A Global Landscape of Digital Agriculture Technologies (DATs)



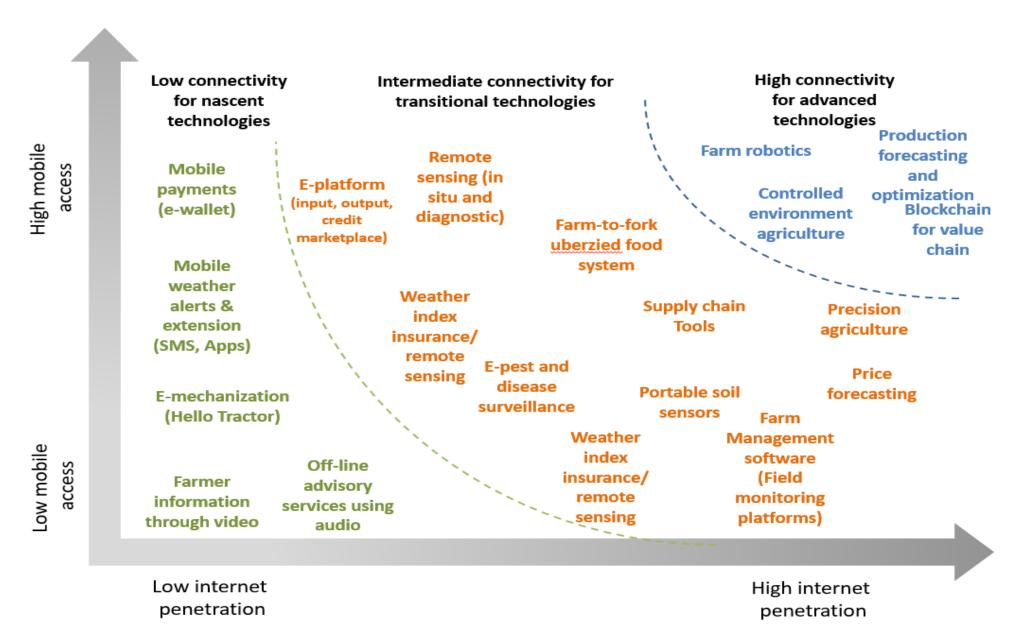
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Different stages of connectivity require different types of digital technologies (nascent, transitional & advanced)



The AgTech Landscape is diverse and spans a wide array of technologies







A growing number of global and local AgTech players coming up with solutions that have cross-regional applications

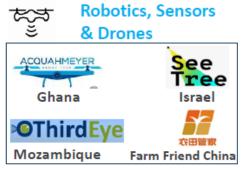
Illustrative Categories of AgTech Solutions

- Data Management & E-Commerce: Connecting farmers directly to suppliers or consumers without middlemen
- Precision Agriculture & Predictive Data Analytics:
 Enable farmers make better farm-related decisions in order to save energy, increase efficiency, optimize herbicide and pesticide, etc.
- Supply Chain Management: Software that enhances efficiency of Agribusinesses supply chain / logistics
- Robotics, Sensors & Drones: Drones and machines performing various farm functions more efficiently
- Soil Management: Bio and chemicals solutions that improve productivity and environmental benefits
- Plant & Animal Data/Analysis: Use data about plant composition to improve seed R&D and breeding
- Finance & Insurance: Solutions that improve access and quality of financial services for farmers
- Satellite & Imagery: Geospatial technologies that allow for extensive spatial mapping of farms/forestry

















AgTech Solutions have the potential to deliver significant benefits along the full length of the Agricultural Value Chain*

