2021 FOOD SYSTEMS SUMMIT

Digital Marketplace Playbook

Executive Summary

23 SEPTEMBER 2021

Our Digital Marketplace Playbook presents a framework for leveraging digital and data innovation with supporting cases from emerging markets

A digitally enabled, data driven, sustainable food system can	The digital marketplace playbook aims to
Guarantee food security, food safety and inclusion	Map key leverage points for data and digital innovation in the food system
Provide high potential for economic growth and value creation	Highlight the digital and data solutions driving innovation across the food system
Engage and support small holder farmers	Share recommendations for governments around the world on how best to enable inclusive innovation across the food system
Recognize and apply consumer protection and engagement principles	
Connect farmers with consumers in innovative and ethical ways	

The following presentation will explore transparent, inclusive, sustainable scale models that enable all actors, from small scale producers to consumers, to build more efficient, climate-smart markets for healthy and nutritious food

Our current food systems are not sustainable

The emissions associated with pre- and post-production activities in the global food system are estimated to be **21–37%** of total net anthropogenic GHG emissions

690 million people were undernourished in 2019

Most of the global poor work in agriculture

More than **10 million** lives are lost annually due to unhealthy eating patterns

Sustainable food systems should focus on ensuring affordable and healthy food to all people while respecting planetary and social boundaries

Source: UN Food The True Cost and True Price of Food

We need local and global partnerships to ensure safe, inclusive, green, eco-socially progressive food production and consumption

Transforming the approach to food systems

- In some regions of the world, particularly Sub-Saharan Africa, inadequate food production is still the major cause of food and nutrition insecurity
- This focus on food production leads to the neglect of other areas for the root causes of the food system's underperformance

- Food systems encompass the entire range of actors and their **interlinked value-adding activities** involved in the **production, aggregation, processing, distribution, consumption** and **disposal** of food products
- This **requires integrated actions taken by all stakeholders** at local, national, regional, and global levels and by both public and private actors
- Data across food systems acts as a key enabler for many actors involved in the production and consumption of food

Defining a sustainable food system

Source: FAO, Sustainable food systems – Concept & framework, 2018 (Adapted)

Globally digital and data innovations are enabling governments and businesses to address the complex challenges in our food systems

Agricultural production

Digital platforms and remote sensing technologies, are enabling access to inputs, financial services, agricultural information for sustainable farming practices and smart –planning for farmers

Food Manufacturing

AI enabled systems, IoT, Warehouse management SaaS, and Blockchain are being used for crop traceability, food safety and quality control in manufacturing and e-warehousing

Access to Market

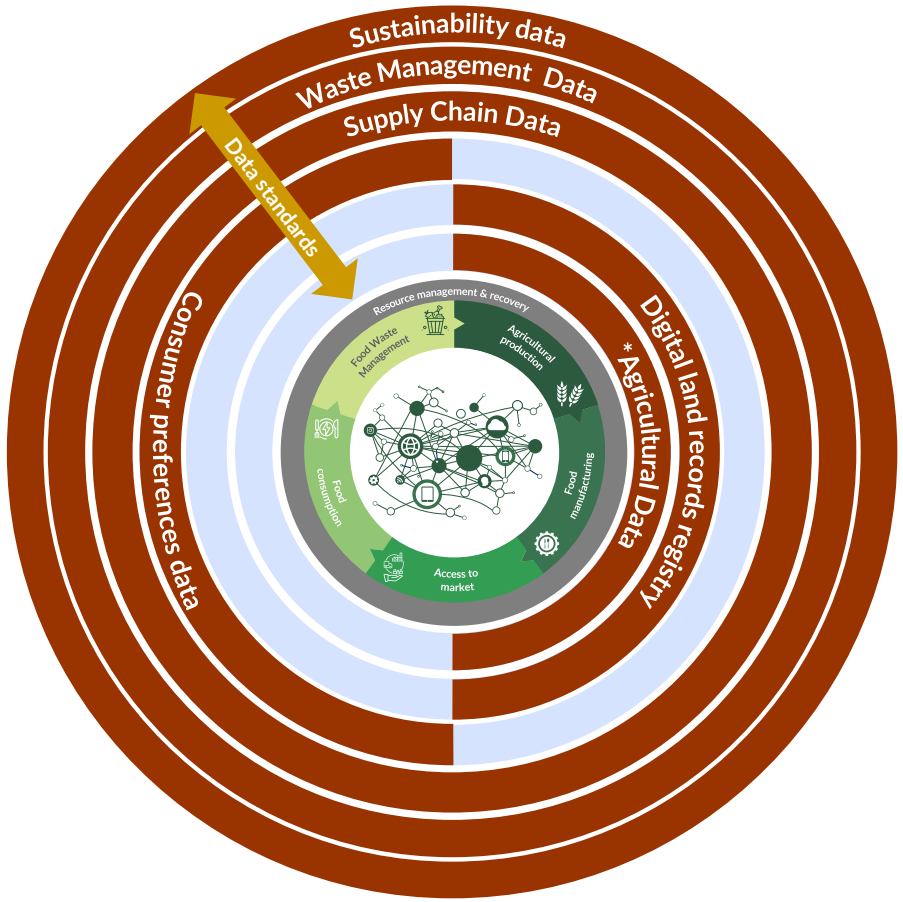
Digital platforms and AI enabled systems are establishing online retail platforms that lower food prices by enabling small-holder farmers to sell directly to consumers, and optimise pricing and nutrition incentives for customers

