“What’s Cooking: Digital Transformation of the Agrifood System” Report

pathways of change

Investigates how digital technologies can accelerate the transformation of the agrifood system by improving its efficiency, equity and environmental sustainability.

policy response

Identifies the relevant public policies and instruments to facilitate the diffusion, maximize the positive impacts, and mitigate the downside risks of digital technologies in agriculture.

assessment tool

Offers an assessment tool that allows for a more systematic analysis of a country’s constraints and capabilities in leveraging digital technologies in agriculture.

http://hdl.handle.net/10986/35216
From Pathways of Change...
The food system is large and complex, with many actors and high transaction costs

**UPSTREAM**

- $939.5 billion USD in value
- 102,500 Enterprises in Agricultural Inputs and support
- Millions of Retailers

**FARMERS**

- 570 million FARMS WORLDWIDE

**DOWNSTREAM**

- $3.7 trillion USD in value
- 368,500 Enterprises in food processing and logistics
- Millions of Retailers
Digital technologies allow information to flow more easily across the food system

Ability to collect, use, and analyze massive amounts of machine-readable data about practically every aspect of the value chain

The emergence of digital platforms disrupting business models in the agri-food system.

Feedback loop to inform all aspects of the value chain
Digital transformation results in economic and societal gains categorized by the three E’s

**Efficiency**
- On-farm efficiency
  - Precision agriculture and farm management
- Off-farm efficiency
  - Access to multiple markets
  - Improved price discovery
  - Buyer-seller matching
  - Improved traceability and quality control

**Environmental sustainability**
- Changes to production and distribution processes
- Enhanced scope for environmental monitoring
- Transformation of the behavior and attitudes of food consumers and producers

**Equity**
- Lower economic divides
- Lower spatial divides
- Lower social divides
Agricultural transformation through digital technologies

...to Policy Response
Policy framework for fostering efficient, equitable and environmentally sustainable digital transformation of the agrifood system

**a. Policies to enable digital transformation of the agrifood system**

- **Tier 1 enablers**
  - Enabling availability and accessibility of digital infrastructure
  - Enabling availability of physical infrastructure
  - Strengthening government capacity to foster digital innovation

- **Tier 2 enablers**
  - Enabling access to data in agriculture
  - Designing legal and regulatory framework conducive to digital innovations
  - Enabling competition in digital markets
  - Supporting development of digital payment systems
  - Supporting digital skills development
  - Fostering digital entrepreneurship ecosystems

- **Policies for adoption**
  - Strengthening knowledge and skill development of farmers
  - Supporting customization of digital tools
  - Reducing the cost of adopting digital technologies
  - Building trust in digital applications

**b. Policies to maximize equity and environmental sustainability gains of digital transformation**

**Equity**

- Improving access to and use of digital technologies by marginalized groups
- Addressing data access asymmetries
- Adopting compensatory measures for potential losers of digital transformation in agrifood system

**Environmental sustainability**

- Strengthening digital environmental monitoring
- Incentivizing use of digital technologies for environmental sustainability by producers
- Incorporating environmental sustainability goals in agricultural policies
- Influencing behavior of consumers and producers through e-education and information dissemination
Digital Agriculture Profiles
Introduction

- DAP is a tool aimed at a rapid assessment of the state of agricultural and digital development in a country and identify public policy entry points to maximize the efficiency, equity, and environmental sustainability of digital transformation of the agrifood system

- Five DAPs – for Argentina, Grenada, Kenya, Turkey and Vietnam – were developed during the pilot stage

- Joint work with CIAT, FAO, CGIAR Platform for Big Data in Agriculture
DAP methodology includes the following key elements:

1. Assessment of digital development in a country
2. Assessment of EEE in the agrifood system (key strengths and constraints)
3. Analysis of progress, policy and enabling environment, and potential impact and replicability (PPP) of selected digital technologies
4. Policy framework development
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Three foundational enablers – Tier I enablers

- Government’s digital innovation capacity
- Digital infrastructure
- Non-digital enablers
## Agriculture Digitalization Index

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Tier II enablers

1. Access to data in agriculture
2. Legal and regulatory framework conducive to digital innovations
3. Competitive digital markets
4. Digital payment systems
5. Digital skills
6. Digital entrepreneurial ecosystem
7. Transformational research and development.
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4. Policy framework development
Assessment of EEE in the agrifood system

- This step of assessment aims at understanding the key shortcomings in efficiency, equity, and environmental sustainability in the agrifood system.

- Existing indicators and data as well as the inputs from stakeholder consultation feed into this assessment.
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• **Progress**: Current degree of development, use, maturity, scaling, uptake and profitability of the technology

• **Policy and enabling environment**: Degree to which policy, programs and investments enable further development, adoption, and impact of the technology

• **Potential impact and replicability**: Assessment of transformational impact of the technology in terms of its potential for replication and scale up
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4. **Policy framework development**
   - Stakeholder mapping
   - Consultations with individual experts
   - Workshops and interviews with key experts
   - Analyzing data and sharing with stakeholders for final validation
   - Dissemination and outreach
Thank you!