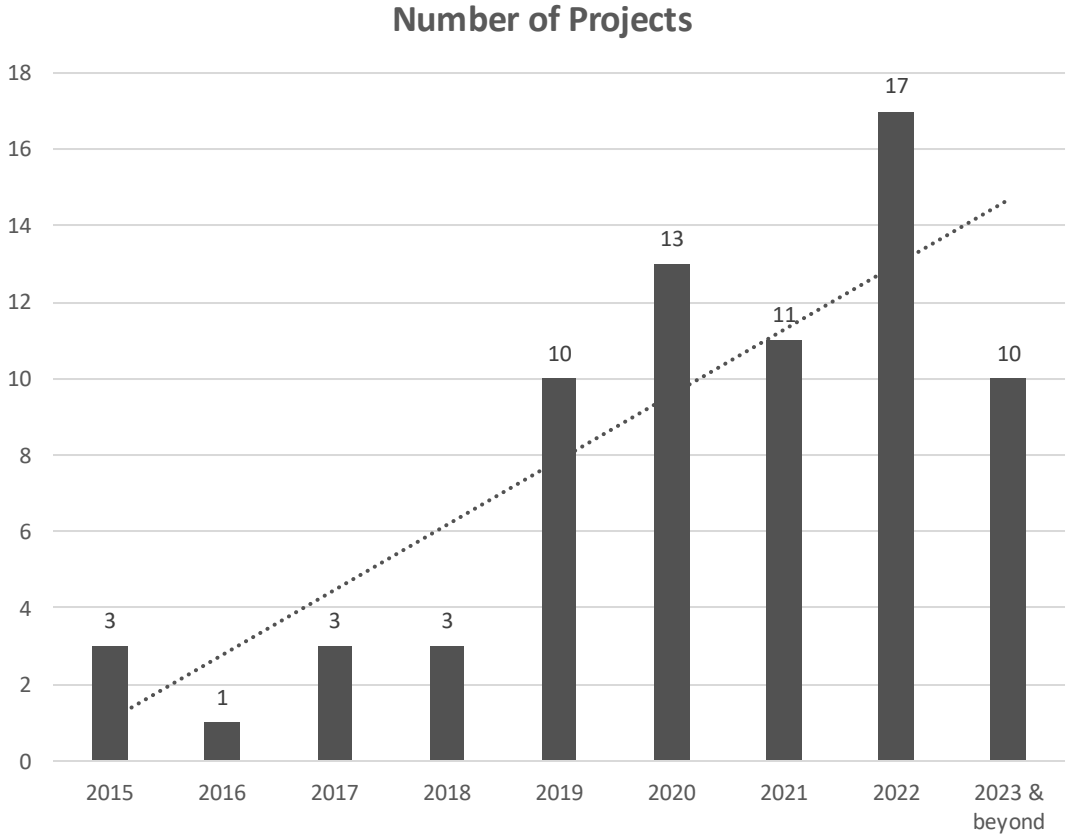
Data and Digital Agriculture Active Lending Portfolio

