



FAO Digital Agriculture

Presentation during the AgriFin's 7th Annual Learning Event



Food and Agriculture Organization
of the United Nations

FAO is a Member of the Digital Public Goods Alliance (DPGA)



A multi-stakeholder initiative launched in 2019 to accelerate attainment of the sustainable development goals in low- and middle-income countries by facilitating the discovery, development, use of and investment in digital public goods.

There are more than 30 international member organizations, including FAO, governments and private companies. Examples include the Open Knowledge Foundation (founders of CKAN), GitHub and Thoughtworks.

DPGA is the custodian of the DPG Standard, manages the certification process and the DPG Registry, and coordinates the work of members to advance DPGs through the Roadmap.

What are digital public goods?

A digital public goods is: “Open-source software, open data, open AI models, open standards and open content that adhere to privacy and other applicable laws and best practices, do no harm, and help attain the SDGs.”

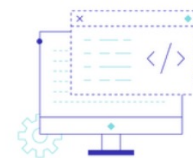
- UN Secretary General in the 2020 Roadmap to Digital Cooperation:



STATE OF THE DIGITAL PUBLIC GOODS ECOSYSTEM 2022 **ALIGNED FOR IMPACT**



Open AI Systems



Open-Source Software



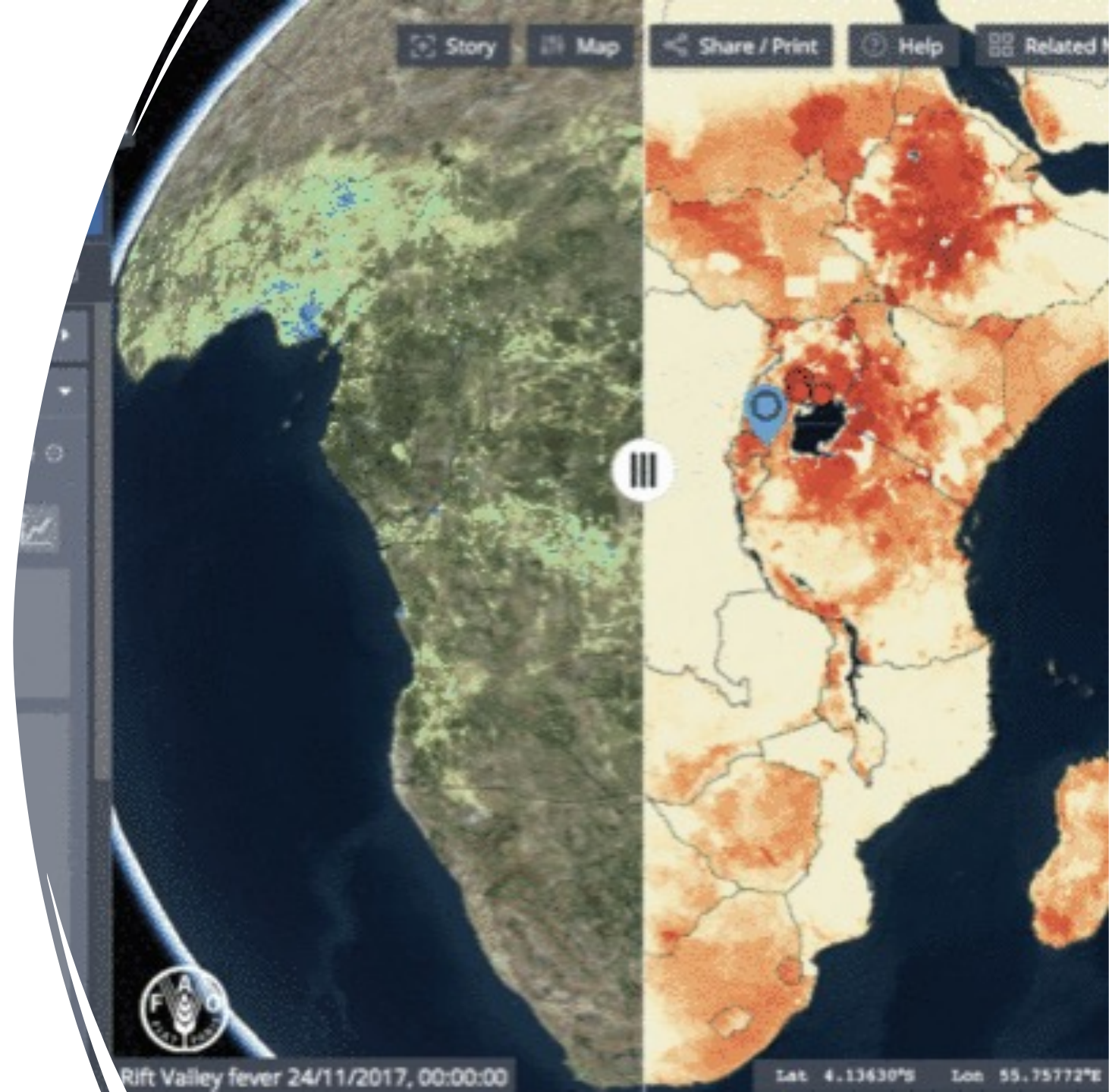
Open Data



Open Content Collections

Certified DPGs in FAO's work

- CKAN (used for the FAO data catalog and used by Sprout)
- FAO Open Foris
- DHIS2
- FAO Digital Services Portfolio
- FAO Hand-in-Hand Geospatial Platform
- KoBo Toolbox (data collection)
- Moodle (eLearning)
- NADA
- ODK Data Kit (data collection)
- RapidPro (mobile services)
- Trends.Earth
- FAO WaPOR Water Productivity Portal

