

3<sup>rd</sup> Strategic Leaders' Summit 2021 - 25<sup>th</sup> of February - Kampala –  
Transformation of Agribusiness & SMEs in the Digital Economy  
within the Africa Continental Free Trade Area (AfCFTA)

**AgricTech v Supply Tech...**  
What productivity platform for  
African Agribusiness sourcing from Small  
Scale Producers.

**A case for an ecosystem of tech enabled  
services for agribusiness & farmers**



**Solution for  
Data-Driven,  
Traceable &  
Sustainable  
Agri Supply  
Chain**

**[www.metajua.com](http://www.metajua.com)**

# What is



[www.metajua.com](http://www.metajua.com)

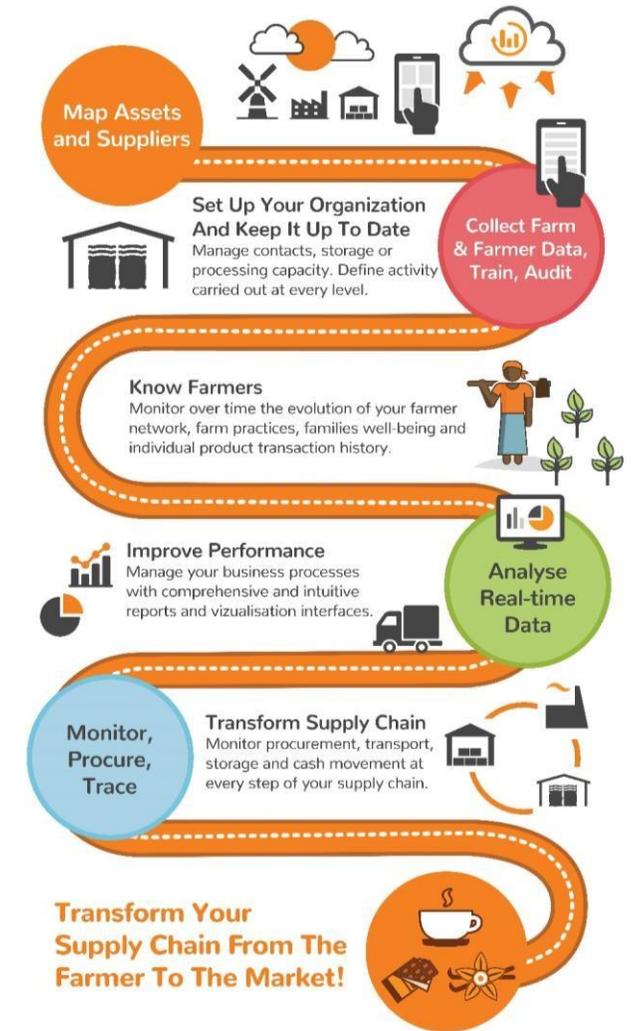
Metajua is a software company with a key focus on **solutions for Agribusiness sourcing from Small Scale Producers (SSP)**

Our clients are Agribusiness (**Cooperative, SMEs, Large trading companies**) buying coffee, vanilla, cocoa, grain, spices and other products from established group of SSP farmers

Agribusiness **subscribes** to Metajua platform and equip their **employees** and field contractors with smartphones to collect data (Farmer profiling, Input/ Loan distribution, training, buying, stock movement & processing) using **Metajua mobile app**.

**Supervisors** administrate users, controls operation (price fixing, activity planning) and visualizes operation insights from the **Web platform**

Information is used both **internally for business monitoring** and **externally for clients, auditors, banks, investors, donors...**