Total

84 Projects

46 Countries

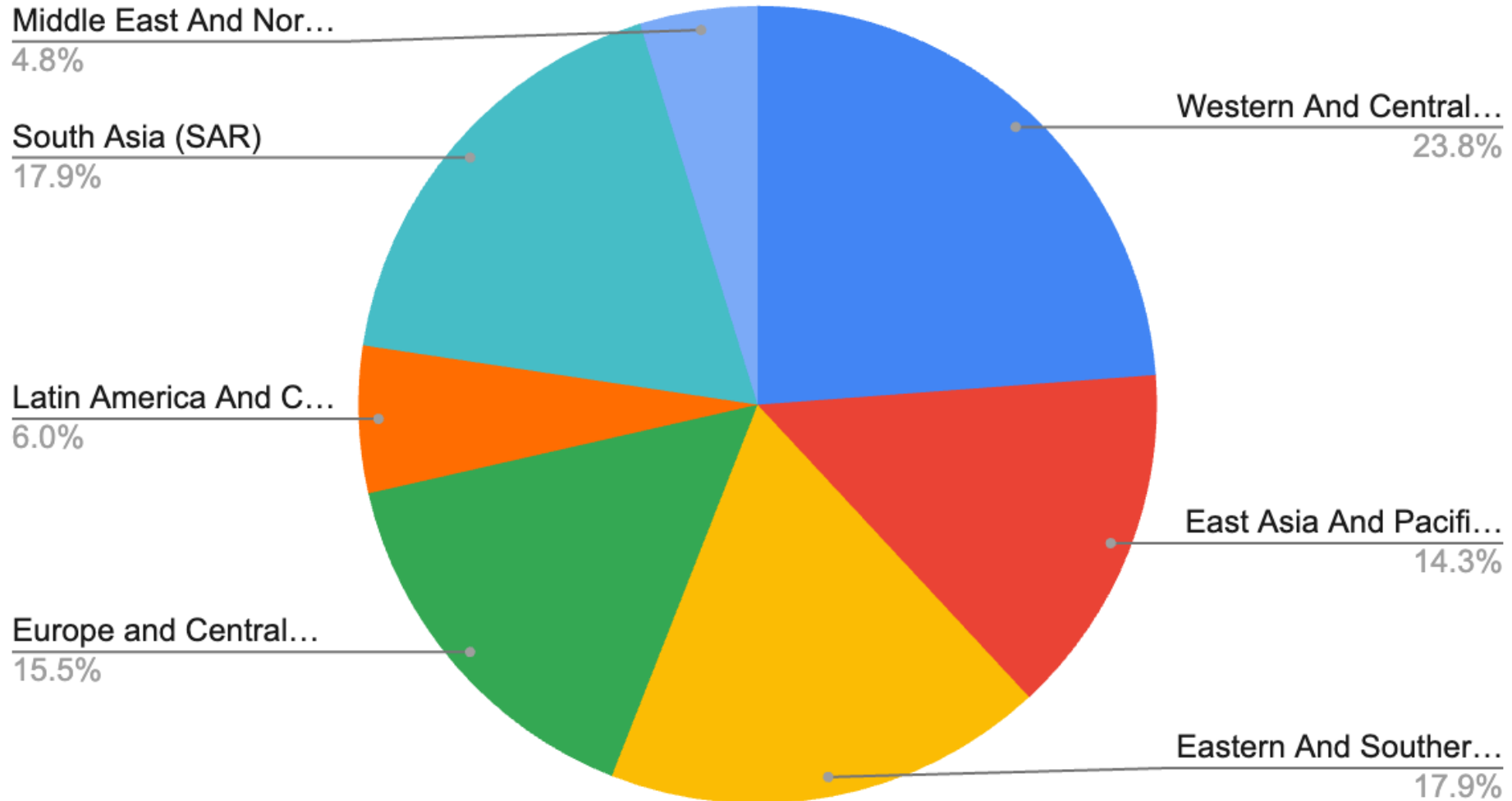
US\$ 2.1 billion



*Estimated

Data and Digital Agriculture: *Global Distribution of the Projects and Investment*

Number of Projects and DDAG Investment



Data and Digital Agriculture: Themes

DATA

Digital Public Infrastructure (DPI) for Agriculture

Digital Farm and Farmers Registry

Digital Agriculture Roadmap (DAR)

