



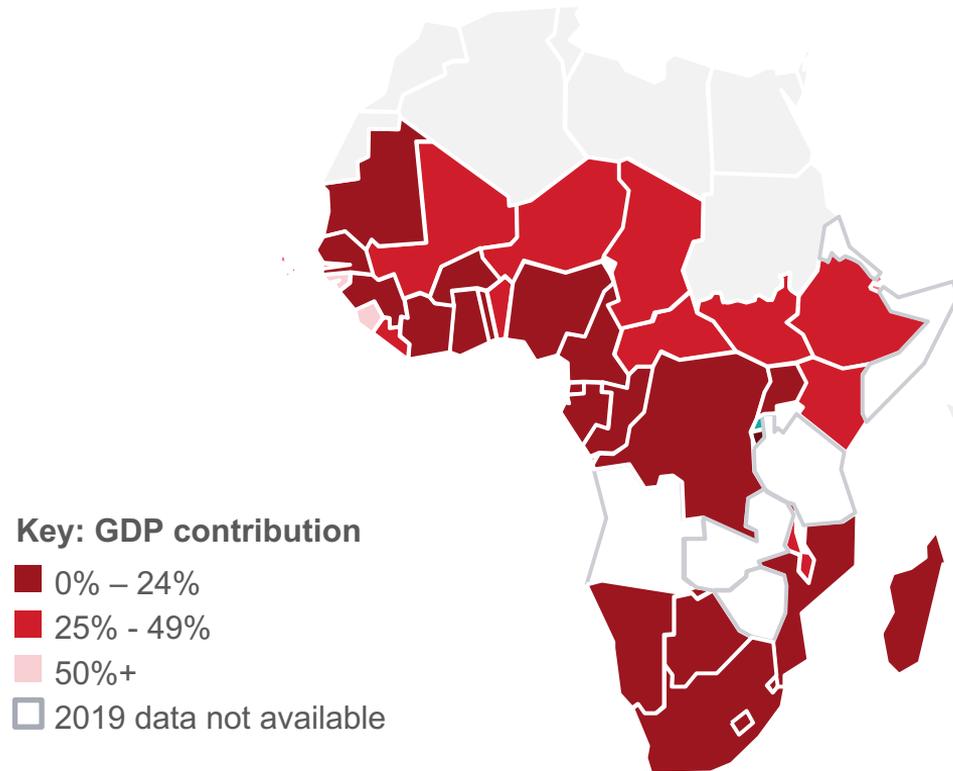
# DIGITAL AGRICULTURE PLATFORMS

BLUEPRINTS EXECUTIVE SUMMARY: JANUARY 2021



# Agriculture is key to sub-Saharan Africa's economy, contributing to 15% GDP and employing over 50% of the population

Agriculture's contribution to GDP in sub Saharan Africa (2019)<sup>1</sup>, %



## AGRICULTURE IS CENTRAL TO SSA ECONOMY – SHFS ARE KEY

- Contributes 15% of GDP
- Employs >50% of the population
- c. 80% of the agriculture output is contributed by c. 33m of Small Holder Farmers (SHF)
- 40-50% of SHF are women
- Forms the bedrock of food security and nutrition
- Production of diverse and nutrient dense foods increases resilience against malnutrition and improves health outcomes

# Systemic issues impact SHF livelihoods across market, land, skills and capital, with cross-cutting gender equity and climate challenges

Systemic challenges impact SHF livelihoods and holds the sector back from achieving long-term sustainability goals and social inclusion

## Market



- Lack of access to quality and affordable inputs (e.g. fertilizers, seeds, herbicides)
- Limited linkages to off-takers and end-consumers
- Price volatility driven by seasonality and middlemen

## Land



- Reduced arable land due to urbanisation
- Reduced yields due to overgrazing, over-farming, extreme weather events
- Inhibitive property rights and land customs

## Skills & Knowledge



- Reliance on outdated, low productivity agricultural practices
- Limited information sharing on good agricultural practices
- Limited entrepreneurial support

## Capital & Infrastructure



- Limited access to finance
- Fragmented distribution and supply chain infrastructure and traceability
- Lack of access to new technologies to boost productivity

## Gender



- Lower asset ownership due to cultural and legal reasons
- Unequal access to enabling technology and services
- Lower engagement of women innovators

## Climate



- Deforestation, monocropping, poor soil management, over-extraction of water
- Pollution due to synthetic chemicals and poor waste management