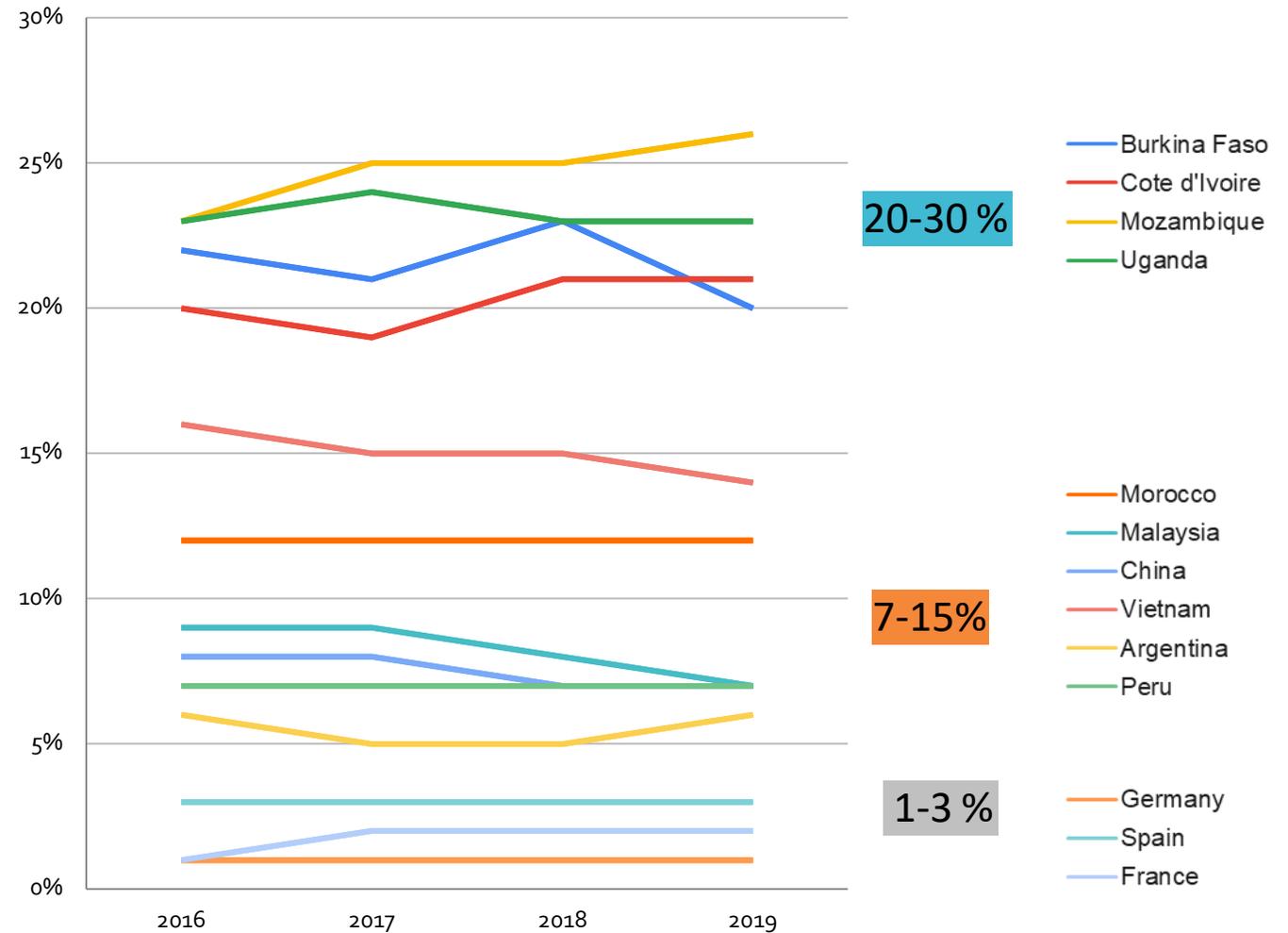
# Agriculture

## Small Scale Producers

Why does it matter?

### Agriculture in Africa

²Agriculture, forestry, and fishing, value added (% of GDP) (Sample)



= big GDP contributor

Agriculture

Small Scale  
Producers

Why does  
it matter?

## Small Scale Producers? (1)

Characteristics differentiating small-scale/smallholder from commercial farmers include scale and size of farm system, proportion of crops sold, household expenditure, and use of family labour, mechanization, capital intensity, financial ability and level of linkages with larger economic systems

Agriculture in Africa is dominated by small-scale famers who rely on family labour; with 33 million farms that are less than 2 ha, small-scale farms represent 80% of all farms<sup>1</sup>

= Africa largest proportion of farms

Agriculture

Small Scale  
Producers

Why does  
it matter?