Traceability for key commodities, including EUDR

Impact Evaluation

INNOVATION

Use of AI in Agriculture

Innovation Ecosystem
Incubation and Acceleration

Agriculture & Agribusiness
Finance and Financial
Services

Carbon Markets for
Smallholders

Digital Agriculture Curriculum
for Higher Education

PRECISION AGRICULTURE

Soil Fertility and Precision
Fertilizer

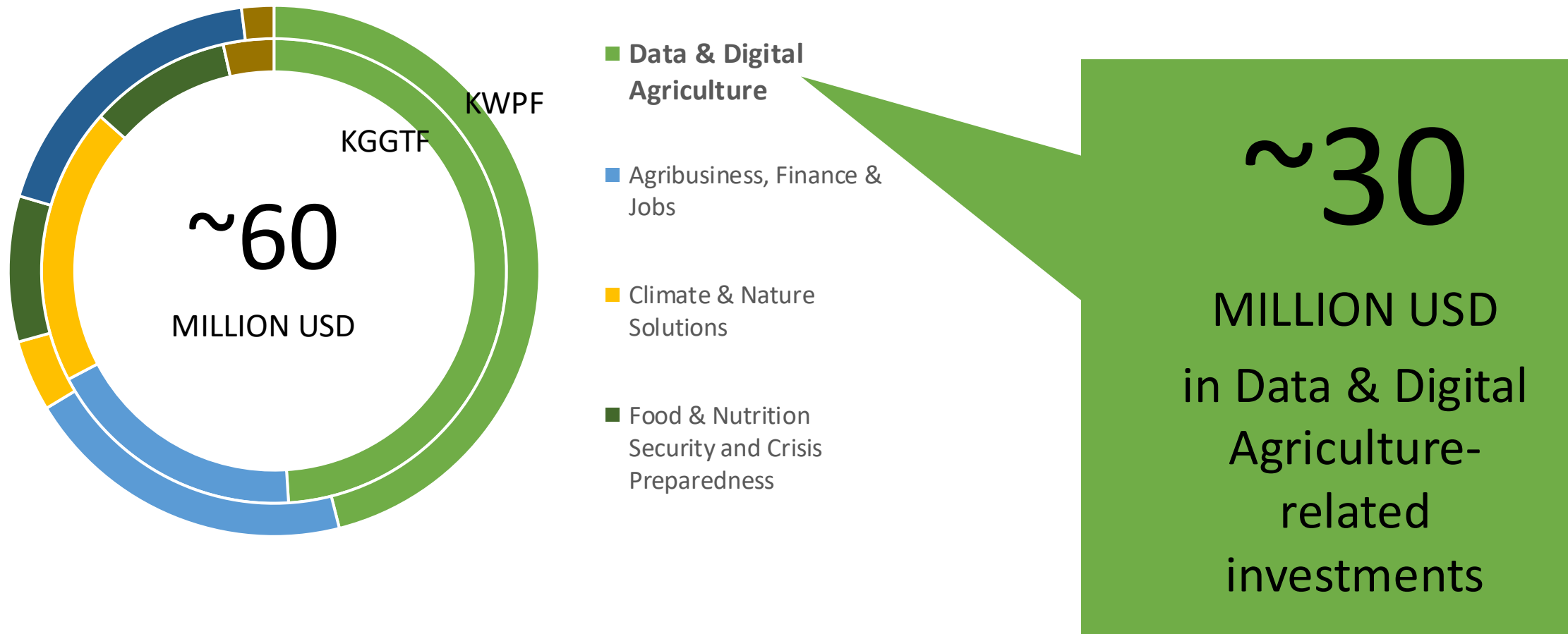
Digital Farmer Advisory &
Agriculture Extension
Services

Digital Climate (Weather
Advisory Services for
Agriculture)

Digital Tracking and
Traceability for Agriculture
and Livestock

Investments by thematic Focus in AGF Grants By KGGTF and KWPF

Nearly half of the total funding to agriculture and food is for:
Data & Digital Agriculture



KWPF: The Korea World Bank Partnership Facility



- **One Million Farmer Platform (Kenya):** A data-driven initiative with KWPF support that digitizes technologies and management practices across 19 value chains
- **KWPF Innovation in Agriculture Global Forum (Busan, 2025):** Highlights cases in Vietnam, Philippines, Mexico, Colombia, Kenya, Morocco, and Tanzania, including successful digital and low-carbon agricultural solutions deployed at scale.
- **Africa-Korea AgTech Innovation Challenge:** Focused on connecting Kenyan farmers to digital platforms using mobile apps, data analytics, extension services, and other DATs



Africa-Korea Agtech Innovation Summit, Feb 2023



One Million Farmer Platform

27 AgTech start-ups and innovators providing Data-driven Digital Agriculture solutions and services



DigiCow:
Uber of Veterinary Services



Hello Tractor: Uberizing farm mechanization



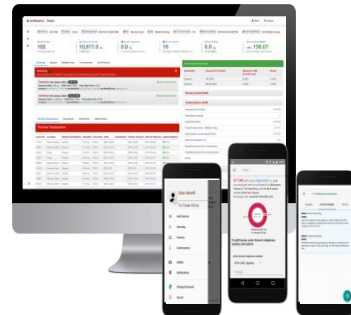
Digital Green: video-based extension service