# Emerging digital innovations can help to tackle the SHF livelihood, gender equity and climate change challenges

## Market access innovations



- **Software-as-a-Service market information** on prices, supply quantities, access routes – e.g., Viazzi Soko
- **Digital marketplaces** to connect SHF to potential buyers – e.g., Digisoko
- **Online markets** with real-time, digitized stock control systems – e.g. Twiga, Jumia

## Land related innovations



- **Climate smart technologies** such as soil testing and solar water pumps help farmers to become more resilient to the impacts of climate change
- **Regenerative agriculture** and sustainable agriculture practices supported through digital networks
- **Satellite mapping** of weather and soil to inform planting decisions and land allocation

## Skills development innovations



- **eLearning platforms** to deliver training on improved agronomic practices and increase farmers' efficiency through SMS, chatbots and/or online channels – e.g. Arifu
- **Advisory platforms** to support entrepreneurial and business management – e.g. book-keeping services
- **Women-targeted content** to engage women and close the gender gap

## Capital and Infrastructure innovations



- **Financial services** such as input loans, crowd-sourced investments, mobile money payments, savings products, payment wallets to provide working and growth capital
- **Digital tracing** technology – e.g. GPS/geo-tagging, QR codes and contactless delivery signing
- **Digitized mechanization** services such as fleet management or equipment rental to increase access to quality machinery
- **eLogistics platforms** to transport goods among value chain players and consumers

## However, digital innovators face several constraints to scale their solutions and reach SHFs

### INFORMATION



New innovators lack information and data from the field to inform their decision making and product development

### CUSTOMER ACQUISITION



New innovators face high costs of customer acquisition in establishing new field networks and building farmer outreach

### RELATIONSHIPS



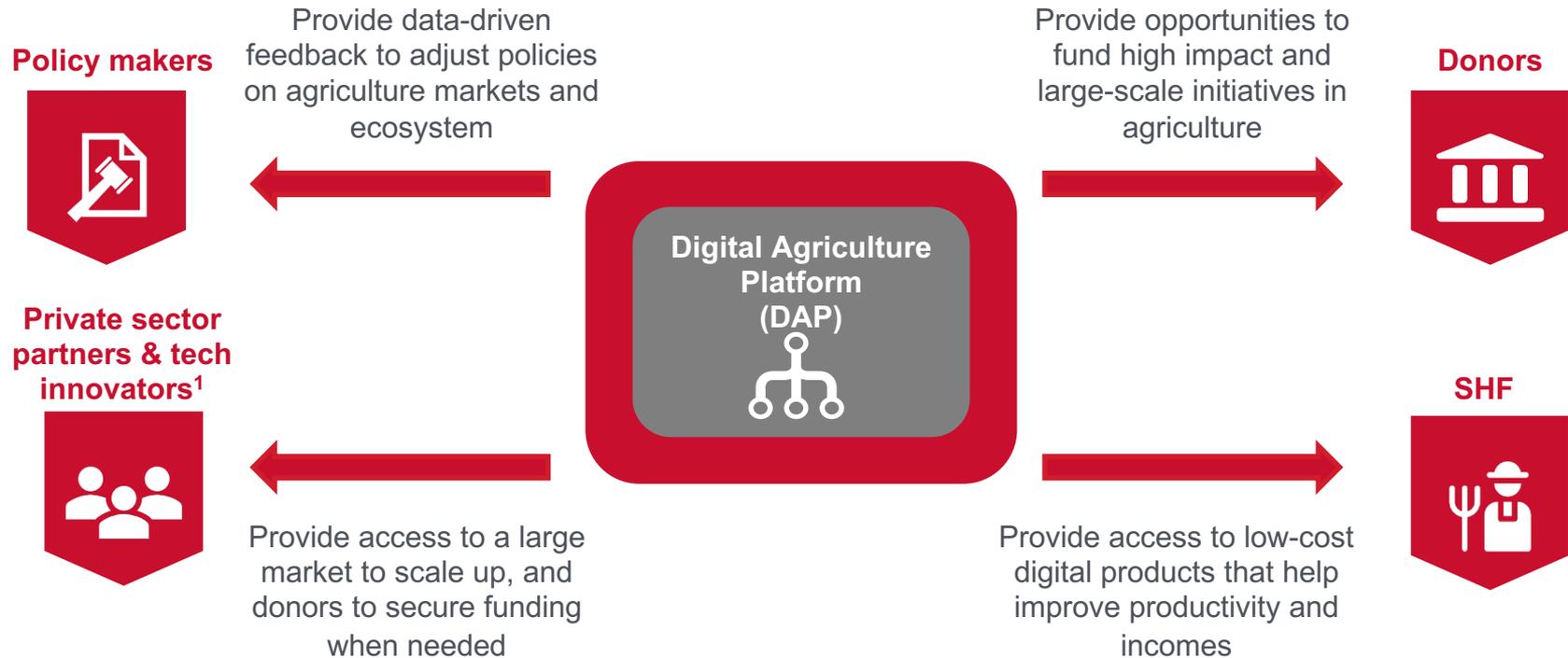
New innovators lack the established networks and relationships to build outreach to potential partners and policy makers