## Small Scale Producers? (2)

80% of the food produced in sub-Saharan Africa is produced by smallholder farmers and these farmers are also the largest employers for the local labour force in these countries (...) Agriculture employs between 60 and 90% of the total labour force in sub-Saharan Africa<sup>3</sup>

= Africa provider of food security & employment

# AgriTech

## Definition

- **Technology**; the application of scientific knowledge for practical purposes, especially in industry.\*
- **Agriculture** is the science, art and practice of cultivating plants and livestock. [1] Agriculture was the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that enabled people to live in cities.\*\*
- => Agri tech: Application of scientific knowledge to art and practice of cultivating plants and livestock
- **Agricultural technology** or **agrotechnology** (abbreviated **agritech**, **AgriTech**, or **agrotech**) is the use of technology in agriculture, horticulture, and aquaculture with the aim of improving yield, efficiency, and profitability. Agricultural technology can be products, services or applications derived from agriculture that improve various input/output processes.\*\*\*
- \*Oxford Languages \*\*Wikipedia/Agriculture \*\*\*Wikipedia/Agricultural technology

# AgriTech

## Examples

### Types of agricultural technology \*

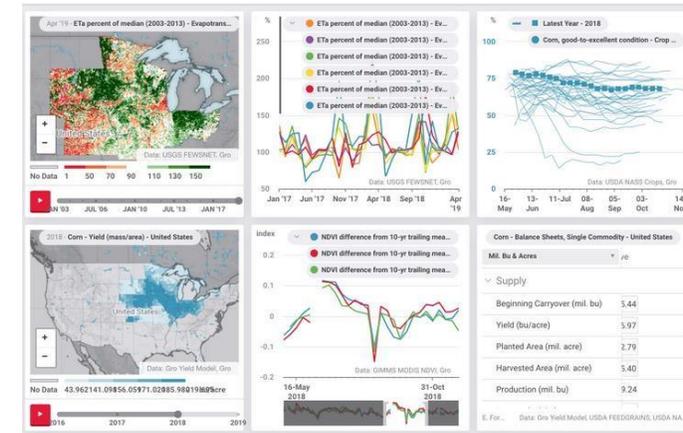
- Agricultural drone
- Satellite photography and sensors
- IoT-based sensor networks
- (...)
- Weather forecasts
- Automated irrigation
- Light and heat control
- Intelligent software analysis for pest and disease prediction, soil management and other involved analytical tasks
- Biotech\*

\* [Wikipedia/Agricultural technology](https://en.wikipedia.org/wiki/Agricultural_technology)/Types of agricultural technology

# Example of Agri Tech for large farm



[https://en.wikipedia.org/wiki/Agricultural\\_drone](https://en.wikipedia.org/wiki/Agricultural_drone)



<https://gro-intelligence.com/gro-models/us-corn-yield-model>



<https://www.futurefarming.com/Machinery/Articles/2021/2/Wheat-production-costs-up-to-33-per-ton-lower-with-autonomy-713230E/>



<https://www.naiotechnologies.com/en/>

# Improving Yield, Efficiency, Profitability & Sustainability

## For Small Scale Producers

### Agri-tech....Improving Yield, Efficiency, Profitability

**Why** is it so important in Sub-Saharan Africa:

- 1- Agriculture % of GDP is 20-30 % compare to 0-3% in Europe 7-15% Asia...
- 2- the proportion of farmers in active population is so high and in particular of SSP, they provide food and employment
- => opportunity to increase the valued added by farmers in contribution to GDP ...

**How** do we do we realize Agritech, provide extension services (information), leverage input providers (bringing outcome of Agritech) to farmers, Agri supply tech (bringing product to market)

... create an enabling service & supply env. to Small Scale Producers

A case for an ecosystem of tech enabled services for  
agribusiness & farmers

# Example of AgriTech for Small Scale Producers



<https://agrevolution.in/business-model>

(...) DeHaat App provides **frequent crop reminder notification** voice calls in local language to the farmer specific to their crop requirements. Thus, Farmers were informed about the **right dosage of input** as well as the best available crop consultation. It also provide the farmers with the flexibility to **order input** through our App and even **sell their output** directly to Dehaat through the app (...). (...) **customized advisory services** through automated messages and voice calls based on real-time information.

## DeHaat Centre

DeHaat Centre is a one-stop-shop for **full-stack agricultural services**. Farmer gets access to **quality material inputs**, coordinates the **sale of their produce to institutional buyers** and receives **science-based farming advisory** (...).