AgroCares: IoT soil scanner



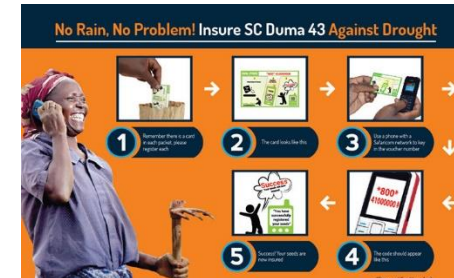
SunCulture:
Solar powered irrigation



TruTrade Africa:
Increasing Market access and price



Digitally enabled supply chain finance: AgriWallet



Weather-index based Crop and Livestock insurance: ACRE Africa

Sourcing Digital Solutions through Innovation Challenge

Kenya Climate Smart Agriculture Project

- **Objective:** To increase agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and pastoral communities in Kenya.
- **Digital Innovations:** Big Data Platform and Analysis; Micro Weather Observatory; Digital Farm Registry and Geotagging; Digital Food Balance; Digital e-voucher; One Million Farmers Platform; Several Local Innovations in crops and livestock mapping; Digital Advisories

Impact



Mexico: AGROINCLUYE: *Piloting Smart Farms in Mexico's Agri-tech Platform*

Smart Farm Pilot Activities:

- Establishment of smart farms, **integrating automation, data-driven decision support tools, IoT sensors, and precision farming**
- Specialized **training for extension service providers and farmers, technical consultancies** for technology development centers, and knowledge-sharing workshops.

Outcomes and Impact:

- **Strengthened R&D and tech uptake** in Mexico's agri-food sector
- **Deepened Korea–Mexico ties across ministries, agencies, and experts**, advancing digital ag know-how.
- **Upskilled extension agents, farmers**

Uganda: Building a Green Agri-Food Ecosystem in Uganda

Summary: Korea`s Sherpa Space Inc., in partnership with Jabba Engineering, implemented a digital agriculture pilot in Uganda targeting smallholder **Coffee and Pineapple** farms. The project sought to enhance productivity, quality, and farmer income through the **integration of IoT sensors, AI-driven analysis, and a mobile application that delivered real-time agronomic decision support.**



 **PINEAPPLE INCOME INCREASE**

+79%

Highest overall income growth

 **COFFEE INCOME INCREASE**

+49%

Significant income improvement

 **PRICE PER KG INCREASE**

+33%

Enhanced fruit quality premium

 **FAQ WEIGHT INCREASE**

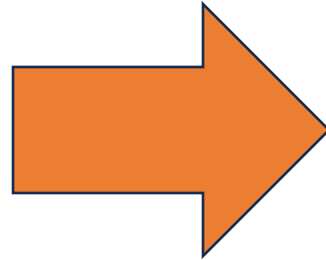
+45%

Better bean quality metrics

Kazakhstan: Agriculture and Livestock Traceability

Kazakhstan Sustainable Livestock Development Program for Results

- Introduced a **unified animal identification and registration system** to track animals and their products from farm to export.
- **Technical assessments, traceability design, and building systems** that integrate animal health, productivity, and climate data.
- **Monitoring, reporting, and verification systems** for **greenhouse gases** linked to animal traceability.



Impacts:

- **47% increase in national beef output** over five years,
- **Zero net emissions**
- Established an **animal identification, registration, and traceability system** to meet **Sanitary and Phytosanitary (SPS)**
- **Certified beef exports**

Data-Driven Digital Agriculture Knowledge and Learning Platform

**Webinar Series
Launched in**

2020

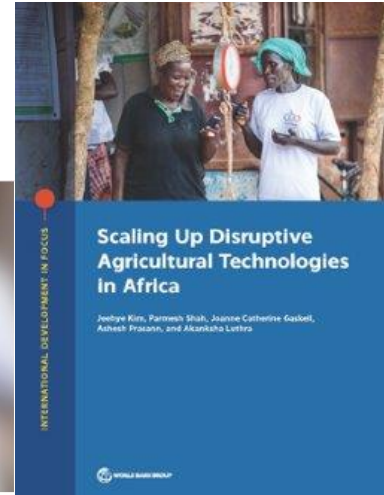
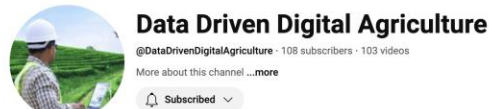
Webinars

105

Participants

14 K plus

- What's Cooking Webinar Series (Data, Digital and Innovation)
- World Bank Open Learning Campus
- Digital Agriculture White Paper Series
- Reports
- Events
- Blogs, podcasts, opinion pieces
- Field trips to South Korea and Israel
- Community of Practice