### ACCESS TO FINANCE



New innovators face challenges in accessing investment capital alongside cashflow constraints as they scale

# Digital Agriculture Platforms can help bring together partners across the agriculture ecosystem to maximise the impact of digital innovations



Note: <sup>1</sup>Technology innovators develop digital solutions that surpass traditional approaches to the production, sale and distribution of agricultural products and services. These include 'fintech' and ag-tech companies whose breakthrough technologies drive transformation in agricultural markets and impact for smallholder farmers.

# Today, 4 types of DAPs are most developed in SSA – platform ownership determines the initial product offering, business model and target market

Type of platform	Main driver for launching platform	Key asset(s)	Initial Product offering	Source of revenue (Business model)	Lead platform
<b>Telco operator led</b> 	<ul style="list-style-type: none"> <li>Launch a new source of revenue generation</li> <li>Build brand and move into digital space</li> </ul>	<ul style="list-style-type: none"> <li>Large customer base</li> <li>Voice and data n/w is a low / no-cost backbone to communicate with farmers</li> </ul>	<ul style="list-style-type: none"> <li>Advisory &amp; information services</li> <li>Market linkages<sup>6</sup></li> </ul>	<ul style="list-style-type: none"> <li>Direct revenue-driving products from revenue share with partners</li> </ul>	
<b>Agribusiness led</b> 	<ul style="list-style-type: none"> <li>Secure production from current supply chain</li> <li>Enhance revenue from existing customers</li> </ul>	<ul style="list-style-type: none"> <li>Ready to sell products and services</li> <li>Brand recognition</li> <li>Existing customer base</li> </ul>	<ul style="list-style-type: none"> <li>Market linkages</li> <li>Supply chain management</li> </ul>	<ul style="list-style-type: none"> <li>Profit-enhancing existing core business<sup>1</sup></li> </ul>	 
<b>Bank led</b> 	<ul style="list-style-type: none"> <li>Expand customer base and revenue stream from loan products</li> <li>Cross-sell other products</li> </ul>	<ul style="list-style-type: none"> <li>Ready suite of finance products and services</li> <li>Brand recognition</li> </ul>	<ul style="list-style-type: none"> <li>Financial access<sup>2</sup> – tied to market linkages</li> </ul>	<ul style="list-style-type: none"> <li>Direct revenue-driving products</li> <li>Profit-enhancing existing financial products</li> </ul>	  
<b>Government Institution led</b> 	<ul style="list-style-type: none"> <li>Provide open data</li> <li>Promote collaboration among ecosystem actors</li> <li>Improve farmer livelihoods &amp; food security</li> </ul>	<ul style="list-style-type: none"> <li>Wealth of agricultural research</li> <li>Trusted relationships and established reputation</li> <li>Field and county networks</li> </ul>	<ul style="list-style-type: none"> <li>Advisory &amp; information services</li> <li>Macro agricultural intelligence<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>Publicly (government and donor) funded<sup>5</sup></li> </ul>	 

Notes: 1) digitisation making existing business more efficient and scalable; 2) bank-led models reviewed here start with loans and savings products. However, variations could emerge in other bank offerings; 3) government-led platform take diverse forms (Kenya's KALRO versus Ethiopia's ATA); 4) KALRO's platform offers innovators and government collated data from users of the platform into packaged products including data analytics; 5) we have not seen government-led model that charge fees on farmers or data users. However, some cost-sharing or fee-based model could emerge in the future; 6) market linkages was specific to the DigiFarm case, but other telcos could also move into this space