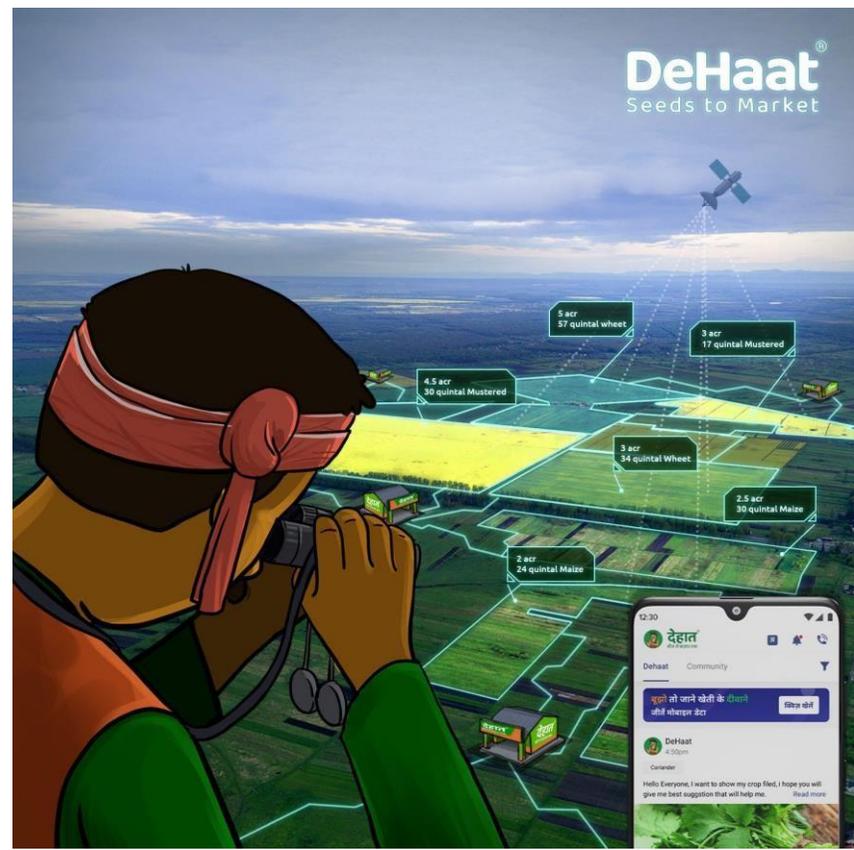
**Micro-finance and Agri Insurance** services will soon be available to the farmers as well.



<https://agrevolution.in/solution-for-farmers>

# Example of AgriTech for Small Scale Producers

Becoming a "one-shop" center



<https://agfundernews.com/breaking-dehaat-acquires-farm-guide-to-bolster-marketplace-and-advisory-platform-with-unique-smallholding-spatial-dataset.html>

On the advisory front, DeHaat can now combine its existing transactional database with trained satellite imagery data to better make recommendations for seeds and fertilizers and predict crop, water, and nutrient stress.

Satellite imagery has typically been useful for farmers with farms of a big enough size to be identified from space, leaving any spatial data about smallholder farms typically used in aggregate by large corporations or governments to detect trends and climate impacts. But Farm Guide has managed to train its algorithms to recognize individual land parcels as small as half an acre (0.2 hectares) with 75%-80% accuracy.

# Example of AgriTech for Small Scale Producers



The screenshot shows the EzyAgric website header with navigation links (Home, Solutions, Our story, Contact us), a LOGIN button, and a TRY FOR FREE button. Below the header is a mobile app interface for 'John Doe' showing 'Total Expenditure' and 'Total Income' in UGX 0. The app features icons for AGRI SHOP, EZY CREDITS, GARDEN MAPPING, FARM MANAGER, BETTER EXTENSION, and PRODUCE MARKET. To the right of the app is a section titled 'Simplify farming with your smartphone' listing services: Farm records & analysis, Ezycredits, Agrishop, Extension and advisory, and Market linkage, each with a brief description. A 'GET THE FARMER APP' button is at the bottom.

<https://ezyagric.com/>

- Farm records & analysis
- Agriculture financing
- Agro-input
- Extension and advisory
- Market linkage

Pay as you go solar water pumping technology with high-efficiency drip irrigation