What's Cooking - Digital Agriculture Learning Series

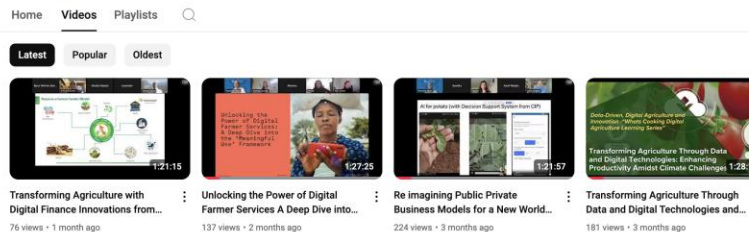
Webinars Recordings are Available

➤ YouTube: Data and Digital Agriculture

- 239 Subscribers
- 3000 Views
- 297 hours of watching time
- 27,000 Impression



➤ WB -What's Cooking Digital Agriculture Learning Channel



What's Cooking Learning Series: Partnership with Korean Partners



Digital Ag Series: Fostering Digital Agriculture Ecosystems and Smart Farming in Korea - Case of Smart Farm Innovation Valleys

11 Aug 2022



"The invention and dissemination of new digital agriculture practices will be the new strategy for South Korea to break through the crisis caused by the aging population and climate change."

The transition to digital agriculture in South Korea is inevitable since it has faced the rapid shrinkage of rural communities. Approximately 46% of the farm household population are older than 65 years old and this indicates not only the aging population itself but also the possible risk in food security. Climate change is also one of the major challenges that the agriculture sector is facing while it has threatened the stable production of crops, and makes it difficult for farmers to predict and deal with meteorological disasters.

South Korea is well known as an information and communication technology (ICT) leader as has ... [View More](#)

Digital Ag Series - Making better use of government data to support farmers: How livestock traceability data and agriculture outlook data can help farmers create value in Korea

25 Sep 2022



"Learn how South Korea has fostered the data-driven agriculture ecosystem; what are the key innovation enablers and how they interact"

The public institutions in South Korea play a major role in developing and disseminating new AgTech, the importance of their data platform and analytics is growing. In line with the [Digital Green New Deal plan](#) (also known as the Korean New Deal), the South Korean government is now focusing on constructing an efficient data platform. In the agricultural sector, the Ministry of Agriculture, Food and Rural Affairs (MAFRA)'s [public data portal](#) is one of their most successful institutional innovation cases. It has combines different information platforms to increase the accessibility of open data for its stakeholders. It now reveals 1,051 open datasets regarding crop cultivation, agricultural technology, livestock management, pest information, and agri-product

... [View More](#)

Africa-Korea AgTech Innovation Summit- Learnings and Way Forward

27 Mar 2023



"An opportunity to interact with innovators to learn more about the innovation, scale, replicability, and impact of the Disruptive Agricultural Technologies(DATs)."

Agriculture is a critical sector for Sub-Sahara Africa, employing the largest share of workers and contributing about 15 percent of the region's gross domestic product (GDP). Agriculture remains critical to the livelihoods of the majority of households, especially in rural areas, providing both income and food to smallholder farmers. The agri-food system is also key to unlocking the region's progress in reducing poverty, improving nutrition, achieving food security, and creating employment.

Disruptive Agricultural Technologies (DATs) have the potential to transform agricultural systems ... [View More](#)

Future Programs and Partnerships



Gates
Foundation



Harnessing Artificial Intelligence for Agricultural Transformation



Digital
Green

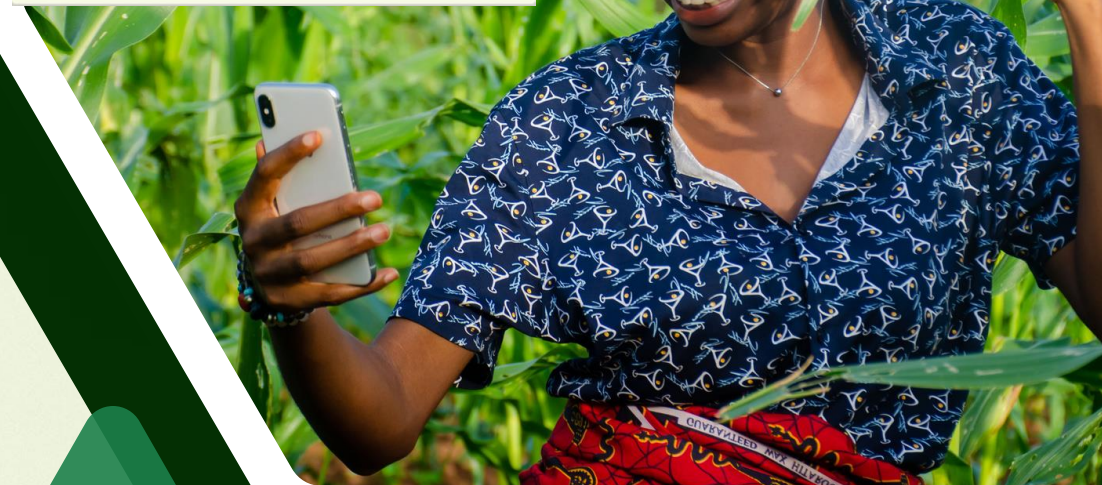
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