Food Consumption

IoT appliances, AI and mobile applications and appliances are providing real-time food inventories which help consumers lower waste. Whilst AI generated recipes are shifting consumption patterns and improving nutrition

Waste Management & Recovery

Smart recycling solutions are streamlining waste collection; and digital platforms are connecting consumers to NGOs/charities to lower inequitable distribution through food recycling



Data standards are critical for all types of data collected to ensure transparency and efficiency in data sharing across the food system.

Agricultural Data

Data and registries are enabling digital solutions and policy decision making, by creating proof of ownership to access credit, improving crop planning, and facilitating value chain activities that increase productivity and revenue

Sustainability Data

Data on carbon, energy and waste is helping producers measure, manage and reduce their environmental impact and incentivising sustainable food purchasing

Consumer Preferences Data

Data collected is helping to redefine consumer food preferences and purchasing behaviour to lower waste, improve nutrition and improve purchasing experiences

Supply Chain Data

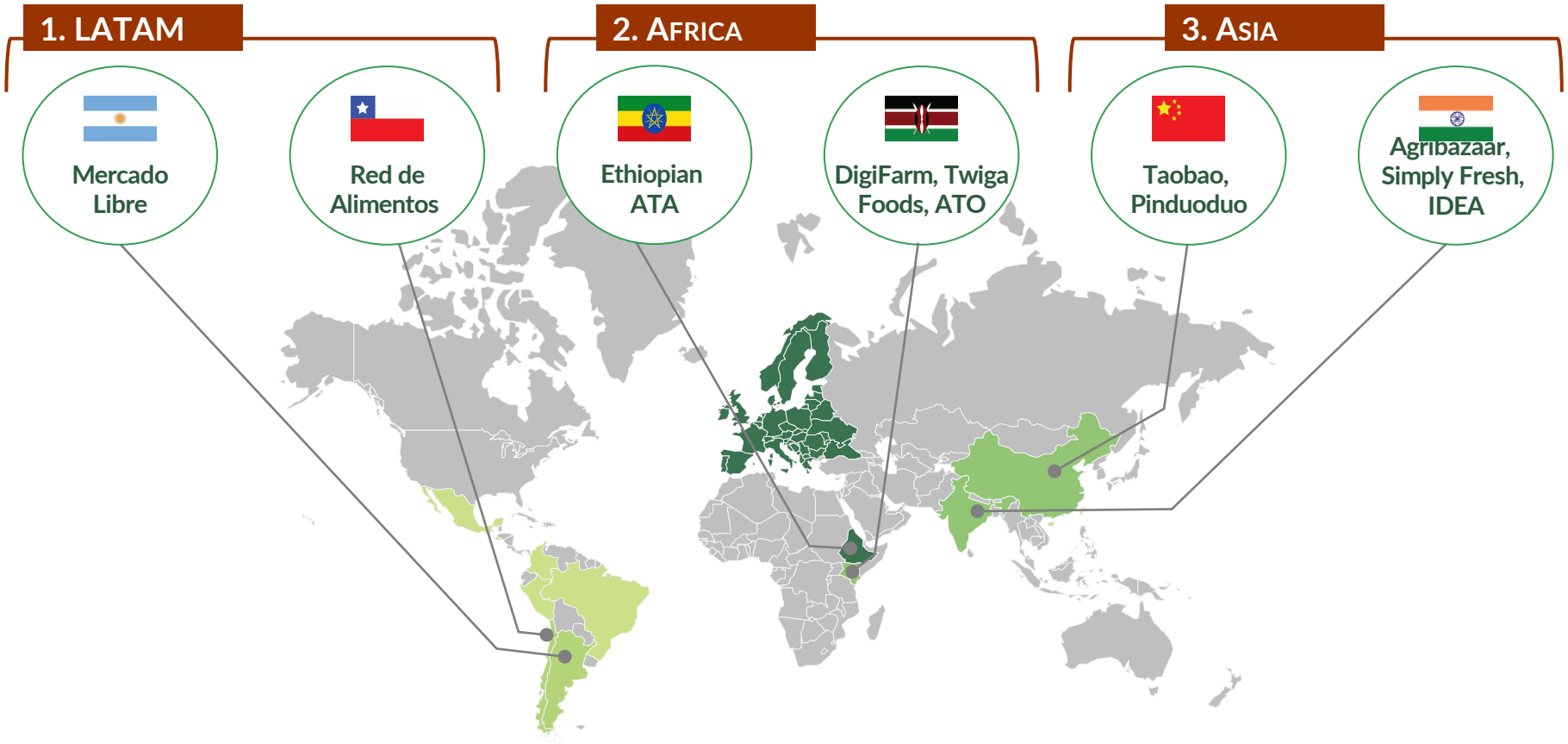
Data collected is helping to achieve supply chain efficiencies and reduce waste at all stages of production, warehousing and distribution