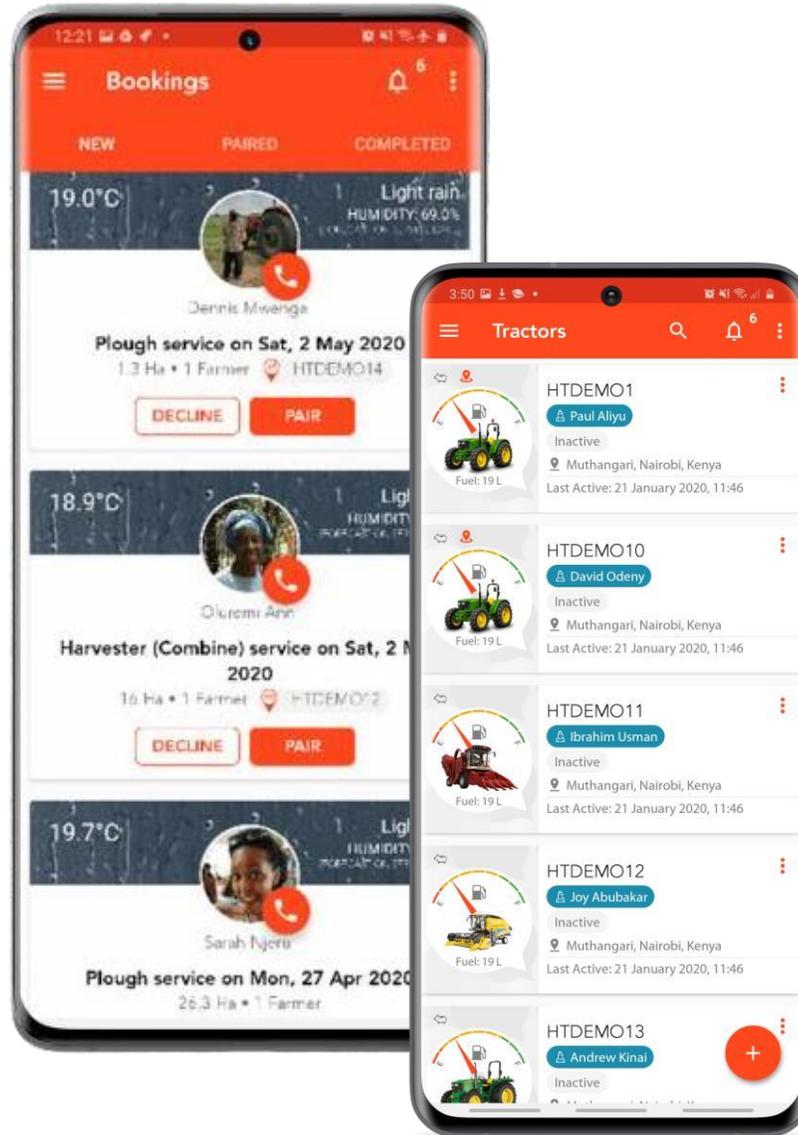
<https://sunculture.com/>



# Example of AgriTech for Small Scale Producers



<https://hellotractor.com/>



**Equipment Dealers**  
Connected after-sales and improved customer relationships

**Financial Institutions**  
Monitor collateral, increase salvage value and minimize risk

**Equipment Owners**  
Manage your assets, schedule jobs, manage your crews, optimize your routes and eliminate fuel theft

**Farmers**  
Book services from our connected fleets, save on costs and improve your yields

# SupplyTech

## Definition

- *Technology*; the application of scientific knowledge for practical purposes, especially in industry. \*
- In commerce, a **supply chain** is a system of organizations, people, activities, information, and resources involved in supplying a product or service to a consumer. Supply chain activities involve the transformation of natural resources, raw materials, and components into a finished product that is delivered to the end customer.<sup>[1]</sup> In sophisticated supply chain systems, used products may re-enter the supply chain at any point where residual value is recyclable. \*\*

- \*Oxford Languages \*\*Wikipedia/Supply Chain \*\*\*supplytechinsights.com

# SupplyTech

## Process in Motion

- SupplyTech\*

You may be tired of seeing the words **digital** and **digital transformation** by now, but the need for companies to make this transformation is more real than ever. In current times of slow economic growth and Amazon challenging almost every industry's traditional business model, almost every company is looking over its shoulder for the next Google, Tesla, Netflix, Uber, or Airbnb. Companies fear becoming the next Harvard Business Review case study of a company that missed the digital transformation imperative.

The supply chain industry is no exception. (...) With automated processes and near real-time information, companies can say goodbye to inefficient manual processes and costly investments in unneeded assets (e.g., inventory), and respond more quickly and accurately to any potential business disruptors.