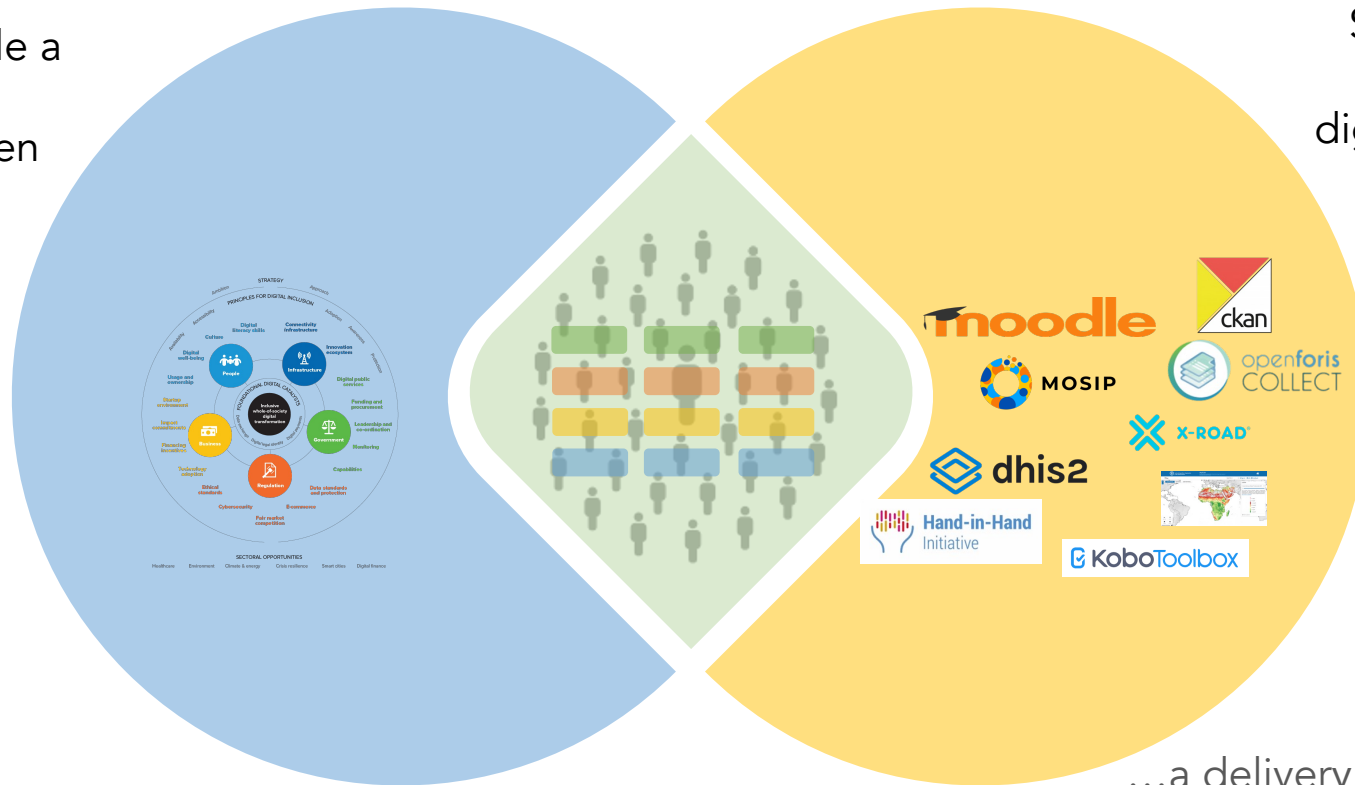


Digital Public Infrastructure (DPI)



Digital Public Infrastructure (DPI)

An approach and framework to enable a country's digital foundation for citizen services that are inclusive, safe and scalable.



...a scalable approach and framework that focuses on equitable digital transformation

Digital Public Goods (DPG)

Software, data, content or AI that aligns with principles of digital development and serve as key building blocks for a country's DPI.

...a delivery model better suited to bring digital capabilities that address the different circumstances of stakeholders so that no one is left behind.

DPI / DPG SCENARIOS FOR AGRIFOOD SYSTEMS



DIGITAL ADVISORY

MOBILE CASH

EARLY WARNING

DPG

FARMER REGISTRATION

DPI
CORE
CAPABILITIES

IDENTITY

PAYMENTS

DATA TRANSFER



PLANT HEALTH

WATER ACCOUNTABILITY

MARKET PRICES


DPG

HAND in HAND GEOSPATIAL PLATFORM

DPI
CORE
CAPABILITIES

BIG DATA & GEOSPATIAL

BIG COMPUTE



Implementing digital public infrastructure, safely and inclusively



50 in 5



Digital IDs



Digital Payments





The Global Network of Digital Agriculture Innovation Hubs

The Global Network of Digital Agriculture Innovation Hubs aims to mainstream digital agriculture in selected countries and to promote the digital transformation of agrifood systems.

30 actions have been identified across 6 pillars



Highest priority within roadmap



Solutions Pipeline

I Solutions Pipeline



1 Competitive incubation / product dev. environment with forum

2

Partner with Mobile Network Operator (MNO) to create a farmer facing DAEAS

3

Support market entry of international products into Ethiopia (in partnership with local players)

II Hardware and Connectivity



- 4 Device access for Development Agents (DAs)
- 5 Free access for DAs to key apps
- 6 Phone payment plan for farmers
- 7 Free access for farmers to key apps
- 8 Telco service targets and incentives for rural areas
- 8 Off-grid electricity access expansion in rural areas
- 10 Internet kiosk at woreda office/FTC run by women/youth groups

III Data and analytics



- 11 Farmer profiles
- 12 Input demand & supply tracking
- 13 Integrated ag. data access point (decentralized data hub)
- 14 Data sharing incentives
- 15 Ag. data quality standards and assurance system

IV Governance and Policy



- 16 Fast-track pluralistic extension and ag. data sharing policies ratification
- 17 DAEAS National Forum linked to PMO
- 18 Streamline content approval process
- 19 Working space and targeted training for ag techs