Waste Management Data

Data on expiry dates and consumption data is enabling advice on nutritious eating habits, reducing food waste and saving costs

Note: 1. The asterix marks areas where there is government involvement. 2. An expanded reference model is provided in our detailed presentation document

Globally, government and businesses are innovating to incorporate data and digital in their food systems



*We engaged with stakeholders across emerging and developed markets to identify companies we could derive lessons from for policymakers, entrepreneurs and potential investors. LATAM, Africa and Asia are beginning to explore ways to establish **inclusive** business models with tangible impact on food systems*

In LATAM, existing e-commerce platforms are taking advantage of the current COVID crisis to demonstrate their value in achieving sustainable food systems

Regional policies enabling data and digital innovation

ARGENTINA

2018: The government evaluated an AI Platform in sourcing Aquaculture sector information with the aim of formally incorporating the platform into the relevant ministry

EL SALVADOR

2019: The government held the first congress of Big Data in Agricultural Innovation, engaging with different actors to explore the potential for the modernization of agriculture

CHILE

2021: The government started working on the National Artificial Intelligence Policy; the policy will address socioeconomic opportunities of AI and ethical impacts of its use

2020: Rapid growth of e-commerce in Latin America, with agricultural e-commerce and hyperlocal supply chains increasing during the COVID-19 pandemic

Spotlighted cases

Red de Alimentos established a network of companies and social organisations, delivering food that would have been wasted to vulnerable consumers

Mercado Libre is leading the expansion of e-commerce, logistics, and financial services in Latin America, with a growing focus on food

Lessons Learnt

Digital

- Innovative use of data and digital technology can involve private companies in delivering social good
- Simultaneously tackling challenges of food waste and food insecurity, whilst facilitating and incentivizing cooperation between the private and charitable sectors and the huge capacity for growth of models that don't depend on consumer purchasing power

Data

- Innovative use of data can help to streamline supply chain infrastructure, bringing large numbers of suppliers and consumers into a single network, and massively increasing efficiency as a result
- Consolidating supply chain logistics into this single network can reduce costs for the benefit of all

Enabling Environment

- Existing e-commerce platforms are well positioned to leverage their distribution networks for food delivery - by providing a set of cross-cutting services for consumers and suppliers alike (e.g., logistics, payment, and credit services, among others) they can break down various barriers to growth and play a key role in driving the expansion of digital engagement in Latin America

In Africa, governments and local innovators are developing digital marketplaces and data hubs which are increasing food availability and stabilising prices