TODAY		TOMORROW
Manual Data Gathering across Systems/Roles		Real-time Connections
Manual Collaboration		Digitize Collaboration & Scenarios
Manual "what-if" Scenario Creation		Automatic Simulation
Cadence-based Planning and Decision-making		Continuous Event-driven Planning and Decision-making



\*Logility, Inc.) in [www3.technologyevaluation.com](http://www3.technologyevaluation.com)

# SupplyTech

## Some Agri examples



<https://twiga.com/marketplace/>



# SOKO YETU<sup>®</sup>

- 1 A supplier signs up to join Twiga.
- 2 Twiga issues a purchase order to book the produce and indicate date of harvest/delivery.
- 3 Twiga harvests and weighs suppliers' produce and issues you with a receipt.
- 4 Suppliers receive payment within 24 hours.



Suppliers

Marketplace

Vendors

# SupplyTech

## Some Agri examples



<https://metajua.com/>

The screenshot displays the Metajua dashboard with several key components:

- Total Kgs Collected:** A bar chart showing collection across regions: Nsangi (~6,000), Mubende (~7,000), Wakiso (~9,000), and Nakasongola (~1,000).
- Farmers Registered:** A donut chart showing 45% registered, with 33% in Mubende and 22% in Nsangi.
- Farmers Training Report:** A table listing training sessions by source, date, site, and quantity.
- Coffee Collected in Bulking Centres:** A bar chart showing collection in Kiboga, Mubende, Wakiso, and Nakasongola.
- Coffee Farmers Registered:** A donut chart showing 45% registered, with 33% in Mubende and 22% in Nsangi.
- Traceability Report:** A detailed report for a specific lot, including origin, lot, and batch information.

**TRACEABILITY REPORT**

ORIGIN INFORMATION		ORIGIN	
SUPPLIER:	LATITUDE TRADE CO.	ORIGIN:	UGANDA
CUSTOMER:	CRAFTING MARKETS B.V.	TYPE:	SEMULILO FOREST
DEST. MARKET:	EU	PRODUCT:	COCOA BEANS
PORT OF SHIPMENT:	MOMBASA, KE	TRACEABILITY TYPE:	CERTIFIED ORGANIC
PORT OF DISCHARGE:	ROTTERDAM, NL	SEASON:	2020-2021

LOT INFORMATION		AVG FRESH PRICE	
LOT NO.:	21-801	PAID (USD/KG)*:	2,609
NET DRY SHIPPED WEIGHT:	8,000 KG	PAID (USD/TON)*:	0.71
LOCATION:	BLINDIBUGYO	DRY EQUIV PRICE PAID (USD/KG):	2.16
HARVESTS:	AUG - SEPT 2020	NO. CONTRIBUTING FARMERS:	458

BATCH INFORMATION					
LOT NAME	BATCH	PURCHASE DATE	DRY QTY IN BLEND (KG)	GRADE/TYPE	TRACEABILITY TYPE
21-801	H-829	8/29/2020	1142.5	GRADE A - SEMULILO	CERTIFIED ORGANIC
21-801	H-914	9/14/2020	3086.5	GRADE A - SEMULILO	CERTIFIED ORGANIC
21-801	H-925	9/15/2020	803.2	GRADE A - SEMULILO	CERTIFIED ORGANIC
21-801	H-921	9/17/2020	210.0	GRADE A - SEMULILO	CERTIFIED ORGANIC
21-801	H-929	9/29/2020	3091.0	GRADE A - SEMULILO	CERTIFIED ORGANIC

The dashboard also features a map of Uganda with location markers and a QR code on a coffee bean bag labeled 'Soudik Forest' with a 'USDA ORGANIC' certification.