FOODSYSTEMS
2030








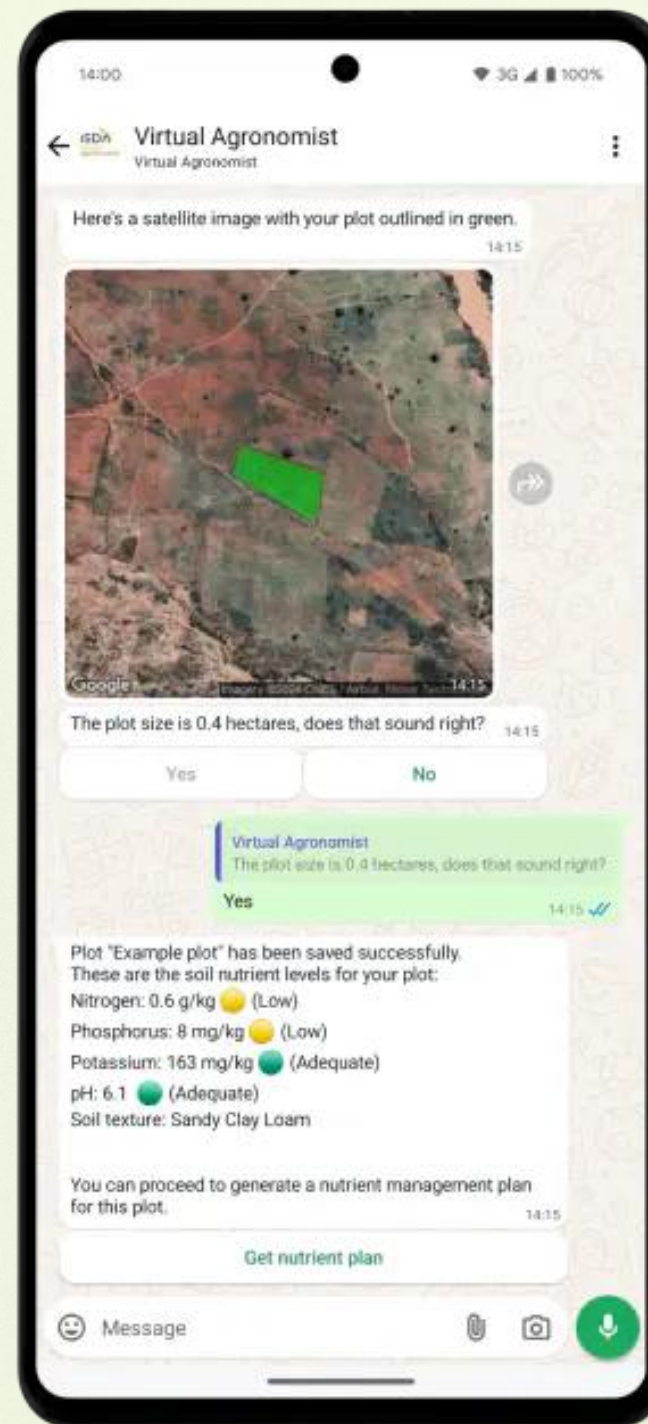
DIGITAL
DEVELOPMENT
PARTNERSHIP



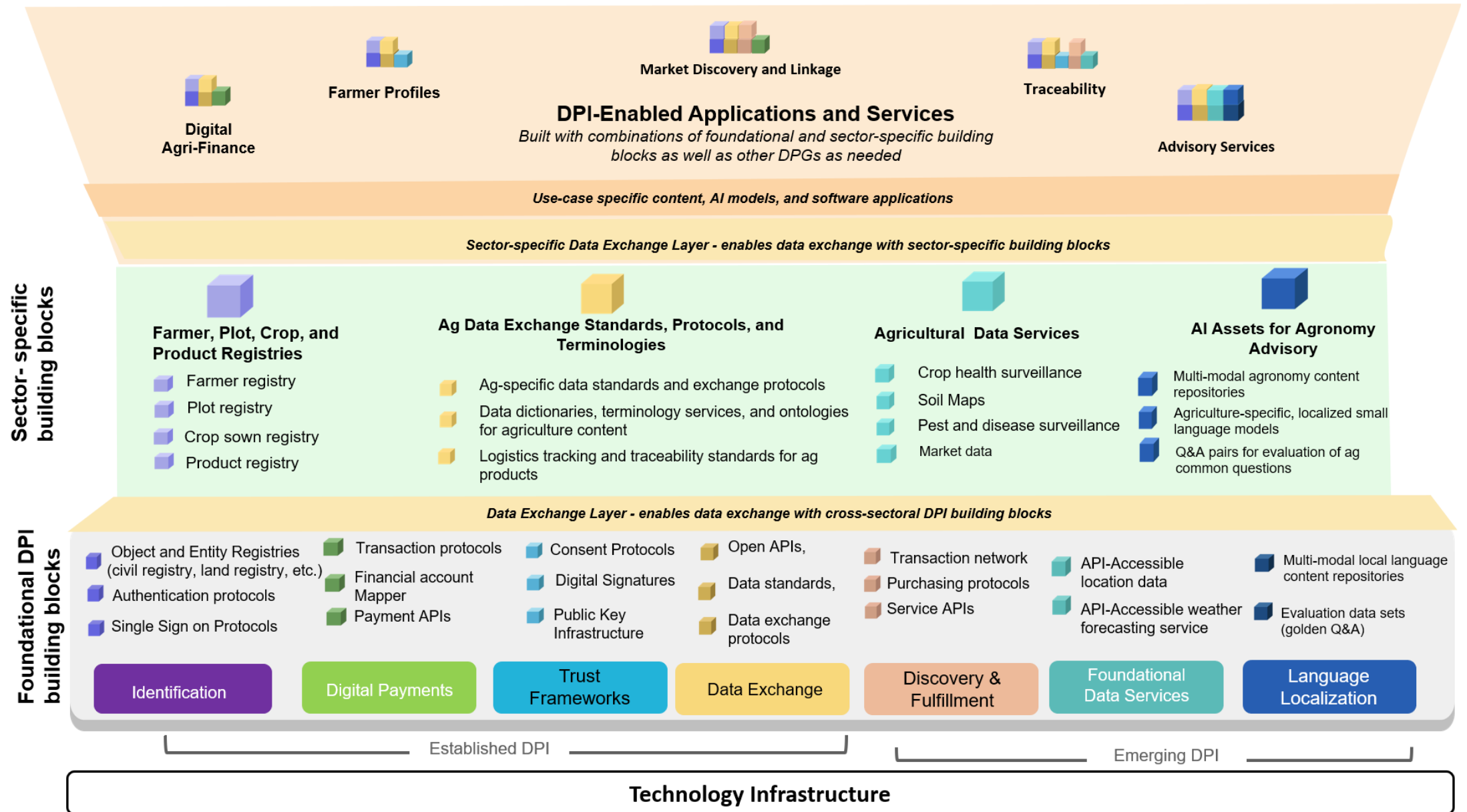
Use Cases of AI in Agriculture

AI-ENABLED E-EXTENSION SERVICES

-  Serving over **200,000 plots** in seven African countries
-  Supporting 17 different crops with personalized advice
-  Boosted yields by up to **1.9-fold** and profits by **4.7 times**
-  Delivers AI-driven agronomic advice via WhatsApp
-  Instantly delivers soil NPK values and sustainable farming practices



Digital Public Infrastructure: Agriculture Applications



Foundational DPI – Key Use Cases

Farmer Profiles



- *Link multiple data points about farmers, land, crops, historical yields and more*

Digital Agri-finance



- *Support digital payment, lending, and repayment activities that occur across a value chain*

Traceability



- *Maintain visibility into product provenance and tracking throughout the value chain*

Market Discovery and Fulfillment



- *Use digital marketplaces to connect authenticated sellers of agricultural products to buyers*

AI-enabled Advisory Services



- *Enable data-driven advisory services based on specific considerations for climate, soil, geography, and crop management practices*

Leveraging Korea's Smart Farm Model

Smart Farm

Digitized greenhouses and livestock facilities using sensors, climate/irrigation automation, AI analytics, and remote control, rolled out via national programs to raise productivity, cut inputs, and draw youth into farming

Enhanced Productivity

- Data Collection
- Optimal Environment
- Precise and Automatic Control

Increased Export

- Stable Production throughout the year in the control tech facilities
- Matching Customer demand
- Increased Exports

Job Creation

- Demand for more jobs in Smart Farm Operations
- Demands in Technology lead jobs and Capacity building
- Demand in Value Chain.