Source: Dalberg Analysis 2020

# We evaluated 4 leading DAPs in SSA on 8 key elements to provide a blueprint of how the platform works and the impact that it can deliver

Lead platform



<b>Understanding the Platform</b>	<b>Overview ①</b>	Why did the organisation <b>set up</b> the platform?
	<b>Value Proposition ②</b>	What is the <b>value proposition</b> and what are the <b>products</b> ?
	<b>Operational Model ③</b>	What is the <b>operating model</b> and what are the <b>key assets</b> ?
	<b>Partnerships &amp; Collaboration ④</b>	Who are the platform <b>partners</b> and how do they <b>work together</b> ?
	<b>Sustainability &amp; Enabling Environment ⑤</b>	What are the main <b>costs</b> and <b>revenues</b> , and key <b>risks</b> ?  How does the <b>enabling environment</b> influence the platform?
<b>Assessing the impact</b>	<b>Smallholder Farmers ⑥</b>	What is the platform's <b>reach to smallholder farmers</b> , and how does it <b>improve SHF livelihoods</b> ?
	<b>Tech Innovators ⑦</b>	How could <b>innovators benefit</b> from working with the platform?
	<b>Agriculture Ecosystem ⑧</b>	How could the platform <b>improve the wider agriculture ecosystem</b> ?
	<b>Limitations and lessons learned</b>	What are <b>challenges</b> faced by platform leaders and <b>learnings</b> applicable to similar platform archetypes?

# The blueprinting of the 4 leading platforms highlighted common themes in customers, products, capabilities, business model, partnerships & environment

## 3 BUSINESS MODEL

Developing a **robust business model** enables platforms to plan a structured **product roadmap** that clearly outlines future costs and potential sources of revenue. DAPs tend to follow **direct revenue-driving, profit enhancing, or publicly funded** business models.

## 4 CAPABILITIES

Platform execution requires a **core set of capabilities such as leadership, operations and a data/technology team**, regardless of product roadmap or partner expertise. A digital platform is **not a replacement for a field force**, which remains core.

## 5 PARTNERSHIPS

Platform partnerships tend to take two forms: **implementing partners** that support the delivery mechanism to farmers, and **product partnerships** that expand the platform's offering. Partners can **accelerate growth** through new channels and products but **cannot replace core capabilities**

## 6 ENABLING ENVIRONMENT

**Government regulations** can enable or restrict platform growth, whilst a **strong digital infrastructure** alongside access to finance, **digital skills** and the **density of innovators** can spur platform adoption. Platforms can scale faster in **more mature agriculture markets** with multiple potential partners and a more educated consumer base

## 1 PRODUCTS

The initial motivation and the key assets determine the platform's **product offerings and sequencing**. Platforms initially offer a **small set of products and services\*** linked to their existing assets. There is a **convergence in product roadmap** across DAPs to support SHFs from inputs to market access.

## 2 CUSTOMERS

Platforms tend to target 'smallholder farmers'; yet farmers are diverse, and a more detailed analysis can be useful to better understand potential customers. Taking a **customer-centric approach will enable platforms to target specific segments** that are aligned with their vision and profitability requirements

# The blueprinting of the 4 leading platforms highlighted common themes in customers, products, capabilities, business model, partnerships & environment

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# Based on the blueprinting we identified principles for Platforms across 6 areas

## Enabling environment

- When entering a new market, **identify key enabling factors** and potential barriers
- **Build relationships with key decision makers**, particularly government
- **Participate in data-sharing initiatives** that expand agriculture knowledge

## Partnerships

- **Align vision and objectives with partners**; define ownership and roles and responsibilities
- Invest in partnerships that **expand product offerings and build channels** to customers
- **Set a policy** to manage **data sharing and licensing**, branding, and revenue sharing upfront
- **Start with small engagements** before expanding to full implementation

## Capabilities

- **Identify strengths and weaknesses** to optimise unique advantages and identify gaps
- **Invest in quality talent**; don't rely on technology to solve every potential barrier
- **Set clear processes with realistic targets and build them into KPIs** of directors
- **Protect and provide space for innovation and incubation**



## Products

- **Establish vision and product roadmap** to guide technology development and partner engagement
- Agree on a **minimum viable product**
- Build a **full suite of product offerings** over time
- **Gather usage data** to inform product decisions

## Customers

- **Segment target customers** to identify needs and outreach plans
- **Engage users in product design** to ensure alignment with user needs