Supply chain mapping

**Farmer profiling**

Farm compliance & management

Agri-product & cash transaction **traceability**

Staff performance management

Farmers training & support management

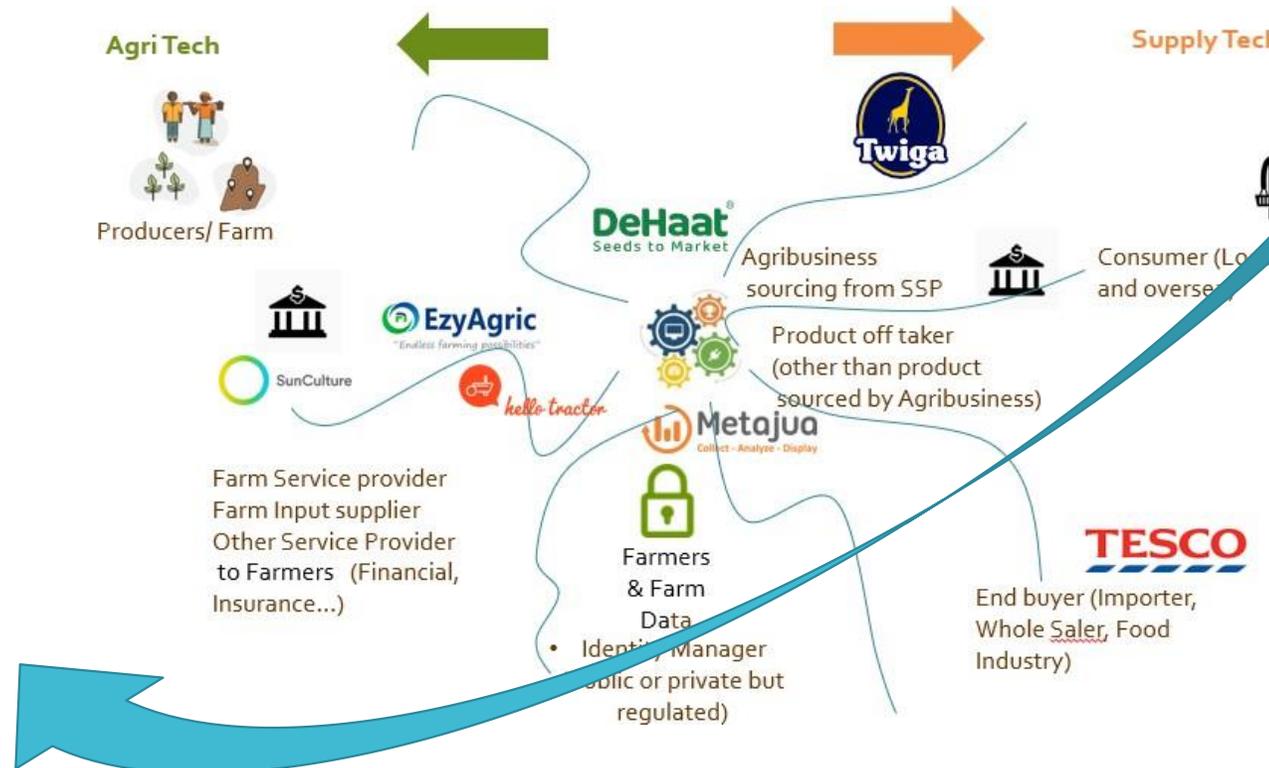
Business reporting & dashboards

**API Integration with other digital enable services (Finance, Input, Insurance)**

# A case for an ecosystem of tech enabled services for agribusiness & farmers

All players are enablers of a same supply chain  
how do we create seamless integration?

With automated processes and near real-time information, companies can **say goodbye to inefficient manual processes** and costly investments in unneeded assets (e.g., inventory), and **respond more quickly and accurately to any potential business disruptors**.\*



[\\*www3.technologyevaluation.com](http://www3.technologyevaluation.com)

Agribusiness as one  
pivot of a data  
ecosystem

...

a primary source of  
continuous and  
reliable field data

For farm and non-  
farm input, goods,  
service providers to  
plug in

## Agribusiness, SME, Coop... Sourcing from SSP

- They buy product from SSP
- They interact with SSP
- They store, finance, process, sell
- They package and export
- They support farmers
- They have a long term business cycle
- They generate data about all this



# AgriTech

# Supply Tech



Producers/ Farm



Farm Service provider  
Farm Input supplier  
Other Service Provider to Farmers (Financial, Insurance...)



Agribusiness sourcing from SSP



Product off taker (other than product sourced by Agribusiness)



Identity Manager (Public or private but regulated)



Consumer (Local and oversea)