V Human Capital



- 20 Digital training platform for DAs
- 21 Digital skills at ATVETs
- 22 Improve DA management
- 23 Financial and digital literacy for farmers
- 24 Expand dig. capacity MoA extension team
- 25 MoA ICT human capacity building
- 26 Digital training platform for MoA / BoA

VI Business Environment



- 27 Digitize payments at rural service points
- 28 Scale warehouse receipt financing
- 29 Digital contract farming platform
- 30 Support innovative digital finance products targeting farmers



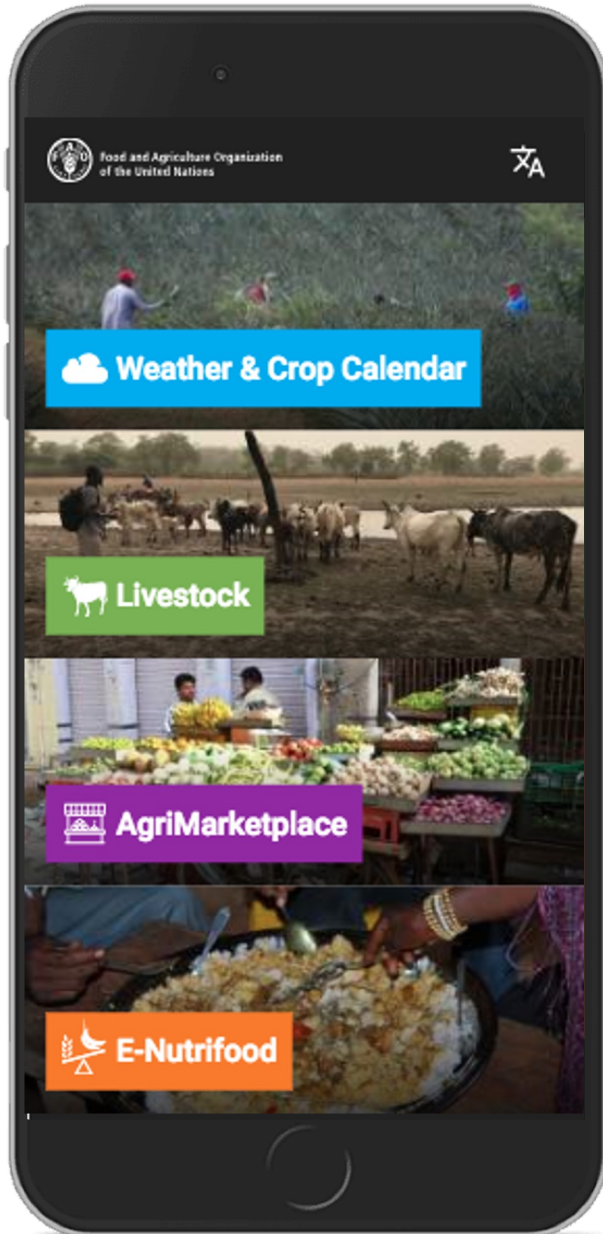
Digital Stack



Enabling Environment



ckan



SPROUT OPEN CONTENT Artboard 23.png

DIGITAL AGRICULTURAL PLATFORM



FAO Digital Villages Initiative

The Digital Villages Initiative aims to promote the digital transformation of villages and small towns across the world, enabling farmers to use digital technologies.

It is the digitization of agricultural elements such as organisms and the environment, production and agri-business management, and related market-oriented and social services of agricultural processes and rural transformation.



FAO Digital Villages Initiative

- **From the perspective of agricultural production, it refers to the “E-Agriculture”** which focus on improving the productivity by using ICTs and relevant digital solutions, for example, climate smart agriculture, precision agriculture, intelligent facility agriculture.
- **From the perspective of farmer’s lives, it refers to “Digital Farmer Services”** which focus on how to enhance farmers 'accessibility to different kinds of social and economic services in terms of financial services, social protection, employment, for example, digital finance, Fintech, Digital-based agricultural insurance schemes, farm registries.
- **From the perspective of the village, it refers to Digital Services to support rural transformation.** Which focus on how to enhance the delivery of public services on health, education, jobs, welfare, tourism as eco-tourism, agri-tourism , etc.