## Business Model

- **Develop a business plan** to reflect the vision, scale, timelines and return ambition
- Consider **customer lifetime value** in **business plan** development
- Balance and **cover costs for non-revenue generating products** through **cross-subsidisation** or alternative revenue models

# Platforms can offer a predictable and accelerated path for digital innovators to scale and achieve financial viability

Platforms can help digital innovators to scale by overcoming their typical constraints



## INFORMATION

DAP can provide easy access to relevant **market and customer information**



## CUSTOMER ACQUISITION

DAP can simplify **customer acquisition** by connecting digital innovators with SHFs



## RELATIONSHIPS

DAP can act as a **'matchmaker'**, building relationships between innovators, policy makers and donors



## INVESTMENT FUNDING

DAP can **co-pitch with digital innovators for investment**, and facilitate further capital raise

## Common ways of working with DAPs

1

### REVENUE SHARING

- Partners give DAP a percentage of the revenue made through the platform
-  *DigiFarm prefers to build revenue sharing partnerships to have revenue coming from transactions and is moving field partners towards it*

2

### DATA & CONTENT SHARING



- Partners offer interesting content that encourages frequent SHF engagement
- KALRO builds non-financial, data sharing partnerships that follow bilateral agreements*
- DigiFarm builds data-sharing partnerships with content providers*

3

### PURCHASE AGREEMENTS

- DAPs purchase the services and products from partners upfront
- Other banks are open to exploring purchase agreements for some services – e.g. soil testing*

## However, alignment between innovators and platforms is key to ensure innovators can make the most of their growth opportunities

### Common challenges innovators face while engaging with platforms



**Mismatched business models** and difficulty ascertaining a fair price point



**Long/unclear partnership processes** create uncertainty



**Limited partner engagement** in decision making



**Unclear/stringent data sharing terms**



**Misaligned goals and expectations** on product sequencing and expansion



**Duplicative efforts** with the platform leader

### 9 key principles for digital innovators to get the best out of platforms

#### Before partnership

1. Build a start-up vision with a product roadmap
2. Find finance partners and secure funding sources

#### In exploration

3. Partner with platforms that share your vision and execution priorities
4. Identify and develop relationships with key decision makers

#### In discussion

5. Be patient and invest time building rapport; large platforms may not act swiftly
6. Build solid financial analysis to back up remuneration and revenue share proposals
7. Agree on data ownership, sharing, use and licensing

#### As you work together

8. Clearly define roles and responsibilities
9. Set open communication and establish integrated ways of working

# Platforms are well positioned to promote environmental sustainability through enabling access to climate-smart agriculture and data-driven insights

<b>Need for Action</b>	<ul style="list-style-type: none"><li>• <b>SHFs in SSA are at the forefront of the climate crisis</b>, they face challenges of soil erosion and degradation, whilst changing rainfall patterns and the increase in extreme weather events affect crop suitability and yields</li><li>• <b>It is possible to increase agriculture yields and protect the environment</b> through restoring forests, adopting CSA practices, employing green technology, and implementing better livestock and waste management practices</li><li>• <b>Farmers rely directly on the climate and environment for their livelihoods</b>; there is a compelling case for engaging farmers and championing their action</li></ul>
<b>Platform Opportunities</b>	<ul style="list-style-type: none"><li>• Platforms <b>link value chain actors to promote the uptake of Climate Smart Agriculture (CSA)</b> practices, technology and finance, including providing advisory services to farmers through precision agriculture products</li><li>• <b>Platforms help to collate information on agriculture activities on the environment</b>, inputting to scenarios of current and future climate emissions and impacts to inform resource allocation and enhance data-driven decision making</li></ul>
<b>Implementation challenges</b>	<ul style="list-style-type: none"><li>• <b>CSA technologies can be more expensive than alternatives</b> – for example, a solar water pump is more expensive upfront than a diesel pump, although the running cost of diesel makes it more expensive in the long run</li><li>• Behavioural norms around <b>damaging farming practices persist</b>, making it difficult to train farmers and sustain change</li><li>• There are low commercial incentives for platforms to integrate climate considerations, at least in the short run, so <b>climate products and data analysis is often deprioritised</b></li></ul>
<b>Principles for Platforms and Digital Innovators</b>	<p><i>In design</i></p> <ul style="list-style-type: none"><li>• <b>Consider climate across the business model</b> of the organisation and in each product to avoid perpetuating unsustainable climate practices for farmers</li><li>• <b>Consider climate finance partners</b> when raising capital</li><li>• <b>Develop clear MEL structures</b> that incorporate climate into KPIs</li><li>• <b>Partner with expert organizations</b> who incorporate environmental considerations in implementation</li></ul> <p><i>In implementation</i></p> <ul style="list-style-type: none"><li>• <b>Gather and share environmental data</b> such as soil quality and water use</li><li>• <b>Link CSA technologies</b> to credit products through the platform</li><li>• <b>Use the platform's field force to deliver training</b> on sustainable farming practices</li></ul>