Regional policies enabling data and digital innovation

KENYA

2019: The Kenyan Agriculture Sector Transformation and Growth Strategy (ASTGS) 2019-2029 is launched and data and digital is identified as an enabler to achieve 100% food security

2020: The Agricultural Transformation Office (ATO) led a Unified Agriculture Data Platform to support food availability, accessibility and affordability

ETHIOPIA

2020: The Ethiopian government unveils the Digital Ethiopia 2025 strategy to leverage digitally enabled

2021: State-owned Ethio Telecom launches Ethiopia's first mobile wallet

EAC

2008: The EAC published a legal framework for cyber security, with provisions on privacy and data protection

2019: The EAC commences a plan to establish an Information Access Centre (IAC) to boost digital government in the region

Spotlighted cases

Ten years of ATA programming has led to consolidating **17 digital data sets into one data hub** to drive strategy, innovation and impact for smallholder farmers

Twiga Foods **has increased food security** by leveraging digital data from urban retailers and producers to create more access to nutritious food

Safaricom's DigiFarm platform has pioneered inclusive services for **1.4 million smallholders** with finance, inputs, learning and market access

The Kenya Agricultural Transformation Office is leading a Unified Agriculture Data Platform to support **food availability and stable prices**. The Agricultural Transformation Office uses data from the KUADP to coordinate outcomes across multiple players

Lessons Learnt

Digital

- Digital platforms can be inclusive and scalable for smallholder farmers, generating the data needed to enable critical services including access to finance, inputs, learning and markets
- Smart food markets can be inclusive for both farmers and consumers, providing voice and engagement that can make markets more responsive, safe, healthy and affordable

Data

- Data across the food system to reduce food waste, increase efficiency and production, lower prices and drive inclusive food system engagement by farmers and consumers
- The ATO is leveraging data generated by private sector actors to drive development of a national agricultural data platform to respond to shocks and drive food security

Enabling Environment

- Government can play a critical role as a coordinator of multiple partners, including sharing lessons across all stakeholders
- More and improved financing, especially through domestic government funding, in foundational/core systems for innovations, is key for success

In Asia, policies for agriculture with cross-ministerial support are enabling for scale up of existing solutions which are inclusive of farmers and consumers

Regional policies enabling data and digital innovation

CHINA

2014: The Rural E-commerce Demonstration Program is launched with the aim of reducing poverty and the modernising rural areas by promoting e-commerce
2019: Digital Agriculture and Rural Development Plan (2019-2025) is released to promote the digital transformation of agricultural production
2020: Push from the Chinese central government for more experiments using AI, big data, drones and autonomous agricultural machinery

INDIA

2010-11: National e-Governance Plan for Agriculture is launched, aiming to achieve rapid development through ICT use for farmers' timely access to information

2020: The Government of Telangana defines vision for AI-led innovation

2021: Agreement with Microsoft to create a 'Unified Farmer Service Interface' as a major part of the Ministry of Agriculture's plan of creating 'IDEA'

Spotlighted cases

agribazaa — Agribazaar delivers price transparency, traceability of crops and distribution efficiency for small holder farmers through an online platform

Simply fresh — Simply Fresh delivers food safety and traceability in the food value chain with the aid of sustainable farming practices and AI

IDEA is a unifying platform for digital agriculture, being developed by the Ministry of Agriculture and Farmers Welfare

淘宝网 Taobao.com — Alibaba Group's digital ecosystem serves rural farmers and consumers through Taobao's e-commerce platform and value added services for farmers

拼多多 — Pinduoduo has redefined agrifood e-commerce at the same time as empowering farmers and consumers through digital platforms

Lessons Learnt

Digital

- Digital platforms, which are socially engaging and integrate behavioural insights into the user experience, can build consumer trust and improve market linkages between farmers and consumers
- High IT skills and access to advanced technology are crucial for precision agriculture

Data

- Consumer data can enable food suppliers to accurately meet consumer needs (and support farmers to understand required production volumes and quality demanded) which lowers costs further at the midstream and downstream
- There is a need to focus on data protection law to ensure digital security and privacy, especially for SHFs