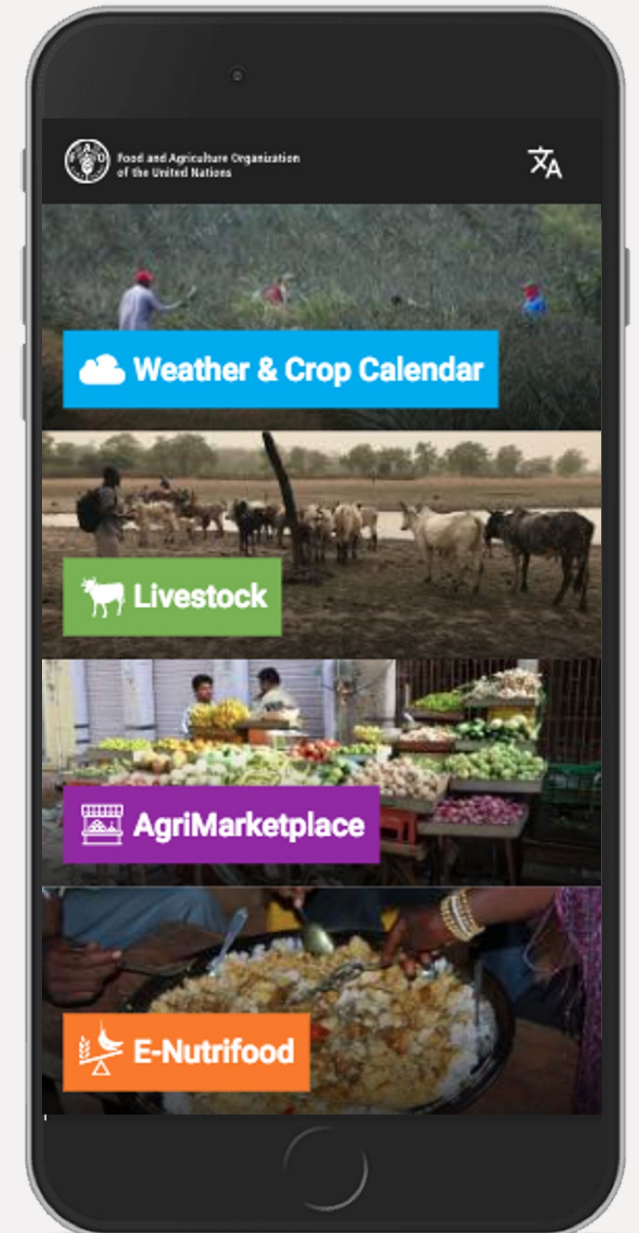
FAO Digital Services Portfolio

Deliver locally relevant advisory services to individual Farmers, Smallholders and Agro Pastoralists

Integrate food and agriculture data and services from FAO, partners and local national providers

Enabling National authorities to tailor, curate and manage services and delivery.

Better understand rural farmers and their needs.



Key principles for digital rural transformation

- **Capacity** development – at all levels horizontally and vertically is key
- **Content** – (co)creation, customization, adaptation, use - relevance to small scale producers, local appropriation
- **Context** matters – no one size fits all - locally applicable, accessible, & affordable solutions
- **Simple** – keep it simple - more inclusive, scalable and impactful
- **Sustainable** – positive impacts in economic, social, environmental & institutional terms – do no harm
- **Systems** approach – integrated & holistic approach across the disciplines and sectors



Digital Agriculture

Affordable access to digital networks and digital public goods are paramount to unleash the potential of rural communities and reap the dividends of the digital economy, thus contributing to the 2030 Agenda

Strengthen FAO's role in promoting the adoption and use of digital technologies to facilitate the transformation towards inclusive and sustainable agrifood systems

Promote:

- better and more timely access to real-time actionable information;
- sustained engagement with farmers and agrifood systems stakeholders to maximize their benefits from new technologies;
- improved access to markets, credit and insurance through the application of digital technologies;
- access to digitally-enabled climate-smart agriculture solutions; and,
- enhancing the digitalization of emergency interventions and social protection mechanisms.