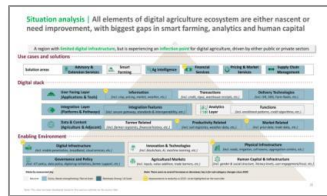
DAR Overview | Five key steps to develop a Digital Agriculture Roadmap (DAR)

Iterative
↔

1

Diagnostic Assessment

Assess digital agriculture ecosystem, framework & tools to establish national point of departure



2

Use case Prioritization

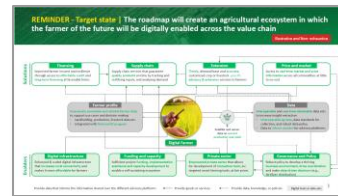
Identify and prioritize digital agriculture use cases & initiatives based on criteria such as impact and feasibility



3

Vision Development

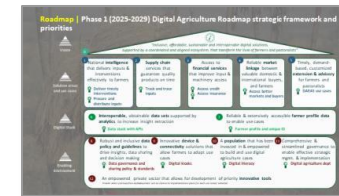
Define vision and ambition for DAR, ensuring alignment with national priorities and stakeholder aspirations



4

Roadmap Development

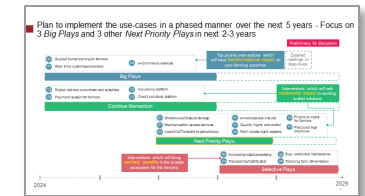
Develop clear roadmap, detailing out priority initiatives and sequencing, with clear milestones



5

Implementation Planning

Develop plan to implement use cases and initiatives including business cases and governance



Early and ongoing stakeholder engagement with government sponsors, funders, and others to ensure alignment and effectiveness

Examples of Data and Digital Agriculture Global Partnerships



**The Food
Systems
Global
Accelerator
program**



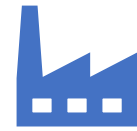
**MADE
Alliance**



Google



Aim for Scale



**WB-UAE Agri
LLM
Partnership**

Key Korean Partners Engaged with World Bank Agriculture & Food

Public: RDA, KRC, EPIS, MAFRA, K-water, NIA, KISA, KEI, KEITI, KMI, KEPCO, KETEP.

Private: KT Corp, LG CNS, Nonghyup Bank, CJ Group. Sherpa Space and DSRV

These collaborations connect Korea's innovation ecosystem with World Bank Agriculture & Food operations across Africa, Asia, and LAC regions.

Ideas for future collaboration



Better match-making between Korean Institutions, in-country agencies, and World Bank (upstream)



Moving from transactional to programmatic partnership (three-year time frame) influenced by knowledge, learning and operations



Focus on some thematic areas.



Better links with Bank investments



Bringing a more diversified set of partners (public, private sector, and academic)

Specific Thematic Areas for Collaborations

Thematic Area	Korean Strengths	Opportunities for WB Collaboration
Digital Agriculture/ precision agriculture	Smart farms, sensors, data platforms (RDA, KREI, EPIS, Sherpa Space)	Joint pilots in Vietnam, Philippines, or Kenya under WB ag/digital operations
Climate-Smart Agriculture	KGGTF, KEITI, Korea Forestry Service	Integrate climate-resilient farming and green value chains
Food Systems and Value Chains	Korea Rural Community Corp (KRC), DSRV	Infrastructure, logistics, blockchain, and farmer organizations
Blue Economy / Fisheries	MOF, Incheon Fisheries Resource Research Institute	Scale lessons from the “Seaweed Insights” study to new blue value chain operations
Water–Energy–Food Nexus	KEITI, K-water	Co-design integrated water and input resource management projects



Thank You!



[What's Cooking - Digital Agriculture Learning Series](#)



[Data-driven Digital Agriculture: Knowledge and Learning Platform](#)



<https://www.youtube.com/@DataDrivenDigitalAgriculture/videos>

Write to us: dddag@worldbank.org