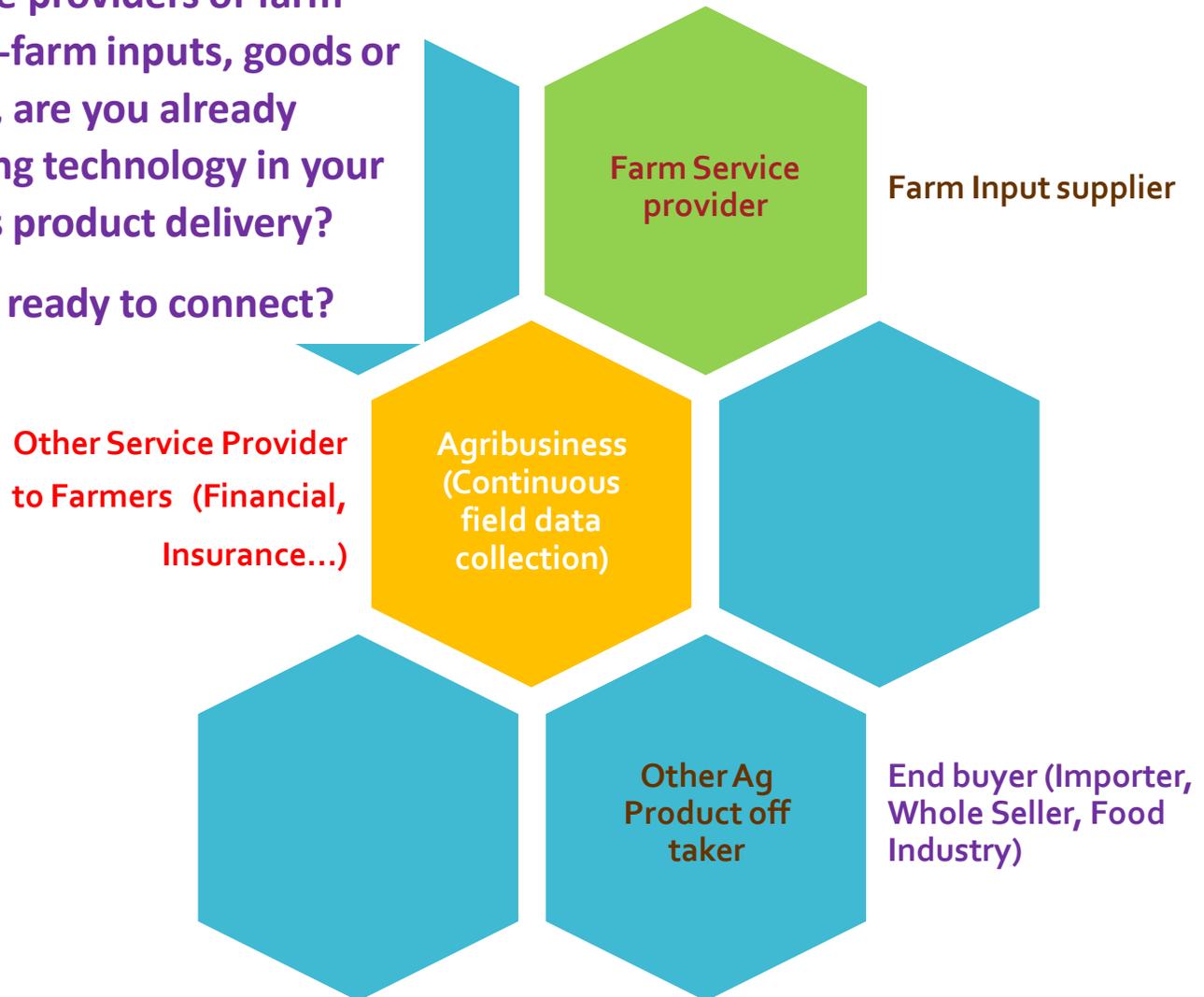
End buyer (Importer, Whole Saler, Food Industry)

# A case for a seamless ecosystem of tech enabled services for agribusiness & farmers

## WHERE DO YOU FIT?

... service providers of farm and non-farm inputs, goods or services, are you already leveraging technology in your business product delivery?

Are you ready to connect?



# Other Sources

European federation for information technology in Agriculture, Food & the Environment  
Newsletter 973, dated February 22, 2021 <https://www.informatique-agricole.org/>



<https://agfundernews.com/>



<https://www.futurefarming.com>

**FUTURE FARMING**

<sup>1</sup>[the-role-of-small-scale-farmers-in-ensuring-food-security-in-africa](#) - Samkelisiwe Nosipho Hlophe-Ginindza and N.S. Mpandeli

<sup>2</sup><https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=ZG>

<sup>3</sup>[According to Antonaci et al. in the-role-of-small-scale-farmers-in-ensuring-food-security-in-africa - Samkelisiwe Nosipho Hlophe-Ginindza and N.S. Mpandeli](#)

<sup>4</sup>The State of Food Insecurity in the World 2004: Monitoring Progress Towards the World Food Summit and Millennium Development Goals. Rome: Food and Agriculture Organization; 2004



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