Farmers Distributors Suppliers & Fls **Processors** Retailers Consumers **Biological solutions** · Less intense use of water · Improved produce Improved linkages · Faster farm to market · Improved food quality **Direct Benefits** improve seed quality and land quality "Rerouting" along · Bringing products and safety Stakeholder- Creation of versatile Better yield and quality · Better anticipation of supply chain closer to consumer Improved food bio-agrochemicals, bio-· Optimal farm inputs and processing inputs · Decreasing complexity · Higher quality and traceability level Impacts · Reduced wastage energy, bio-materials less wastage safety of food Improved food shelf life along farmer's value Increased client base · Improved incomes chain · Stronger linkages with Better digital literacy · Growth in digital payment, access to finance & Improved traceability supply chain players and knowledge base insurance services finance, credit options and produce quality Technology advances help improve overall sector productivity, and help diversify the sector into high value services that open opportunities further downstream Economy- Stronger linkages along the value chain and increased potential for value addition level Impacts Increasing human capacity through greater digital literacy and stronger knowledge base Indirect Benefits Economies of scale and greater efficiencies Reduced use and better management of water and land; lower fertilizer/pesticide use, and reduced pollution Environmental Smaller CO2 footprint of agriculture and reduced GHG emissions **Impacts** Better monitoring of deforestation Increased competitiveness in the agribusiness sector by (i) encouraging traditional agribusinesses to innovate through replication/capacity building, and (ii) demonstrating the viability of technology as a worthwhile investment that can be replicated by new entrants, esp. in input/output markets (i.e. SeeTree, PatternAG, Market FBN) Creation Strengthened integration of agribusiness stakeholders into local and global value chains by enabling (a) increased access to markets through technology platforms,

as well as (b) innovative inputs that support sales in distant markets (i.e. eFisheries, Apeel Sciences and Fresh2Home)

Sub-Pillars

Going forward, IFC/WB's AgTech business plan will be built on 4

strategic pillars

Our vision for 2030 is to:

To accelerate the adoption and expansion of technology with the aim of increasing the productivity, efficiency and resilience of the agricultural value chains and food systems in Emerging Markets

To achieve this, IFC/WB will develop a multifaceted approach that incorporates...



(1) Enhancing Agricultural Productivity

- A. Build Robust Ecosystems that foster entrepreneurship
- B. Expand availability of Productivity Solutions
- C. Support Digital Platforms and Public Goods
- D. Strengthen Strategic
 Partnerships with key players



(2) Improving Supply Chain Linkages & Efficiencies

- A. Support Traceability Solutions that exploit efficiencies
- B. Increase adoption of Supply Chain Technologies in Agribusiness sector
- C. Support development of Digital Logistics Platforms
- D. Engage E-Commerce Solution providers



(3) Expanding Access to Finance & Insurance

- A. Leverage Digital Payments to improve finance access
- B. Fund Innovative FinTech Providers
- C. Leverage Novel Approaches to Agri/Crop Insurance
- D. Develop Regulatory & Ecosystem frameworks



- A. Promote Resource Efficiency
 Through Precision Technology
- B. Promote use of Climate Smart Practices
- C. Expand use of Healthier Biological Alternatives
- D. Boost innovations in Food Quality, Safety & Health

Cross-cutting Themes:

- Solutions for SHFs and BOP Producers in EMs, Gender, AgTech-focused VC funds & Accelerators, Covid-19 Impacts
 - Regulatory & Policy issues, Human & Institutional Capacity, Digital & Physical Infrastructure

Key Data and Digital interventions

Kenya Big Data Center

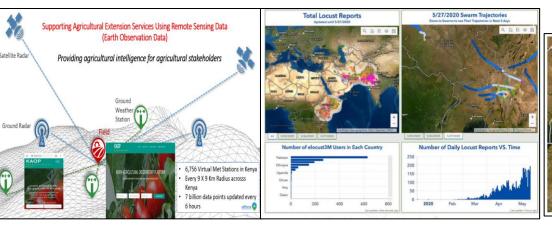
Big Data Center

Digitized and Translated

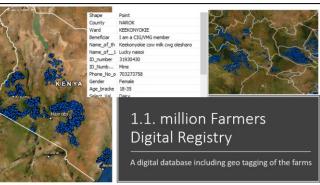
Crop/Livestock

Micro Weather Observatory

Desert Locusts warning and response



Farmers Digital Registry and Farm Geotagging

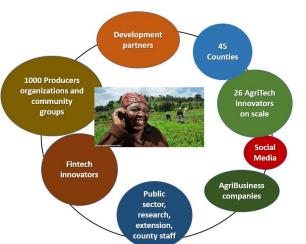


Digital Food Balance Sheet

MAIZE PRODUCTION

Developing solutions and Personalized Advice to farmers

One Million Farmers Platform



Digital e-voucher system



Digitizing Producer Organizations



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

One Million Farmers are expected to access digital solutions and innovations



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

Indian Ag-Techs are pursuing a variety of Paths to Scale

Full-stack solutions



Global B2B SaaS models



Tech-enabled output supply chain solutions



Freemium model





Note: These categorizations reflect **ThinkAg's** analysis of these Ag-Techs' operations

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