# Platforms can help to overcome cultural and structural barriers in agriculture when they are intentional in the design, outreach and engagement of women

<b>Need for Action</b>	<ul style="list-style-type: none"><li>• Women face cultural and structural barriers in agriculture, including <b>lower access to technology, access to finance, and unequal power dynamics</b></li><li>• <b>Gender gaps in agricultural productivity</b> in sub-Saharan Africa range from 8% in Kenya, 11% in Ethiopia, and 28% in Malawi to 30% in Nigeria</li></ul>
<b>Platform Opportunities</b>	<ul style="list-style-type: none"><li>• Platforms help women to leapfrog inequities and to become more engaged in agricultural development through <b>providing direct access to finance, agronomic knowledge and market connections</b></li><li>• <b>Gathering gender-disaggregated data</b> helps to fill knowledge gaps on women's engagement, inform future product design, and build a case for investment planning</li></ul>
<b>Implementation challenges</b>	<ul style="list-style-type: none"><li>• <b>Women's unequal access to productive assets</b> such as land, mobile phones, agricultural inputs reduces their ability to take advantage of DAP gains, whilst lower digital skills limits women's ability to engage with platforms</li><li>• Gendered norms and practices, reflecting unequal divisions of labour, mean that women may have <b>less time to engage on platforms and benefit from platform offerings</b></li><li>• For platforms to progress gender equity, <b>they must be intentional about integrating women and a gender perspective</b> into the design and roll-out of their innovations – gender imbalances will not be overcome without effort</li></ul>
<b>Principles for platforms and digital innovators</b>	<p><i>In design</i></p> <ul style="list-style-type: none"><li>• <b>Incorporate gender targets into product design and MEL plans</b>, including recruiting women into product design teams</li><li>• <b>Pursue partners that bring gender expertise</b> to broaden the platform's understanding</li></ul> <p><i>In implementation</i></p> <ul style="list-style-type: none"><li>• <b>Gather data</b> to better understand and analyse gender challenges for farmers, and the potential impact of platform interventions</li><li>• <b>Ensure female representation at all levels</b>, from internal management to field agents</li><li>• <b>Embed gender goals into execution incentives</b> – e.g. higher commissions for onboarding women</li></ul>

# About this report | This blueprint was created by Mercy Corps AgriFin and Dalberg and in consultation with GIZ



## About the sponsors

**Mercy Corps' AgriFin's** objective is to develop sustainable services that **increase farmer income and productivity by 50%**. Since 2012, AgriFin has completed more than 150 engagements with over 70 partners and reaching **14 million SHF**.

**GIZ is a service provider** in the field of international cooperation for sustainable development, promoting the D4Ag Programme as bridge between **Tech Startup Promotion** and **Agricultural Transformation** in Africa.

**Dalberg's** mission is to bring the best of **private sector strategy to address global development challenges**. Offer an innovative mix of advisory, investment, research and design services.



## Objectives & Approach

**GIZ engaged Mercy Corps** to understand **how young technology innovators can be supported in scale** and operational viability by engaging with emerging models of digital platforms.

To achieve this, GIZ initiated a **Digital Platforms for Agriculture (DAP)**, a six-month initiative to work with jointly identified platform partners in Kenya and Nigeria to explore and gain insights into the key operational dynamics of emerging digital platforms for agriculture and present related learning to public audiences to drive ecosystem change.

Documents ensuing from this work include:

- **An Executive Summary (this file)**
- The Blueprints Deep-dive
- The White Paper Report



## Research Overview

Over two months, GIZ, Mercy Corps AgriFin and Dalberg used a combination of research methods

- We conducted **desk-based research**
- We analysed work from **30+ previous engagements** with DAPs and tech innovators
- We conducted **virtual interviews with 40+ companies**, including:



# CONTACT

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