Enabling Environment

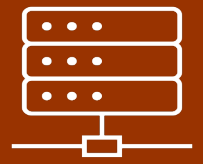
- Government can play a critical role in building consumer trust through improving local logistics and distribution channels and infrastructure
- Policies that promote digital and data innovation for agriculture, and framework to improve agri-value chains allow digital innovations to scale
- Mechanisms for engaging farmers in decision-making and in defining value are critical

The 30 business models and 12 global case studies reviewed, identified innovative approaches for mainstreaming inclusive data & digital marketplaces

Digital

- Digital platforms can be inclusive and empowering for farmers and consumers, providing safe and straightforward access to markets, as well as generating data to support productivity, sustainability, and traceability throughout food systems
- Smart food markets can help enable innovative supply chain models that provide farmers and consumers with greater agency, facilitating more direct pathways for supplying safe, healthy, and sustainable food at a fair price for all
- E-commerce and online trading platforms are well positioned to provide cross-cutting financial and logistical services to consumers and suppliers alike, although adequate protections must be built into the design of all such services
- Innovative digital solutions leveraging IoT, and AI hold significant potential to promote climate-smart farming practices and reduce food waste at all stages of the supply chain, but require considerable further investment

Data



- Multiple stakeholders must work together to build relevant agricultural data sets to support sustainable food systems, by coordinating data harmonization, collection and sharing efforts with informed consent of consumers and farmers
- On-going lesson sharing to embed a data-driven approach is crucial to ensuring that all data collection and usage is beneficial for national and global food systems, as well as the people within them
- Consumer data can enable food suppliers to effectively meet demand for healthy, safe, and sustainable food, while innovative approaches to data management and stewardship are needed to ensure this is done fairly and equitably

Ecosystem Enablers

- Governments have a crucial role to play in connecting sustainable and inclusive supply chain models with public and private investment, as well as creating an enabling environment to encourage data and digital innovation that centres the needs of people and planet
- More capital is required for start-ups and for foundational/core ICT systems that enable innovative applications and services (especially for advanced data analytics at a national level)
- Instituting data protection frameworks for consumers, and clear agriculture policies that incorporate food safety, nutrition, and sustainability, will significantly strengthen data and digital innovation as a force for good *(hyperlink to principle)*

Across the case studies, three opportunities emerge as a starting point for encouraging data-driven, interconnected, digital innovation for sustainable and inclusive food systems

1 DIGITAL PLATFORMS FOR FOOD MARKETS AND SUPPLY CHAINS

Digital platforms can host and integrate technologies, products and services for the benefit of farmers and consumers, developing sustainable supply chains for safe and healthy food. These platforms must be inclusive, providing market access for all, with proper safeguards in place

DAPs can promote private sector investment into digital platforms that maximize the benefit of innovation for consumers and small holder farmers, supported by marketplace and data standards

Examples of digital platforms include

agribazaa

DigiFarm

淘宝网 Taobao.com

拼多多

2 COLLABORATIVE DATA MANAGEMENT

Collaborative data management can build data-collection, integration and sharing capabilities within government institutions to host agriculture and food data for public good, while enabling private sector for scale. These can be established with innovative approaches to data stewardship and standards can ensure consumers and farmers are protected

Collaborative data management can facilitate collaboration across multiple stakeholders, streamline data sharing at national/regional level, while governments can act to ensure that data is used for the public good

Examples of data sharing platforms include

Ethiopian ATA Agricultural Transformation Agency የኢትዮጵያ ግብርና ትራንስፎርሜሽን ኤጀንሲ

·FARMSTACK·

CGIAR Platform for Big Data in Agriculture

3 INNOVATION HUBS FOR DIGITAL AND DATA BREAKTHROUGHS IN FOOD SYSTEMS

National and/or regional innovation hubs can embed and partner with players in government, private sector and funders, to provide insight and practical support. Innovation hubs can help all stakeholders to build inclusive and sustainable food systems solutions that take farmer and consumer needs into account

Innovation hubs can facilitate technical and financial support to inclusive and sustainable solutions, and enable local entrepreneurs to learn and test both new and existing digital markets

Potential ecosystem partners could include

MERCY CORPS

WFP World Food Programme

INNOVATION ACCELERATOR

WORLD ECONOMIC FORUM

FOOD INNOVATION HUBS

FAO FIAT PANIS

Dalberg

End of Executive Summary

For more information please refer to our full report on the Digital Marketplace Playbook