TARGET 1-4



1 NO POVERTY

EQUAL RIGHTS TO OWNERSHIP, BASIC SERVICES, TECHNOLOGY AND ECONOMIC RESOURCES


TARGET 5-B



5 GENDER EQUALITY

PROMOTE EMPOWERMENT OF WOMEN THROUGH TECHNOLOGY


TARGET 9-C



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

UNIVERSAL ACCESS TO INFORMATION AND COMMUNICATIONS TECHNOLOGY

TARGET 17-8



17 PARTNERSHIPS FOR THE GOALS

TECHNOLOGY

STRENGTHEN THE SCIENCE, TECHNOLOGY AND INNOVATION FOR LEAST DEVELOPED COUNTRIES

NORMATIVE ASPECTS

International Platform for Digital Food and Agriculture

Rome Call for AI Ethics

Principles for Digital Development

E-Agriculture Strategy

UN Secretary-General’s Roadmap for Digital Cooperation

UN Secretary General’s Data Strategy

Digital technology applications impact assessment

Ensure data governance, data integrity and privacy, as well as intellectual property rights, and to adhere to international standards and protocols

FEDERATE FAO DIGITAL INITIATIVES

Hand in Hand Geospatial Platform

Digital Villages Initiative

Data Lab

Digital Services Portfolio

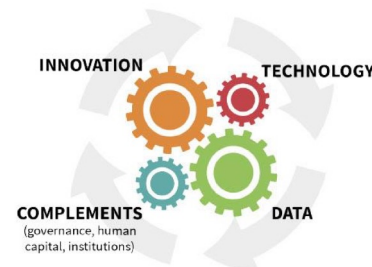
Vision of the data-driven Organization creating value at 360 degrees

IMPACT

Digital technologies are applied on food, agriculture, livestock, fisheries and aquaculture, and land use planning, land use change and forestry and contribute significantly towards sustainable, efficient, inclusive and resilient agri-food systems in a changing climate and economic environment.

OUTCOME

Accessible digital technologies to improve information, enhance market opportunities, increase productivity and resilience and contribute to environmental benefits and poverty reduction, integrated into agri-food systems, policies and programmes, with particular focus on ensuring inclusion and affordable and equitable access to women, youth and poor and vulnerable rural communities.



THEMATIC COMPONENTS

GLOBAL DIGITAL PUBLIC GOODS

Promote digital technologies to improve statistical services including the collection, analysis and access to data and information through the development of digital high-variety information assets and analytics across the mandate of FAO.

E-AGRICULTURE STRATEGIES, POLICIES & INVESTMENTS

Support inclusive and responsible investments in rural digital infrastructure, digital literacy, digital repositories and capacity building to improve access to digital technologies and information.

NORMATIVE ANALYSIS & IMPACT ASSESSMENT

Analyze and evaluate the impact of digital technologies on agriculture and the related challenges to facilitate evidence-based food and agricultural, environmental and social protection policies and interventions.

DIGITAL TECHNOLOGIES FOR SUSTAINABLE PRODUCTION

Promote the use of digital technologies in food and agricultural production to contribute towards sustainable, efficient and inclusive agri-food systems.

DIGITAL TECHNOLOGIES FOR RISK MANAGEMENT & RESILIENCE

Support digital technology applications that facilitate sustainable, well-functioning inclusive and efficient markets, and promote the integration of small-scale producers', women and youth in output, input, credit and insurance, labour and land markets.

DIGITAL OPPORTUNITIES FOR INCLUSIVE MARKETS

Support digital technology applications that facilitate sustainable, well-functioning inclusive and efficient markets, and promote the integration of small-scale producers', women and youth in output, input, credit and insurance, labour and land markets.

DIGITAL TECHNOLOGIES FOR WOMEN, YOUTH AND THE VULNERABLE

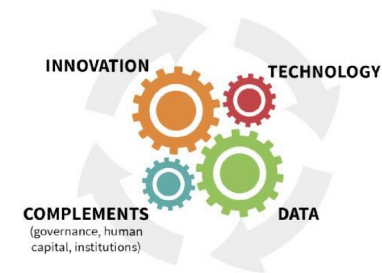
Ensure inclusive access to digital technologies and solutions, including to women, youth and other vulnerable and marginalized groups.

GLOBAL GOVERNANCE AND ADVOCACY

Initiate and contribute towards inter-governmental and multi-stakeholder fora and initiatives that strengthen cooperation and promote discussion on issues related to digital technology applications on food and agriculture.

DIGITAL FINANCE & INSURANCE

Support digital technology applications on finance, credit and insurance including promoting weather-index insurance initiatives.



Accelerators

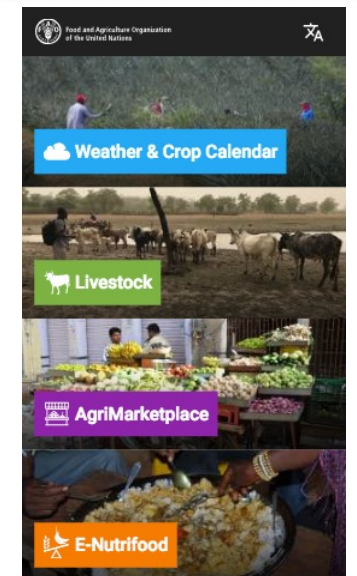
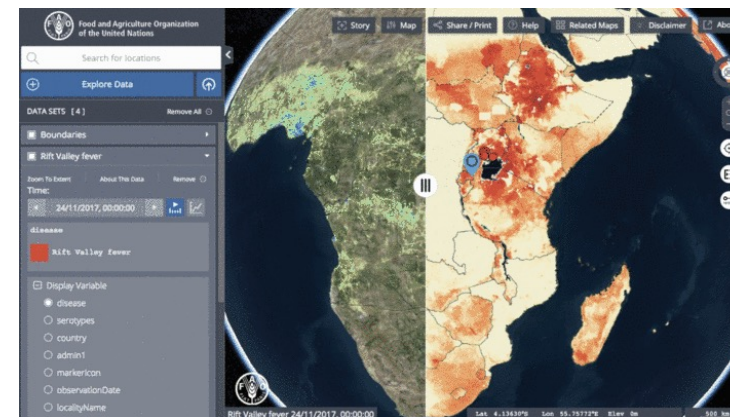
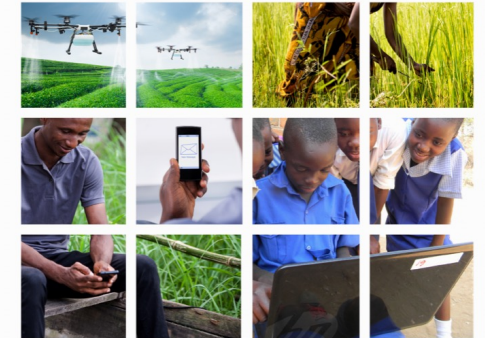


UN SG Digital Cooperation Roadmap

1. Achieving universal connectivity by 2030
2. Promoting digital public goods to create a more equitable world
3. Ensuring digital inclusion for all, including the most vulnerable
4. Strengthening digital capacity-building
5. Ensuring the protection of human rights in the digital era
6. Supporting global cooperation on artificial intelligence
7. Promoting trust and security in the digital environment
8. Building a more effective architecture for digital cooperation



Building Smart Villages: A blueprint As piloted in Niger



Thank you



**BETTER
PRODUCTION**



**BETTER
NUTRITION**



**BETTER
ENVIRONMENT**



**BETTER
LIFE**